Importance of Economic Evaluation in Health Care: An Indian Perspective

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ABSTRACT

Health economic studies provide information to decision makers for efficient use of available resources for maximizing health benefits. Economic evaluation is one part of health economics, and it is a tool for comparing costs and consequences of different interventions. Health technology assessment is a technique for economic evaluation that is well adapted by developed countries. The traditional classification of economic evaluation includes cost-minimization, cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis. There has been uncertainty in the conduct of such economic evaluations in India, due to some hesitancy with respect to the adoption of their guidelines. The biggest challenge in this evolutionary method is lack of understanding of methods in current use by all those involved in the provision and purchasing of health care. In some countries, different methods of economic evaluation have been adopted for decision making, most commonly to address the question of public subsidies for the purchase of medicines. There is limited evidence on the impact of health insurance on the health and economic well-being of beneficiaries in developing countries. India is currently pursuing several strategies to improve health services for its population, including investing in government-provided services as well as purchasing services from public and private providers through various schemes. Prospects for future growth and development in this field are required in India because rapid health care inflation, increasing rates of chronic conditions, aging population, and increasing technology diffusion will require greater economic efficiency into health care systems.

Keywords: economic evaluation, health economics, health technology assessment.

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Introduction

The Indian health care sector is one of the fastest growing industries and is expected to grow at a compound annual growth rate of 17% during the period 2011 to 2020 to touch US $280 billion. It is expected to rank among the top three health care markets in terms of incremental growth by 2020 [3]. Spending on health care in India was an estimated 5% of gross domestic product in 2013 and is expected to remain at that level through 2016. Total health care spending in local currency terms is projected to rise at an annual rate of more than 12%, from an estimated $96.3 billion in 2013 to $195.7 billion in 2018. Although this rapid growth rate will reflect high inflation, it will also be driven by increasing public and private expenditures on health [2].

As per the World Health Organization (WHO), in countries such as India, people who pay for their health care services suffer “catastrophic costs.” While millions suffer and die in absence of access or inability to afford medical care, many others suffer because they end up paying through debts, selling assets, and so forth [3]. Citizens’ expectations for health care are becoming high in developing countries such as India, where people are becoming accustomed to better standards. People now demand latest treatments, timely, affordable care, and a range of choices. They are better informed than ever about their health and their treatment options. They are prepared to take some responsibility for their own health, but broadly they do not want to have to pay a lot more than they already are for their health care [4].

However, the proportion of insurance in health care financing in India is very low. The extent of coverage and the type of coverage are key issues related to insurance penetration. Only around 10% of the population is covered through health insurance. India is currently pursuing several strategies to improve health services for its population, including investing in government-provided services as well as purchasing services from public and private providers through various schemes. Selection criteria by suppliers often restrict the poor (and more likely to be ill) from affordable prepayment schemes. Many patients in India have been forced below the poverty line because of health care expenditure. Nearly 40% of Indians who were hospitalized in 1995-1996 fell into debt on account of paying for hospital expenditures, with nearly a quarter falling below the poverty line as a result. The risk of falling into poverty when hospitalized ranged from 17% in Kerala to double that in Uttar Pradesh [4].

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Pradesh and Bihar [5,6]. The voluntary health insurance market, which is estimated at Rs 4 billion ($86.3 million) currently, is growing fast. Industry estimates put the figure at Rs 130 billion ($2.8 billion) [7]. It is, therefore, a challenge for health care providers to promote health using improved and cost-effective modalities for the prevention, diagnosis, and therapy of various diseases and ailments.

The goal of any health care intervention is to improve health with available preventive measures, treatments, and medical procedures [8]. The variation in health services provision across the country, along with increasing health care expenditure, accentuates the need for effective utilization of health care resources. Although economics in general provides a framework to allocate scarce resources among competing ends, health economics specifically deals with the allocation of resources in improving health. Health economics is a branch of economics that examines as well as evaluates issues related to efficiency, effectiveness, and value of resources in health and health care. Potential uses of economic evaluation include the development of public reimbursement lists, price negotiation, the development of clinical practice guidelines, and communicating with prescribers [9]. Such evaluations are important in understanding economic aspects of health and disease and limitations to the procurement of adequate health care [10].

A health care service often relies on complex technologies directed to serve medical and public health purposes. The development and adoption of these technologies are costly, which has led to increased health care costs. In addition, access to health technology is one of the most distinct differences between the rich and the poor [11]. The economic evaluation embedded in health technology assessment (HTA) has become increasingly important as a tool to assess and compare health care resources. Although economics in general provides a framework to allocate scarce resources among competing ends, health economics specifically deals with the allocation of resources in improving health. Health economics is a branch of economics that examines as well as evaluates issues related to efficiency, effectiveness, and value of resources in health and health care. Potential uses of economic evaluation include the development of public reimbursement lists, price negotiation, the development of clinical practice guidelines, and communicating with prescribers [9]. Such evaluations are important in understanding economic aspects of health and disease and limitations to the procurement of adequate health care [10].

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Health Technology Assessment

Every new technology that is supposed to be implemented in society usually goes through predefined phases of assessment to prove its worth. For health care evaluation, HTA bodies have been established to provide guidance on which technologies should be used in societies with given resource constraints [13]. It has emerged as a national-level formal process that does influence priority setting and is now considered to be a successful mechanism to deal with health care priority issues [14]. The International Network for Agencies in Health Technology Assessment has provided the following description of HTA: “technology assessment in health care is a multidisciplinary field of policy analysis. It studies the medical, social, ethical, and economic implications of development, diffusion, and use of health technology” [15].

HTA consists of appraisals using well-established evaluative techniques of systematic review, meta-analysis, clinical trials, epidemiology, and economic evaluation including the application of incremental cost-effectiveness ratios [16]. HTA is usually undertaken by specialized agencies or national organizations. In the United States, the Agency for Healthcare Research and Quality and the United Kingdom’s (UK) HTA program guided by the National Institute for Health and Clinical Excellence (NICE) [17]. In the United Kingdom, the National Institute for Health and Care Excellence has been successful in going beyond HTA by providing clinical guidance, care pathways, and implementation plans in a legally binding manner [18].

Among low- and middle-income countries, there are established HTA programs in several countries including Brazil, Mexico, China, South Korea, and Thailand [19]. In India, states such as Kerala began discussions with established HTA agencies such as the National Institute for Health and Care Excellence from other countries; however, there is to date no formal national HTA program in India [20,21]. An initiative has been taken by the Society of Pharmacoeconomics and Outcomes Research (ISPOR) in India to draft guidelines on the basis of a study of international guidelines and ISPOR. A core committee with experts from industry and academia was entrusted with the task to prepare its first draft, to be circulated among the public for wider consultations. Following this, the decision core group of experts had several meetings and deliberations and decided to place the guidelines on the ISPOR India Web site for further comment and review.

The National Health Systems Resource Centre (NHSRC) was established in 2007, under the National Rural Health Mission of Government of India. The NHSRC eyes to improve health outcomes by facilitating governance reform, health systems innovations, and improved information sharing among all stake holders at the national, state, district, and subdistrict levels through specific capacity development and convergence models. The NHSRC is also a WHO collaborating center for Priority Medical Devices & Health Technology Policy. The NHSRC currently consists of eight divisions—Community Processes, Public Health Planning, Human Resources for Health, Quality Improvement in Healthcare, Healthcare Financing, Healthcare Technology, Health Informatics, and Public Health Administration. Public Health Planning is one of the practice areas of the NHSRC encompassing both health systems and health programs. The function of this practice area includes developing health plans and programs responsive to the needs of the population, but it is also vital for budgeting and resource allocation in a systematic and equity-sensitive manner. The first compendium of HTA—an evidence-based approach to technology-related policy making for Indian health care—was launched at the 4th International Health Technology Assessment Fellowship in Chennai in August 2014. The compendium highlights the most essential health technologies required today for responding to India’s disease burden. This compendium of HTA was jointly developed by the NHSRC, New Delhi, and the WHO Country Office for India. This HTA compendium is an outcome of the fellowship program organized by the NHSRC and WHO India in 2012-2013. This unique fellowship brings together engineers, researchers, health care professionals, industry experts, and government to form a vibrant and fertile innovative ecosystem for HTA. Over the last 2 years, more than 200 professionals have been trained under the HTA fellowship program. The compendium is a critical step toward identifying and consequently filling the technology gaps in the public health sector [22,23].

Techniques of Economic Evaluation

Health care can be seen as an immediate product, in the sense of being a means to the end of improved health. To prioritize and allocate scarce resources in an efficient way, an analytical tool is required, which is able to put into perspective the costs and benefits of implementing one project instead of another, thereby creating a basis for decision making. Economic evaluation is such an analytical tool for decision making because it involves both a cost side and a benefit side, which are being evaluated against each other. The cost side is composed of costs that are involved in the establishment and implementation of the project in question. In addition, in principle the marginal cost and not the average cost is determined because it is the cost that arises
because of the production of one extra unit, that is, the cost at the margin that is of interest. Regarding the benefit side, this is composed of the “utility,” the value of the health outcome that can be received for the single patient as well as, for example, the patient’s relatives.

In publicly funded health care systems, limited resources restrict the provision of every available intervention in every situation for all who need or want it. Choices must be made among effective health care interventions, and the decision to fund one means that others cannot be funded. There is still a paucity of health economic studies conducted in India by Indian health care providers.

Economic evaluations in different types of decisions come into play when the following decisions are to be taken: decisions about drug treatments, other health care interventions/programs, investments in new technology or research, and similarities and differences between different types of decision making. Economic evaluation is most useful when it is preceded by three other types of evaluation, each of which is important:

- Efficacy: Can a health procedure or program work?
- Effectiveness: Does it work? This assesses its acceptance and usefulness when it is offered.
- Availability: Is the program reaching those for whom it is intended? [24].

For establishing the efficacy and safety of a drug, randomized clinical trials are the criterion standard for showing the efficacy, under ideal conditions, of a new drug. Cost-effectiveness analyses (CEAs) provide the basis for defining affordability; they are usually based on results of randomized clinical trials, although these trials might not predict benefits. Such analyses should be supplemented by cost analyses based on health outcomes databases, so that resource utilization and longer-term toxicity are better elucidated [24].

A more recent term used in pharmacoeconomics is comparative effectiveness research (CER), which has been variably defined by different agencies with certain common elements. CER would aim to bring together randomized clinical trials and real-world evidence to form an integral framework of comparative evidence [25]. The perspective of a pharmacoeconomic study is important because it determines the types of costs to be measured. A number of methods can be used to conduct CER, including systematic reviews, experimental studies such as pragmatic clinical trials, and nonexperimental studies including retrospective and prospective studies, which leave the choice of treatment to the patients and their health care providers [26].

Many countries have developed and implemented pharmacoeconomic guidelines to aid pricing and reimbursement decisions. These guidelines are a set of rules that outline the requirement and information needed from manufacturers who wish to have their product considered. Australia was the first country to publish mandatory guidelines in 1992 followed by Canada in 1993 [27]. Development of pharmacoeconomic guidelines by the government and requiring economic evaluations before health policy decision making may help improve the quality of future pharmacoeconomic research in India. India has highly trained medical professionals as well as a large patient pool. The country also has a large number of skilled professionals in information technology. These available resources can work together to create reliable electronic medical records and databases needed to conduct CER. The market of generic drugs in India stands as a global leader in present times. Hence, with planning and coordination, it should be possible to conduct CER and HTA of various patent and generic drugs in the country. These studies would be of benefit, not only to the nation but also to other countries with similar economies as India.

### Health Outcomes

In general, it is suggested that an effectiveness measure could be a final health output. Multidimensional health outcomes are reduced to a single index using health utilities. Examples of such utility measures are quality-adjusted life-years (QALYs) or healthy years equivalents where a common unit is determined by using a multidimensional measure of health status, which is weighted according to individuals’ preferences [28]. Most of the economic evaluation guidelines, such as that of the ISPOR and the Dutch Health Care Insurance Board, are intended to be used for clinical studies and focus on measuring health (i.e., QALYs) as the main (or sometimes only) outcome measure of interest [29].

The QALY is a measure of the length of life (expressed in life-years [LYs]) weighted by the health-related quality of life valued by a preference-based score. QALYs are designed to aggregate the total health improvement for a group of individuals in one single measure. Torrance and Feeney [30] reviewed utilities and QALYs and drew the conclusion that utilities were particularly appropriate for use as utility-adjustment weights for QALYs. Furthermore, Feeney and Torrance demonstrated that the utility measurement approach could be viably incorporated into clinical trials and used to assess quality-of-life outcomes. They concluded that “when study-specific utility instruments are carefully developed and deployed, they are reliable, valid, and responsive” [31]. Once estimated, QALYs are compared with costs in the form of an incremental cost-effectiveness ratio and comparisons across interventions and disease areas can be made using cost per QALY gained, thereby informing decisions as to whether an intervention can be considered value for money [32].

Studies have been conducted in India depicting the QALY within various therapeutic areas. A CEA at a tertiary care teaching hospital of South India evaluated the clinical and economic consequences of salmeterol/fluticasone, formoterol/budesonide, and formoterol/fluticasone in patients with severe and very severe chronic obstructive pulmonary disease. Results from the study demonstrated that the recommended use of combined inhaled corticosteroids and long-acting bronchodilators for the treatment of patients with severe and very severe chronic obstructive pulmonary disease, compared with current practice, had the potential to improve clinical outcomes, and consequently patients’ quality of life, without increasing health care costs [33]. A cost-effective analysis of universal childhood hepatitis B immunization to be highly cost-effective in India with intermediate endemicity rates [34].

The large population of cancer patients in India is grappling with the prohibitive cost of cancer treatment. The disease has wiped out entire life savings and even forced some people to sell their homes. Although relatively cheaper than in the West, cancer treatment is still unaffordable for poor and middle-class Indians, who often do not have health insurance. A better alternative to government-mandated price cuts would be to estimate a final price on the basis of drug performance, cost-effectiveness, and a country’s ability to pay. A multicentric study that included India developed a global pricing index for new cancer drugs in patients with metastatic colorectal cancer that encompasses all these attributes. A decision model was implemented in this CEA in which costs were obtained from both public and private hospitals in India. The study found a QALY gain with more than $200,000 to administer new treatment as first-line for metastatic colorectal cancer [35]. In a similar study,
decision analysis modeling was used to estimate a more affordable monthly cost in India for a hypothetical new cancer drug that provides a 3-month survival benefit to Indian patients with metastatic colorectal cancer. The base-case analysis suggested that a price of $98.00 per dose would be considered cost-effective from the Indian public health care perspective. If the drug were able to improve patients’ quality of life above the standard of care or survival from 3 to 6 months, the price per dose could increase to $170 and $253, respectively, and offer the same value. It was hence suggested that the use of the WHO criteria for estimating the cost of a new drug on the basis of economic value for a developing country such as India is feasible and can be used to estimate a more affordable cost on the basis of societal value thresholds [36].

Data used for economic evaluations are usually collected from clinical trials, which include safety and efficacy data along with supplementary data such as cost incurred during treatments. However, it has been noticed that economic evaluations bring relevant findings and findings of practical utility if the data collection is limited to few outcomes including short follow-up and less rigorous study designs. Besides these, another approach is to confine the study to the measures of the care process, say, cost per change in professional guidance adherence or patient compliance to medication, instead of measuring actual health outcomes. However, limiting data collection can have undesirable consequences, such as reducing confidence in the accuracy of the conclusions drawn from the analysis [37]. After agreement on the method to be used for economic evaluation, it becomes a useful tool in the studying and planning of strategies for implementing change in health care. In India, where fewer numbers of patients are able to afford modern medicines, a reasonable level of profit can be achieved if a drug were to become more affordable to those under need.

**Cost (Resource)**

Costs are a function of resource quantities and their unit price. Economic evaluations estimate costs related to any given health technology as health care costs (direct medical and nonmedical costs), patients’ costs, and production losses (indirect costs). Direct costs are characterized as costs that can be directly connected to the use of one or more resources needed to be able to carry out an intervention. The term “indirect cost” is used in health economics to refer to the productivity losses related to illness or death [38]. In economic evaluation, direct costs arise from resource usage, whereas indirect costs arise from loss of productivity due to morbidity/mortality. The optimal use of a technology would be achieved when the marginal cost is equal to the marginal benefit.

Because cost estimates and income levels vary in different countries, a CEA for one population may not necessarily be applicable to other populations, especially those with very different gross national products and per-capita incomes. However, results of CEA primarily directed at the Indian population would have a wider application in several developing countries that have similar medical costs and per-capita gross national product as India [39].

In Bengaluru, India, the Department of Neurosurgery of Sai Institute of Higher Medical Sciences follows a robust costing methodology for cost evaluation that includes all operating and capital, fixed, and variable cost elements. At the Sai Institute of Higher Medical Sciences, the decision on provision of health care for a patient is ascertained on the basis of evidence-based standards of care and is not biased by factors such as cost or insurance status. Cost-containment initiatives in utilization include in-house innovations such as the “stores module”—an inventory management system to ensure optimal utilization of resources wherever possible such as by avoidance of unnecessary investigations, minimizing surgical unit time, rigid infection control, and application of economies of scale—and decreasing equipment-related “cost per unit” by maximal utilization of their capacity. Since inception, its neurosurgery unit has operated on around 18,000 patients, and, as such, has contributed Rs 5310 million ($88.5 million) to the society from an economic standpoint [40]. This may be one example of optimal costing methodology that gives hope of effective costing and resourcing in health care in India.

We need to acknowledge the fact that there are still many challenges regarding cost consideration studies in India, majorly the limited understanding of health care professionals with respect to direct and indirect costs. Another important reformation, which is required in an Indian setting, is the implementation of a uniform health care policy and evaluation model to generate consistent evidence from various independent economic evaluation studies.

**Analytic Models**

Modeling or clinical decision analysis was initially developed as a tool for clinicians to quantify expected risks, benefits, and utilities (and sometimes costs) associated with alternative treatment options for individual patients. It was later adopted for structuring and analyzing collective decisions in health care [12]. The use of decision-analytic models is also a practical approach to economic evaluation and efficiency improvement.

Clinical decision models have many more uses along these lines. For example, they can provide estimates of the expected value of information to form a basis for deciding whether additional data collection is necessary or not [41]. Modeling techniques help to structure evidence on clinical and economic outcomes. It also helps to inform decisions about clinical practices and health care resource allocations. The types of models that have been used for economic evaluation in India include decision-analytical model, Markov models, and, to a lesser extent, discrete event simulation models. The choice of the use of a model depends on the objective or the question being asked, the clinical indication, and availability of data. Irrespective of the modeling technique, all models should return the same results if they are based on the same data. Decision trees are often used for treatment algorithms, health care programs, and analysis of results of short-term clinical trials for cost-effectiveness. Markov models are useful when a decision problem involves risk that is continuous over time, when the timing of events is important, and when important events may occur more than once [42].

While doing the literature search, we found that most of the studies from India are published in foreign journals and the authors of most of these model-based studies are working outside India. For example, an economic evaluation was carried out to investigate the cost-effectiveness of administering tranexamic acid (TXA) for the treatment of significant hemorrhage following trauma in India, Tanzania, and the United Kingdom. The LYs gained were estimated from a simple Markov model. The study showed that early administration of TXA to bleeding trauma patients is likely to be highly cost-effective in low-, middle-, and high-income settings. Early administration (within 3 hours) of TXA would cost $66 per LY saved in India. However, it was important to demonstrate that it was likely to be cost-effective in countries with much more limited health care budgets, such as Tanzania and India where because of the high number of trauma victims this simple intervention can avert thousands of deaths every year [43]. Similarly, a CEA in India compared serological testing for tuberculosis with other strategies used for its
diagnosis. The decision-analytic model was used, and costs were estimated using data from private laboratories in India. The study showed that flexible and accessible analytic tools are needed for decision makers to adapt large-sample cost-effectiveness data to local conditions [44]. A study from South India used the Cost-Effectiveness of Preventing AIDS Complications International model, a computer-based, state transition model of HIV and TB combined with data of a clinical trial from the National Institute for Research in Tuberculosis. The analysis showed that a 3-month course of isoniazid plus rifampin and a 6-month course of isoniazid alone both decrease TB incidences in HIV patients. The therapy also came out to be cost-effective by WHO criteria [45].

**Health Economics and HTA in India**

In developed countries, health economics has typically been the domain of microeconomists, who apply the tools of economic theory to resource allocation in the health sector. However, in developing countries such as India, there are lots of hurdles in the development of effective HTA. The reasons include lack of professional experts, noneffective reporting system, and low budget allocation. In India there is no national health service; hence, payment for medical care is mainly from out-of-pocket spending for most of the population [46]. However, there are a number of patients who are covered by state- or employer-funded health care or personal health insurance. For example, the Armed Forces Medical Services of India are unique in that they provide comprehensive health care to their serving personnel and families. The Armed Forces Medical Services serve the citizen even after retirement, with those with disabilities followed for a long time. Thus, parameters such as overall survival (the most important end point for any trial), progression-free survival, time-to-next treatment, and quality of life (full employability or fitness) can all be evaluated because they have the capacity to provide data on mortality, periods of hospitalizations, low medical classifications, and employability.

For both groups of patients, insured and noninsured, HTA would be required, given the constraints of budgets. India’s tryst with health insurance programs goes back to the early 1950s, with the launch of Employees State Insurance Scheme (in 1952) and Central Government Health Scheme (in 1954). To meet the need for tertiary care while providing financial security to people with low incomes, several states in India have rolled out social insurance programs that provide free tertiary care to households below the poverty line [47]. The Vajpayee Arogyashree Scheme was launched for this purpose in February 2010 in Karnataka, Rajiv Aarogyaari in Andhra Pradesh, and Kalaignar’s Insurance Scheme for Life Saving Treatment in Tamil Nadu.

Government and insurance providing agencies therefore are expected to take decisions in all aspects of the health technology to be considered. HTA can help, first, by determination of a package price of cost-effective and safe interventions and hence help in cost savings in the already resource-limited environment. This would indirectly help strategic purchasing (negotiating price from providers being in a large risk pool), achieving technical efficiency (how much to buy), and allocative efficiency (which services to buy). Second, HTA can provide evidence of effectiveness of interventions, aid regulatory bodies to exercise better regulatory control over insurance-implementing organizations, and help standardization of rates of packages by third-party administrators [48]. There are limited resources for carrying out robust economic analysis in India. Along with a lack of trained professionals, there are likely to be data collection and reporting deficiencies in the early years of HTA. In a review of the quality of existing pharmacoeconomic studies carried out in India [49], recommended a standardized set of guidelines for these studies and improved pharmacoeconomic education to produce skilled professionals who can produce high-quality research [50].

**Conclusions**

Economic assessment is a part of good quality medical research and is required for technology assessment. In an ideal research world, clinical and economic data are collected simultaneously. Most reliable estimates of cost-effectiveness can be obtained when good quality epidemiological and cost data are combined. HTA can form the foundation of comparative research concerning future investments in health care, in developing markets such as India. HTA allows like-for-like comparison of medical, surgical, and public health initiatives. The ultimate goal of health economic evaluation is to support evidence-based policy decisions. It is always essential that the research being produced be of interest to decision makers. This can be made possible with a combined effort of health institutions, researchers, and decision makers. Little attention has been paid to the micro aspects of health economics in India. A radical change in the approach of the government is required to implement policies regarding the efficient health care evaluation. Expenditure toward health care must be raised, so that it could bring about a reduction in out-of-pocket spending toward health care. Private voluntary health insurance cover should be encouraged and made available for the bulk of the employed population, and the model should be replicated for community-based health insurance for citizens working in the unorganized sector.

With appropriate adjustments made to take account of the clinical and economic realities of Indian health care, as well as the cultural, ethical, and philosophical considerations pertinent to local policy making, these methodologies can form the basis of decision making on pricing, reimbursement, and future investments in the Indian health care system.

**References**


