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Health economics: Theoretical considerations and scope for application in the Indian context

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ABSTRACT

Aims: To familiarize physicians about role of health economics, applications and scope in the Indian context.

Methods: Review of existing literature.

Results: Health economics as a new discipline in India is described. The definition of economics and why economics is important to the physician is discussed in detail. The case of economics in clinical medicine and public health, economic evaluations, characteristics of health care market, market failure, and information asymmetry are discussed. The conceptual basis and types of economic evaluations are described along with an overview of health care financing and studies from the Indian context.

Conclusions: After describing the challenges in practice of health economics the scope for health economics in India is described.

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1. Introduction

Health economics is a growing subject in India. In the international scenario, health economics had its conceptual origin long back with the support of organizations like WHO and International Clinical Epidemiology Network.^{1–3} During subsequent decades, the practical applications of this got conceived slowly in the industrialized countries. In India, health economics is a nascent discipline waiting for popularity even among the academia. Economics is a vast subject and this country has contributed great economists like Amartya Sen who also expressed interest in areas of health economics.⁴ Health economics needs convergence of thoughts of health professionals as well as pure economists. In many western schools of medicine pure economists work as regular faculty and are seen involved in research and teaching. Physicians are benefitted by this association. We are

not sure whether this model will work in our context, but popularizing this discipline is the need of the hour. Health economics, like other members of the ‘social science basket’ has more elusive principles for understanding by physicians and theoretical underpinnings which seems to be arcane to most of them. Standard text books of medicine now dedicate chapters exclusively for this new discipline.^{5,6}

2. What is economics about?

“Economics is the study of how men and society end up choosing with or without the use of money to employ scarce productive resources, which would have alternative uses to produce various commodities and distribute them for consumption now or in future among various people and groups in society.”⁷ Economics is all about resource use. The ‘Rock

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hard' assumptions of economics are that resources are limited and demands for resources are unlimited. For every resource use, choice is to be made from among the competing alternatives. When a resource is used for a purpose, the opportunity to use it for something else is lost and this is the concept of opportunity cost. The value of resources which is called cost can be measured in quantitative terms.

3. Why economics is important for the physician?

Like the concept of prevention in practice of medicine, concept of cost also should be the concern for every practicing physician. Every doctor should be conscious about cost for ensuring efficiency of practice of medicine. The concepts of efficacy, effectiveness and efficiency are important in health economics.⁸ Achievement of stated goal for an intervention, when used in optimal conditions is called efficacy. The demonstration, that an intervention does more good than harm when used in usual or actual circumstances is effectiveness. When a patient or the physician takes a decision, the important concern is whether the patient gets the best outcome for the resources incurred. This is efficiency, which is the maximum level of effectiveness obtained at the lowest cost. Generally clinicians need to make choice to favor the most efficient option. Efficiency at the individual level can be considered as utility maximization for the consumer. Thus health economics is important for the physician, primarily because of efficiency concerns.

4. Arguments and counter-arguments about application of principles of economics

There is an argument that practice of medicine is special and many situations are beyond the scope of application of principles of economics. Moreover the patient has limited choice because; the physician or administrator makes decision. When is the patient to be admitted? Which drug to be used? When to be operated? How many days to be hospitalized? The physician decides all these. The patient is always a different consumer because of the asymmetry of information and uncertainties unique to practice of medicine. In a situation of emergency, the physician is ethically bound to do something to help the patient. The scenario is further complicated by the intangible elements in both process as well as the outcome of care. Though this is the case, the most important factor, which determines all these choices, is the paying capacity of the patient. It is the income of patient, which decides whether these choices are to be considered or even a doctor would be consulted. Moreover there is the practice of informed choice, where the doctor explains everything to the patient and then asks for the choice. So the choice depends on the paying capacity of the patient and in every situation money only matters. The very fact that medical care is purchased envisages the demand function and the transaction is to be considered like that in any other market, where price of care determines the quantity demanded.

Practice of medicine at bedside is concerned with pain and suffering, and hence dominated by human considerations than scientific temper. Sometimes there is no place for choice and something needs to be done urgently. To do an option is urgent, and choice is most often limited. Looking for the competing alternatives may not be ethical because delay tells on the life of the patient. In this setting one can doubt whether economics has a place in practice of medicine. Certainly the answer is yes. The delivery of an emergency service can never be postponed, but the preparedness for emergency service is to be undertaken after spending sufficient time. In this process there is choice for resource use and economic principles can be applied to favor a choice among competing alternatives. All this justifies the case of economics in medicine and indisputably proves that markets for health care do exist.

5. Health care markets

Market is the structure where exchange of goods takes place based on their valuing or utility maximization by the consumer. Market for medical care depends on the market for component services like physician services, laboratory services, 'hospital hotel costs' etc.

Let us discuss why health care market is special? Though health care consumed by individuals can be considered as any other good, it is not a private good because purchase of health benefits the consumer and also others who are not involved in that specific purchase transaction. So health is considered as a merit good or public good. The benefit or harm caused to reach others by way of this transaction is called externality. Suppose a child is immunized against measles, this immunity prevents transmission of disease to other children. This is the basis of herd immunity and is an example of positive externality. Similarly passive smoking is an example of negative externality. Externalities make health, a merit or public good rather than a private good. This is one of the causes for a phenomenon called market failure.

6. What is market failure?

In health care field, economic principles of market transaction have limitations to be applied because of the existence of factors which interfere with optimal allocative efficiency of a typical competitive market. In an unregulated and typical market, competition ensures quality and consumer satisfaction. The failure to apply this principle of competition is simply market failure. Governmental intervention or regulation is another cause of market failure. The exchange of resources does exist in private as well as in public setting. Purchase of medical care is competitive in private setting while this is an example of market failure in the public setting.⁹

7. Other characteristics of health care market

In the field of health care market, the consumer–supplier relation is not simple and physician has the role of an agency

relationship. It is the doctor who makes the choice for the patient and thus acts as an agent for the patient. The value for money though, spent from somebody else's pocket, should be more diligently respected. The administrator deals with public or taxpayer's money and while taking policy decisions, anything from the exchequer should be spent more carefully.

Different people perceive illness differently and the tolerance of pain also varies considerably. Most of the consequences of illness especially the agony and distress produced are not easily measurable or otherwise called intangibles. This makes outcome measurement more complex and costing of intangibles also is more difficult.

Now everybody has access to resources and electronic search engines help people to be informed about the disease, even before meeting the physician. The complex nature of variation in disease pathology and biological difference between human beings contributes to considerable information asymmetry between the health care provider and the patient. Uncertainty in disease progression or outcome is another factor which contributes to market imperfection.

Thus apart from market failure due to Governmental intervention, existence of externalities, intangibles, ethical imperatives of physician, uncertainties, asymmetry of information and agency relationship of the physician also makes health care market special.

8. Practice of health economics

Practical application of health economics can be considered in two settings, which is identical to the schism with reference to epidemiology in public health and clinical medicine.¹⁰ Clinical health economics is the application of principles of economics in the bedside setting for maximizing the benefit of the patient.

8.1. Economic evaluation in health care

Economic evaluation is the artillery in the armamentarium of clinical health economist. A physician who treats an individual patient by opting for a cost-effective intervention is making the trade-off, beneficial for the patient. This cost effective decision making is the case of economics in clinical medicine. Most of the economic evaluations are undertaken in the bedside setting and helps physician to arrive at the most acceptable incremental cost effectiveness ratio. Incremental cost effectiveness ratio tells us the extra quantity of outcome attributed to the change in unit cost, taking standard treatment as comparator.

The bunch of quantitative methodologies for establishing cost effectiveness and analytical tools for justifying choice by fixing uncertainty is now becoming more and more popular. This has become mandatory with drug trials in few western countries. Among these techniques cost minimization is the simplest one, but is considered as a partial economic evaluation.

Among the full economic analysis, cost effectiveness analysis is the most familiar technique attempted by physicians. Outcome in cost-effective analysis is expressed in natural units of measurement. Outcome measurement in cost-

utility analysis is quality adjusted life years gained. This is complex and is based on principles of game theory. Cost benefit is considered as a better method because comparison with sectors other than health is possible with this technique. The toolkit for economic evaluation is described in many standard books like that by Michael F Drummond et al.¹¹

Public health economics helps physicians, 'physician-administrators', and health policy officials in decision making concerned with broader view point of resource allocations.¹² This is generally at societal interest, where social marginal opportunity cost is the one considered. Marginal cost is defined as the increase in total cost resulting from raising the rate of production by one unit.¹³ The consideration at societal interest is more of allocative than technical efficiency and equity considerations also matters. The linkages between efficiency and equity in health system can be better understood at the societal level, where efficiency is considered as Pareto-efficiency. This is defined as the point in the budget line at which nobody can be made better off without making others worse off. This welfare economic principle of Pareto-efficiency is the theoretical foundation of economic evaluation.

Health of individual is the primary concern of any organized civil society. Access to health care is considered as a fundamental right ensured through the constitution of India. The commitment to provide universal health care as a right of the citizen is being considered seriously by many governments but there are criticisms also.¹⁴ Practice of evidence based public health policy has incorporated cost effectiveness aspect in decision making and literature explaining methods for supporting health policy development toward this direction are available.¹⁵

Classical economics now moved far ahead toward neo-liberal theories which explain the current market behavior. The theories of globalization, liberalization, regulation and structural reforms are the focus of such discussions in economics. Regulation is considered as one of the solutions for market failure and since health system is a typical example for market failure this may be an appropriate prescription to improve internal efficiency in health sector markets. Reforms allow the Government to take friendlier attitude toward external investors and hence can invite more trade. More harmonious and fruitful private public partnership is expected and this can improve the overall performance and efficiency of public health systems resulting in improved access, quality and cost savings.

9. Health economics in the Indian context

The manifold applications of health economics are yet to become popular in India. Recent growth of insurance market in India paved grounds for origin of health economic literature. A brief sketch on Govt. sponsored health insurance in India with detailed description on cost containment is discussed in a World Bank sponsored study.¹⁶ High out of pocket spending is the cause of catastrophic shock which is increasingly being disclosed by the following other studies. Saumya Misra and team describes the burden of Out of pocket expenditure across income quintiles in urban Lucknow.¹⁷ The authors emphasize

the need for introduction of insurance, especially for the poorer sections to absorb high indirect health expenditure. The relation of Janani Suraksha Yojana program and out of pocket spending was studied by Hanimi Reddy and team, illustrating the example of birth deliveries in India.¹⁸ Kent Ranson describes an instance of financial protection through a non-governmental organization named SEWA.¹⁹ This is an example of social insurance model to prevent catastrophic shock. The case of cost savings incurred by opting cost-effective treatment regimes in the form of standard treatment guidelines was studied and described by Federation of Indian Chambers of Commerce and Industry (FICCI) study group.²⁰ The costing framework for standard treatment guidelines is described in this study. The experience of macroeconomic adjustments and reforms is illustrated by Slim Haddad, Eris Baris and Delampady Narayana.²¹ The flexibility of the health systems to cope up with macroeconomic instability and policy choices within the health sector are discussed with examples from Burkina Faso, Thailand, Mexico, Colombia, Zimbabwe and Kerala. The applications of health economics in medical education in the form of integration in to curriculum is described by Shreyasi Sharma.²²

10. Health care financing in India

Financing for health sector in India is planned along with the five year plans. It was expected to increase the total public funding (both plan and non-plan) from 1.04 percent of Gross Domestic Product (GDP) in 2011–12 to 1.87% of GDP by the end of the 12th plan.²³ A review of India's health care financing systems is given in the high level expert group report.²⁴ The review says that India's health care spending is comparable to other countries like Sri Lanka, China and Thailand. The country's public spending on health as a proportion of GDP is lowest in the world. One of the consequences of this low public spending is the remarkably high out of pocket spending for health. Ninety percentage of world's population is estimated to suffer from catastrophic health spending which is defined as spending more than forty percentage of the household income directly on health care, after basic needs have been met.

11. The challenge of data gap

One of the most disturbing challenges for any researcher attempting health economic analysis is the non-availability of relevant data for analysis. The prevailing culture in our country is to get satisfied with accountancy practice. Cost accounting is a totally different field which lacks the theoretical underpinnings and assumptions of economics. Accountancy deals with the practical side of planning to spend money and assessing the returns while economics deals with the rhetoric but scientific explanations or predictions on resource use. In general economists especially from the academic departments are more in the practice of using secondary data, while public health people prefer to resort to primary data collection in the form of surveys. One of the sparkling hopes about insurance industry is the insistence on documentation through

information technology enablement. In some parts of India, e-health has become an equally enjoyable partnership model for both engineering as well as medical profession and the bonus is being enjoyed by health economist.

12. Conclusions

Economic evaluations, budgetary analysis, economic considerations of health policy, health expenditure studies, financial protection against catastrophic shock in the form of insurance systems are major areas of concern for health economic analysis. The type and characteristics of health care market, determinants of supply and demand, and regulation of the market are other areas for study. In short, economics in medicine is about measuring opportunity cost, doing economic evaluations for efficient resource use and prescribing strategies for providing health care, irrespective of paying capacity of the patient, in an efficient manner ensuring equity. The application of economic principles in health care helps physician to make better choices for patient. It also helps administrator to make more meaningful decisions on resource allocation. Health economic studies also describe the phenomena and behavior of health care market, predict functioning of health systems, and provide policy prescriptions for public health practice.

As health economics is becoming more and more visible, the application in health sector is more appreciated than that in any other contemporary fields. This will certainly lead to more debates and dialogs based on conclusions from reliable data on expenditure and outcomes. Making choices in the setting of limited resources, either for the individual patient in a clinical setting or for public health decision making by the administrator are becoming more and more challenging and distressing to the ignorant physician because, available support materials enable the critics to become more aggressive and to take over to drive the wagon. This perhaps forces the physician to go in search of the esoteric concepts of health economics. By all means it is better that physician or administrator, also become aware of these support tools from health economic literature. Policy makers should facilitate capacity building of health professionals through creating more training opportunities and making infrastructure facilities readily available. In that case the physician will be all the more happy to collaborate with a pure economist who approaches the former for studying health sector. Such partnerships only will benefit the society through development of health economics as an august discipline.

Conflicts of interest

The author has none to declare.

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