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Objectives, Budgets, Thresholds, and Opportunity Costs—A Health Economics Approach: An ISPOR Special Task Force Report [4]

Patricia M. Danzon, PhD^{1,*}, Michael F. Drummond, MCom, DPhil², Adrian Towse, MPhil, MA³, Mark V. Pauly, PhD¹

¹Health Care Management, The Wharton School, University of Pennsylvania, Philadelphia, PA, USA; ²Centre for Health Economics, University of York, York, UK; ³Office of Health Economics, London, UK

ABSTRACT

The fourth section of our Special Task Force report focuses on a health plan or payer's technology adoption or reimbursement decision, given the array of technologies, on the basis of their different values and costs. We discuss the role of budgets, thresholds, opportunity costs, and affordability in making decisions. First, we discuss the use of budgets and thresholds in private and public health plans, their interdependence, and connection to opportunity cost. Essentially, each payer should adopt a decision rule about what is good value for money given their budget; consistent use of a cost-per-quality-adjusted life-year threshold will ensure the maximum health gain for the budget. In the United States, different public and private insurance programs could use different thresholds, reflecting the differing generosity of their budgets and implying different levels of access to technologies. In addition, different insurance plans could consider different additional elements to the quality-adjusted life-year metric

discussed elsewhere in our Special Task Force report. We then define affordability and discuss approaches to deal with it, including consideration of disinvestment and related adjustment costs, the impact of delaying new technologies, and comparative cost effectiveness of technologies. Over time, the availability of new technologies may increase the amount that populations want to spend on health care. We then discuss potential modifiers to thresholds, including uncertainty about the evidence used in the decision-making process. This article concludes by discussing the application of these concepts in the context of the pluralistic US health care system, as well as the "excess burden" of tax-financed public programs versus private programs.

Keywords: budgets, cost-effectiveness, opportunity cost, thresholds.

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Introduction

The previous section considered the elements of value at the individual and population levels. In this section, we focus on a health plan or payer's technology adoption or reimbursement decision, given the array of technologies, with their different values and costs. Assuming a payer or population perspective, what are the objectives and constraints? We follow the Second Panel in recommending the cost per quality-adjusted life-year (QALY) gained (i.e., cost effectiveness) as the central measure for most of these decisions [1]. Our main focus here is on the use of thresholds, opportunity costs, and budgets as constraints in relation to decisions about technology adoption and reimbursement. We briefly discuss the incorporation of a broader range of elements of value, particularly those related to equity, and this is then discussed more extensively in the article by Phelps et al. [2].

In the article by Garrison et al. [3], we noted that two microeconomic approaches—welfare economics and extra-welfarism—can each be used to justify a cost-per-QALY threshold for the inclusion of new technologies in the benefit package. In a welfare economics approach, the "budget" for each health plan is determined through market interactions of the buyers and sellers of health care insurance policies. The buyers seek to maximize their utility allocating their resources (including any subsidies) between insurance to cover health care in the event of illness and to protect against catastrophic financial or health loss, and other non-health-related goods. In a typical extra-welfarist approach, the size of the health budget of a public payer is determined through a political process in which taxpayers allocate funds to health versus other services. Public payer health budgets tend to be fixed in the short run and the primary aim is to maximize population health gain, subject to other modifiers,

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* Address correspondence to: Patricia M. Danzon, Health Care Management, The Wharton School, University of Pennsylvania, 3641 Locust Walk, Philadelphia, PA 19104.

E-mail: danzon@wharton.upenn.edu.

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such as equity considerations. In both private and public insurance contexts, the choices have opportunity costs—some in the short run and some in the long run—and short-term decision making should take into account the longer term options and constraints.

In this article, we discuss the general application of these principles. Nevertheless, because this Task Force report is focusing on US value frameworks, we will discuss more in later sections about specific implementation in the US health care system, which is a pluralistic system with 1) some public programs that are expected to operate within fixed annual budgets and 2) many private plans that, to varying degrees, view their annual premium revenue as a target annual budget. Hence, although implementation in the US health care system raises some specific issues, there will be some commonality in implementation with single-payer public health insurance systems such as the United Kingdom and Canada where budgets are fixed.

Applying cost-effectiveness analysis (CEA) for health sector decision making requires a decision rule. The most commonly recommended approach is for the decision maker to adopt an explicit or implicit “threshold” of cost effectiveness representing the maximum level of cost effectiveness deemed acceptable for technology adoption and reimbursement within a given plan. The rationale for this approach is that consistent use of a threshold ensures that health gain is maximized for the covered population, given the payer’s budget. For example, in England, the National Institute for Health and Care Excellence (NICE) has a threshold of £20,000/QALY gained, with a range up to £30,000, but also up to £50,000 in the case of end-of-life treatments. As discussed earlier, health sector decision making typically considers more than just cost per QALY. In this article, we discuss the role of budgets, thresholds, opportunity costs, and affordability in making decisions. The first section discusses the role of budgets and thresholds in private and public health plans, their interdependence, and connection to opportunity cost. The second section defines affordability and discusses approaches to deal with it. The third section discusses potential modifiers to thresholds, including uncertainty about the evidence used in the decision-making process. The fourth section discusses application of these concepts in the context of the pluralistic US health care system, and the last section discusses “excess burden” (extra-implicit costs) of tax-financed public programs versus private programs. The article by Phelps et al. [2] discusses how a larger set of value elements might be weighted and aggregated into a more comprehensive, augmented CEA and how these elements could be considered as part of a structured deliberation, for example, using a form of multicriteria decision analysis.

The Relationship among Budget Constraints, Thresholds, and Opportunity Costs

The approach for determining the budget and threshold for a given year (or whatever the decision period) depends on the context. The most straightforward case is a jurisdiction operating its health care system efficiently with a firm budget constraint on one or more parts of the health system that is fixed in the short run. In this context, the most appropriate short-run approach to defining the threshold is the opportunity cost of displacing existing covered technologies, because if a technology with a cost-per-QALY gained higher than the threshold were to be adopted, then there would be a net loss in total health within the budget period [4]. In the longer run, evidence on individuals’ willingness to pay (WTP) for improved health would be relevant, to inform the discussion of whether the budget for health care should be changed over time. In this context, the forgone benefit of cutting back on non-health-related goods and services is the

opportunity cost of increasing the budget for health or raising the threshold. Important to note is that the threshold, the budget, and the measure of health gain cannot be set independently of one another.

If novel elements of value are added to the QALY measure of health gain, with no change in the budget, the threshold would need to be reduced because the average measured benefit of technologies would increase. Although it might seem that using such an expanded QALY measure of health gain would argue for increasing the health budget, because certain indirect benefits of health care technologies have been recognized, it is important to consider whether some of these types of attributes also apply to non-health-related spending. Investing in housing and education, for example, can create option value and can bring additional value to risk-averse people. Consideration of other attributes to augment the health QALY measure may require expanding the measure of the opportunity cost of health-related spending. The impact on consumer or taxpayer preferences about health budgets is uncertain *a priori*. There may also be a dynamic aspect to consider. If the budget and/or the threshold is expected to change significantly over time, then some account needs to be taken of the long-term cost effectiveness of a technology to ensure that health and related benefits are maximized over time. Furthermore, over time, as incomes rise, and/or technological changes occur in health care, and/or non-health-related opportunity sets change, consumers’ WTP for health and related benefits, and consequently the size of health budgets and threshold levels, will change, as discussed hereafter.

In a US private market context in which private plans (both employer-sponsored and not) compete by offering different levels of coverage, more generous coverage implies a higher threshold and a higher premium and budget. Thus, the threshold could be a convenient summary of coverage generosity that could be informative for consumers seeking to choose between plans. In this private market context, enrollees’ WTP premiums would reflect the WTP for health gain (and other health-related attributes) and define the payer’s budget for the year. In theory, market sorting would result in consumers (or employees) enrolling into plans that best match their preferences and WTP for health. In practice, such sorting may be imperfect because of adverse selection risk, fixed costs of operating plans, and social preferences (e.g., as mandated or imposed by the federal or state government) for some minimum level of coverage for all.

For public plans, the budget may be fixed in the short run but in the longer run it can be changed by Congress. The threshold could be a way of eliciting taxpayers’ WTP for different levels of tax funding or health care budgets that enable different levels of coverage generosity. As noted earlier, in the short run (within a budget period), the threshold could reflect the value (i.e., opportunity cost) of the marginal technology displaced if a new technology were to be adopted in the context of a fixed budget: this is, in technical terms, the “shadow price” of the relevant budget constraint in the jurisdiction concerned. It is a measure of the health gain forgone if an established technology is displaced. In the longer run, use of either a WTP or an opportunity cost approach should yield the same threshold if the system has been implemented to perfectly match population preferences, income, and other determinants of taxpayers/beneficiaries’ WTP for health within this public program. An expansion of the set of available technologies may change the opportunity cost in the short run, as discussed in the next section on “affordability.”

It is sometimes suggested that the health budget and/or threshold be set in some relation to the gross domestic product per capita in the jurisdiction concerned, reflecting the evidence that richer countries typically devote more of their wealth to health care, or reflecting an aspiration of the amount that countries should spend on health care [5]. This approach based

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