FORUM

Is Cost-effectiveness Analysis Necessary for National Health Insurance?

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Introduction

There can be no doubt that the basic objective of the Taiwanese National Health Insurance (NHI) is to maximize population health. The fundamental task of this publicly accountable agency is, although not explicitly addressed, to improve the health of the population and reduce inequalities in health within the population. Devices are therefore needed to promote appropriate supply of appropriate quality to the appropriate group of people. In other words, particular criteria should be set up to allocate resources to particular uses.

Effectiveness and efficiency, weighted by equity goals, are thought of as necessary when the NHI is pursuing its objective. This representation leads to evidence-based medicine (EBM) and reimbursement policies as a guide for realizing the social benefits. Different allocations of resources may be judged by how well they achieve generally agreed-upon measures of social benefit. This paper argues that EBM and reimbursement policies are not complete if they are introduced separately. The principle of cost-effectiveness analysis should also be considered.

Why are EBM and reimbursement policies incomplete?

EBM provides a useful synthesis of current knowledge about effectiveness and a good basis to inform decision makers about resource allocation. This is important not only because effectiveness is essential for the improvement of patients' health, but also because there can be no room in a "publicly subsidized" health care system for treatments that are not effective. Therefore, we need to know which are and which are not effective and for which patient groups.

The proponents of EBM tend to contend that the relative efficacy of the competing interventions is the best way to choose where the money should be spent. This involves a belief that the quality and quantity of life will be maximized if each care provided is proven to be efficacious. Allocating resources to relatively ineffective care would be a source of inefficiency. This is also unethical because it unavoidably deprives people of beneficial health care. Resources should thus be concentrated on where they offer the greatest health improvements. Any care that brings patients greater health gains should acquire a higher priority.

However, EBM can be a useful but incomplete method if clinical effectiveness alone is allowed to determine which patients should be, and how they are, treated. First, patients' preference appears to be different from that of medical professionals.[1] They may have very different willingness to pay to have their life prolonged or shortened from the physician's perspective. If treatment decisions are dominated by best evidence of clinicians' beliefs, a rational evidence-based intervention can turn

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out to be inappropriate, wasteful and futile. In this case, we may need an indicator that incorporates patients' opinions into consideration, such as the quality-adjusted life year (QALY), instead of simple increased life expectancy.

In addition, each health intervention delivered yields a health improvement and entails a cost.[2] The rising costs of health care have been a great concern in all countries. If all physicians provide the most efficacious treatments to all the people who might benefit from them, it may raise, rather than lower, the cost of their care. The problem is that the resources a country or individual is prepared to spend on health care provision are finite. No country, not even the richest, can afford to carry out all technologically feasible and clinically beneficial procedures that are now available. The gap between what is possible and what is affordable is therefore widening. Failure to acknowledge this can lead to inefficiencies and inequities that compromise both objectives. Conflict, and the need to trade off between effectiveness and costs, is inevitable, shifting the NHI's task from simply increasing effectiveness toward maximizing health outcomes. Choices have to be made.

As regards reimbursement policy, it involves a selective use of financial incentives to lead health care providers to offer desired care, whereby the NHI can achieve its fundamental goals efficiently. The rationale is twofold. First, financial returns play a role in the medical care sector, determining professionals' practice pattern and so the bulk of resource allocation. If appropriately targeted, the provision of (all) good practices, such as those interventions supported by EBM, will be encouraged. Furthermore, a well-designed reimbursement method induces providers to supply care at the lowest resource costs. This enables the NHI to afford to provide more patients with more services of good quality. Taken together, the maximum societal health improvement can be achieved subject to resource constraints.

However, cost consciousness in a reimbursement system seems to have attracted greater public interest, which turns out to be the pressure of controlling medical expenditure to an "affordable" level. A good example is the introduction of the prospective payment system (PPS) and global budget system by the NHI in recent years. Both represent an explicit attempt to control yearly medical expenditure and its increase within an agreed level. Literature has indicated that physicians appear to reduce costs at the expense of quality or health gains. Issues thus arise when no parallel attention is paid to the desired outcome. One is indeed the question of what, and how much, health gain is offered to patients under a particular reimbursement policy, and how these gains are affected by any change made to this policy. The other is the question of under which condition would cost incentive outweigh quality concern, or more specifically, under which condition would good practice be too costly and therefore "deterred".

Obviously, without this information, we would not be able to identify the links between a reimbursement system and its final impact on people's health. We also would not be able to build appropriate guidance on which physicians rely to judge whether a service of some effectiveness should be cut against its cost. It is very unlikely that the single pursuit of the lowest cost objective can be achieved while at the same time ensuring that medical benefits offered to patients remain at an acceptable level. Further, if incentives in the provision of care vary for non-clinical reasons and are distorted, the service and quality that patients receive, and therefore the distribution of health across population groups, will also vary. That is to say, when care is not supplied based on need, population health will not be maximized, and resource use is inefficient. This equally would be a source of inequity and inefficiency. People who expect that financial incentives can be used to reach all NHI objectives are bound to be disappointed.

One may argue that well-controlled medical expenditure would allow more people to access more health care, and the equity target can then be attained. However, a national agency should consider more than improved accessibility, but also equity of health. That this objective is attained by

increased accessibility is justified only if the connection between health outcome and increased utilization is established. If the increased use of care does not involve "approved" effectiveness or is not of the same quality, we can never be sure if people's health is improved by better accessibility.

Why is cost-effectiveness analysis necessary?

If all these arguments are accepted, it becomes explicit that using EBM or reimbursement policies separately to maximize the health of a population is incomplete. So, resource allocation can no longer simply be a matter of eliminating ineffective or costly activities.[3] It now has to deal with the much more contentious efficiency problem of choosing from a set of effective and efficiently produced interventions, with the notion that there are insufficient resources to provide all patients with the best possible treatment. Our immediate task is, therefore, to establish "worthwhileness" so as to demonstrate that an intervention does more good than anything else that could be done with the same resources (written communication; Professor Alan Williams, University of York). It is here that the techniques of cost-effectiveness analysis have been developed to help us identify and make clear one set of criteria that is useful for deciding among different uses of scarce resources.

The basic tasks of cost effectiveness analysis are to identify, measure, value and compare the costs and consequences of the alternatives being considered.[4] It reflects a common desire to derive the maximum possible health outcome from each unit of health care resource available.[5] The logic is straightforward. Efficiency is about ensuring that the market value of a good or service exceeds the financial cost of providing it. When we are advocating greater efficiency, we are advocating the adoption of two precepts: (1) the costs entailed in pursuing any activity are kept to a minimum; (2) the benefits gained outweigh the costs.[6] It is the linkage of costs and consequences of activities that cost-effective analysis seeks to estimate and allows us to reach our decision. If priority was given from a high to a low cost per unit of benefit, say cost per QALY, overall health gain would rise and would continue to rise until the cost per benefit for each possible technology was brought into equality.[7]

It is often argued that it is immoral to consider costs when making clinical decisions, referring it to judgment on the worth of people's lives. The extension of life, the alleviation of suffering and the improvement in people's functional capacity should not be limited by financial consideration. But the financial cost is simply a proxy for the real resources, such as physicians, nurses, hospital facilities and pharmaceutical development and production, etc., that are consumed in providing a good or service.[2] From the societal perspective, in the presence of scarcity, resources committed to treating one patient will not be used to treat some other person who might have benefited from them. The true cost of providing health care to one patient is thus the forgone benefit which other patients might otherwise receive in the future, namely sacrifices borne by other patients who did not get treated.[1,2,6–10]

When so interpreted, not being concerned with costs equally means ignoring the risk imposed on others of premature mortality and avoidable suffering.[1] This is evidently immoral and unacceptable on the grounds of population health ethics. There has to be some mechanism ensuring that the benefits to one patient are greater than the sacrifices of those who are denied treatment as a result of every treatment decision. In such a system, our chance of sacrifice is least; decisions are taken which overall save more lives,[10] in which population health will be improved as much as possible. This is to which being cost-effective intends.

It has also been argued that a physician should serve as his/her patient's perfect agent, doing everything possible with the available resources. The typical situation is that physicians have an obligation to spend more on saving an identified patient whose life is at high risk when there is some intervention that has a chance of saving

the person's life. It is not their duty to take into consideration the needs of unidentifiable individuals who might ever seek treatment or might benefit from treatment, now or in the future. The general working of the health care delivery system is also not their prime concern.

Strictly speaking, on the other hand, the physician is not only the agent of their patients, but also the gatekeeper of limited health care resources, i.e. a multi-agent. In a health care system mostly financed by the NHI, health care resources are paid by this national agency. Behind the agency stands the insured, which means almost all of us.[6] It is also not clear whether any (anonymous) person who could benefit from an effective treatment would agree to forgo their treatment in order for identifiable patients to receive an expensive treatment.[7] Therefore, the wellbeing of all affected parties should count, and everyone should be treated with the same concern and respect. Once these responsibilities are acknowledged, physicians must balance the respective interests of their patients and other unidentified patients, or more specifically, they should consider the incremental health benefit offered to each patient. This evidently requires them to seek, on behalf of all patients as a whole, the most cost-effective manner to allocate resources. While by so doing, their patients would not be provided with all best evidenced interventions, on aggregate, more health benefits would be brought to the general public as a whole.

Discussion and Conclusion

Physicians and the NHI are now becoming more aware of their need to practise within a health care system that is necessarily constrained and restricted by the availability of resources. It highlights the potential conflict of interest between a physician's multi-agent roles, particularly after the introduction of the global budget system. Furthermore, and more importantly, they must also be prepared to acknowledge restrictions in what the NHI can provide. Health care must be limited to what is of proven value for money. Many people, possibly including within the NHI itself, may support the idea that such restrictions can be greatly alleviated if more resources are poured into health care. But when more resources are made available, a mechanism is still needed to ensure that additional resources will generate real improvements in health rather than simply creating rents for those who provide care and continuing with inefficient resource allocation.[7] To develop a means to decide the highest priority uses to which these additional resources should be put is necessary.

It is ethically untenable, however, to leave physicians in a position of uncertainty when pressed to trade off the wellbeing of patients of different groups during each patient encounter. For example, the global budget system places great pressure on providers to control their resource use without giving clear guidance on how to allocate their budget. Obviously, individual providers, either practitioners or hospital managers, alone have no necessary information and expertise to identify what should be chosen or eliminated from everyday practice. Some form of collective solution is required. It may take the form of placing explicit constraints on a physician's practises such that their use of resources would be limited to cost-effective interventions and a set of clinical guidelines that recognize cost-effective care.

A good example of this collective solution is the creation of the National Institute of Health and Clinical Excellence (NICE; www.nice.org.uk) in England and Wales. The NICE makes recommendations to the National Health Service regarding the medical technologies that maximize health gain. Cost-effectiveness is a major consideration and health gain is taken as a major maximand.[7] In this setting, physicians can strive to serve the best interests of their patient population, while the results of their decisions would still be cost-effective resource allocation.[2] Physicians' multi-agent roles for both the affected general public and their patients is therefore fulfilled.

Furthermore, since such a collective solution governs and limits access to shared resources, its

consequences are bound to be unfortunate for someone or other. However, this is inevitable. The issue becomes how best to minimize its adverse consequences or how much potential harm we are willing to accept. Therefore, we need to answer questions such as where the threshold should be drawn, whereby we can establish a consensus about what is effective and affordable. It is apparent that over time, there will emerge a marginal cost per unit of health benefit beyond which a technology will not be recommended.[7] Both new and existing treatments can then be examined and decisions made as to whether, in the context of what can be afforded, the treatment should be funded at all, and if so, for which groups of patients.

In the future, cost-effectiveness analysis should have an increasingly important role to play in the decision-making process about the allocation of resources. Nonetheless, it should not be used as a means to search for infinite wisdom but an attempt to set a limit to infinite error. This is inevitably controversial, but it does provide a basis for the intelligent use of limited resources, and making explicit the trade-offs that were previously hidden. The practical problem of the NHI is to be able to establish and apply consistent and acceptable measures for all the outputs of the NHI that are of prime concern, and to get them deeply embedded in the clinical consciousness. This needs a community of users, including both physicians and patients, of this information who can interpret and use it towards the NHI's objectives. So the immediate task is to develop comprehensive partnerships and dialogue across a spectrum of communities and affected groups. Further education, training and research should be undertaken.

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