Usefulness of clinical economics in managing a complex hospital system for better patient outcomes

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Clinical economics or medical economics refers specifically to the economic aspects of clinical decision-making and practices in the healthcare realm, especially at the individual patient level. It is essential for management of complex hospital systems by optimising resource allocation, driving quality improvement, promoting patient-centred care, reducing disparities, informing health policy, and managing clinical as well as financial risks. By integrating economic principles with clinical practice, hospitals can achieve better patient outcomes while ensuring the efficient use of resources. The practice of clinical economics includes cost-effectiveness analyses of different treatment options, resource utilisation in clinical settings, and other economic considerations in the context of individual patient care. It could also assist in balancing the focus from the perspectives of patients, doctors and managers by reaching a consensus among them with regard to different perceptions and values for clinical decisions. Training in clinical economics should therefore become a mandatory component of education for all healthcare professionals, and should include continuing professional education (such as conferences and journal clubs), recertification programmes and practice guideline development.

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The increasing cost of medical care has given rise to concern among governments and health professionals worldwide, as well as in populations affected by the cost increases. This situation is compounded by innovations in health technologies (drugs, devices and procedures), constantly increasing needs and demands of populations, emergence of new pathologies, and demographic changes.[1] With limited capacity of the healthcare system to handle the accumulation of these factors, healthcare decision-makers have recognised both the need for prioritising competing uses of healthcare and the key role that a transparent, structured and evidence-based process can play in decision-making.[2] Governments across the world are recognising the need for more research into clinical strategies in the hope of exploring variations in medical practice and reducing healthcare costs. Professional societies, medical insurance companies and businesses are also trying to find ways to minimise costs by controlling utilisation of medical services. Underlying these cost-cutting solutions is the belief that medical care can be made cost-effective, that more value can be obtained for money spent,[3] and that doctors need to play an important role as drivers of medical care.

General economic principles offer a theoretical foundation for dealing with resource allocation in an environment of continued scarcity of resources such as the healthcare field,[4] and in a free market, resource allocation should be regulated by price, ability to pay, and perfect information. Such regulation would assist market forces in optimal allocation of resources to medical care. However, there are significant market failures in healthcare that prevent a freely functioning market.[2] Owing to various factors, such as these market failures and ethical aspects of healthcare and its provision, general theories of economics may not be a viable option for supporting decision-making in healthcare, and specialised fields such as health economics and clinical or medical economics have therefore developed.

The relationship between health economics and clinical economics

Health economics is an area of economics that applies the principles of economics to investigate problems associated with health and healthcare.[5] It is typically a broad field that explores the allocation of healthcare resources, including issues related to healthcare financing, insurance, healthcare delivery and overall healthcare policy, with the aim of maximising benefits by the most effective use of available resources[6] based on a legitimate framework to guide decisions around healthcare resource allocation.[7] However,

health economics has a number of limitations, such as complexities of health systems and ethical considerations. It has been observed worldwide that authorities allocating resources to healthcare may have competing commitments, and their perspective could go against that of clinicians.[7] Ethical considerations on the part of clinicians, for example, might require them to request more resources than the system can provide. Economic models may oversimplify these complexities, leading to a limited understanding of the multifaceted nature of health. This situation is further compounded by the complexities of clinical medicine and the pathophysiology of disease, which require involvement of health professions,[8] leading to the development of clinical economics or medical economics, an important subject for doctors in management and leadership positions who are involved with decision-making in terms of allocation of resources.

The evolution of clinical economics

Clinical economics or medical economics refers specifically to the economic aspects of clinical decision-making and practices in the healthcare realm, especially at the individual patient level.[3] Use of the term clinical (or medical) economics can be traced back to a century ago, when the *California and Western Medicine* journal published a series of articles between 1924 and 1926 discussing financial and economic issues and titled 'Medical economics and public health' (readers may be interested to view the first of these[9]). In 1939, an article in the *Canadian Medical Journal* titled 'Medical economics' raised the economic challenges of delivering medical services in Alberta Province in Canada.[10] Furthermore, Kenneth Arrow's[11] seminal paper 'Uncertainty and the welfare economics of medical care' (1963) probably laid the foundation for clinical economics, focusing on development of an understanding of the unique characteristics of clinical care in a healthcare market, including information asymmetry and the role of insurance. In 1993, Sommers[12] from South Africa, in an article on clinical economics published before the first democratic election in 1994, proposed that economic and financial analysis in the healthcare setting should be used for decision-aiding rather than decision-making, and that final decisions should continue to be made within a clinical rather than an economic framework. He emphasised the social responsibility of the medical profession to ensure maximum yields from limited resources available for healthcare in both developed and developing countries.

The practice of clinical economics

The practice of clinical economics includes cost-effectiveness analyses of different treatment options, resource utilisation in clinical settings, and other economic considerations in the context of individual patient care. For example, in a hospital setting, clinical economics could be useful for optimisation of resource allocation and improvement of patient outcomes, and could enhance the overall efficiency of healthcare delivery by applying economic principles in clinical care. Knowledge of both clinical medicine and economics would be required for effective decision-making.[3] Clinical economics could also provide a systematic framework for allocation of resources in a health facility in the context of a limited budget and increasing demand in that facility. It could play a valuable role in informing health managers and professionals at such a facility. Furthermore, it could assist frontline doctors in identifying alternatives that are good value for money at the patient level.[2,13]

The usefulness of clinical economics may lie in the implementation of findings from clinical research. For example, results obtained from randomised controlled trials (RCTs) should be tested under real-world conditions using clinical economic tools for demonstration of their effectiveness, as an RCT can never reflect a real-world condition.[14]

Clinical economics could also assist in balancing the focus from the perspectives of patients, doctors and managers by reaching a consensus among them with regard to different perceptions and values. Porzsolt and Correia[14] proposed that doctors and patients need to figure out how much they have to give away (the costs) and what they get back (the consequences or benefit), instead of just looking at the costs. They proposed that clinical investment is the 'price' a patient pays for accepting a management plan, including consultation, diagnosis and treatment, and the 'profit' is the value the patient gets back from his or her investment. Doctors do not usually consider this trade-off, disregarding the amount of the investment and overestimating the returned value (effect size). However, 'price' and 'profit' could vary among patients. For example, the value a footballer would put on successful surgical repair of his or her leg could be much higher than the value a lawyer might put on the same surgery, because the proper function of the leg is professionally important to the footballer.

Clinical economics could also assist in clinical decisions using decision analytical models,[15,16] by maximising benefits and improving healthcare outcomes while at the same time optimising costs. Under the Hippocratic Oath, frontline doctors seek the best care for their individual patient, regardless of the impact of their decisions on the remaining patients seeking care and the costs borne by society as a whole. They have to take difficult decisions on a daily basis with complexities of time pressure and management of multiple goals, while complying with the principles of the Hippocratic Oath. However, this situation should not prevent medical practitioners from practising evidence-based medicine to meet the best interests and values of their patients.[17] Lessard *et al.*[17] proposed that 'the real cost of any health decision is the health benefits achievable in some other patient which have been forgone by committing the resources in question to the first patient'. For example, a simple decision to prescribe a new drug or perform a laboratory test could affect the allocation of other healthcare resources. Understanding the economic component of decision-making may therefore help doctors to comprehend the challenges associated with the use of a new treatment promoted by a sales representative for a desperate patient in need of fresh alternatives.[18]

This paradoxical situation of using an economic framework in making a clinical decision could aid in optimal use of resources in specific areas of a health facility, as listed in Table 1. By incorporating these activities, hospital management could navigate the economic complexities of healthcare delivery in collaboration with frontline doctors and medical managers, thereby promoting sustainability and enhancing the overall patient experience. This approach could

Table 1. Considerations within the realm of clinical economics for patients

Care co-ordination	Enhancement of care co-ordination among healthcare providers would ensure seamless transitions between different stages of care by implementation of communication strategies and information-sharing systems to facilitate co-ordinated care among various healthcare team members.
Value-based care	Alignment of clinical practices with value-based care principles, focusing on positive patient outcomes and experiences based on implementation of clinical care models, could refine treatment strategies (based on evaluation of the cost-effectiveness of various treatment options to ensure that patients receive high-quality care without unnecessary financial burdens through consideration of the economic impact of medications, medical procedures, and diagnostic tests when developing treatment plans) and optimise resource allocation (including personnel, equipment and facilities to provide efficient and effective care by implementing strategies for managing patient flow, bed utilisation and other resources by meeting patients' needs while minimising costs).
Patient-centred care and shared decision-making	The patient's preferences, culture, values and economic situation should be considered during the development and implementation of treatment plans, with the patient engaged in shared decision-making and provided with information on treatment options and their economic implications. Planning of treatment should include both the affordability of the treatment from the hospital's perspective and its accessibility and affordability to the patient (based on consideration of the financial impact of healthcare decisions on the patient through discussions of recommended treatments with the patient and the family).
Transition of care	Transition from a curative to a preventive model (by implementation of strategies for managing chronic diseases efficiently, emphasising preventive measures and reducing the need for costly interventions) and considering care transitions (such as from hospital to home or between different healthcare settings, thereby reducing the risk of complications and readmissions, and associated economic costs).
Data-driven quality improvement initiatives	Use of economic principles to measure and analyse patient outcomes and quality metrics would be able to drive continuous quality improvement efforts based on identification of factors affecting patient safety and satisfaction, and overall quality of care. This process should be data driven, based on analysis of data on resource utilisation, patient outcomes and costs to identify areas for improvement and optimise hospital operations.

contribute to a healthcare system that is economically viable, outcome based and patient centred.

Using an economic framework in clinical decision-making would assist doctors who are in management positions, such as medical managers and clinical directors. Doctors in such positions work simultaneously with sets of ideas from clinical practice and from management and are involved in complex negotiations between health professionals and managers, so incorporation of clinical economics in their professional training could become increasingly significant in the organisational development of the health facilities in which they work.

The role of working with key stakeholders

A public hospital environment, being a social system, would be expected to have a range of key stakeholders with vested and often competing interests. Some of these stakeholders would be clinicians, clinical managers or hospital managers (who are often budget holders), labour formations, patients and government officials. To adequately address the expectations of the community and their patients, clinical managers and clinicians require a methodology that takes into consideration a range of interests, perspectives and world views, which may be at loggerheads. Soft systems methodology as a management tool can be applied to create a deeper understanding and develop a balancing act in this potentially messy and complex environment, that can undermine the work of clinical managers and clinicians alike.[19] This management tool was successfully used to link healthcare and long-term care delivery systems in Japan.[20]

Conclusion

As doctors continue to expand their role beyond providers of clinical care to participating in decision-making structures, it is imperative that they have a broader understanding of economics and decision-making processes in order to assist managers and policy-makers in making the best use of available healthcare resources. Doctors who occupy management positions, such as clinical managers and directors, could also benefit from this understanding. In this regard, frontline doctors and medical managers need continuing education in clinical economics and to understand that in a constrained healthcare system, every decision doctors make for every patient they treat has an opportunity cost in terms of what cannot be done for another patient. Not only should training in clinical economics become a mandatory component of education for all healthcare professionals, especially doctors, but clinical economics should also become a more important component of continuing professional education (such as conferences and journal clubs), recertification programmes and practice guideline development.[2]

Declaration. This article was written as a part of a series on medical management, not for any postgraduate study project, but for the benefit of medical managers and any other colleagues with an interest in medical management and health leadership.

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