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## RESEARCH ARTICLE

## Should local health decision makers' use programme budgeting and marginal analysis (PBMA) as a basis for priority setting?

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### Abstract

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Decision makers in health care have to constantly face the problem of allocating resources judiciously. In the face of competing demands for healthcare, decision makers need to prioritise which interventions to fund. Countries around the world are trying to make these allocations decisions based on explicit framework. At a national or country level, decisions are taken under certain rules and regulations. But many times, local decision makers need to prioritise among different interventions. In these cases, the article looks at Programme Budgeting and Marginal Analysis (PBMA) as an explicit priority setting framework for the local level. The author looks into the reasons behind the need for an explicit priority setting framework, the principles and steps of PBMA and how it is helpful at the local level.

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### Introduction:-

Resource constraints in health care is an overwhelming reality that policy makers have to grapple with. Almost all health systems constantly come face to face with significant challenges in resource allocation. This is especially true after the economic recession of 2008 (Appleby et al., 2009). As the demand for health care is greater than the resources available, so there is a need to prioritise the competing opportunities. In the face of challenges due to scarce resources, frameworks can aid decision makers in managing this scarcity. This requires a certain degree of prioritisation between the various claims competing for the resources (Mitton et al, 2014). In the past, researchers like Carter (2001) and MacDonald (2002) have been critical of priority setting based on any economic approach. This is because the theories of economic principles did not adequately capture the complex nature of health systems and the decision making required for this purpose. This led to the development of economic approaches which started giving importance to the fact that grasping the innate complexity of health services is essential for decision making. Particularly, program budgeting and marginal analysis (PBMA) framework addresses issues pertaining to a more robust understanding of how to set priorities in health care (Peacock et al., 2006).

In United Kingdom (UK), NICE (or National Institute for Health and Care Excellence) advocates the usage of PBMA at the national level after a mandate by the Department of Health (DOH). But sub-nationally, the issue is about local policy makers using PBMA as a framework for decision making and resource allocation. To answer the question whether 'local' decision makers 'should' use PBMA for priority setting, this article looks into the importance of priority setting, who are the decision makers at the local level and PBMA as a framework for decision making. Also, to understand why PBMA may or may not be used, there is a description of its economic concepts and its use in the local context. Finally, the article also looks into the key issues that might be hampering wider usage of PBMA and whether it should be used as a basis for priority setting.

**Why is priority setting important?**

Priority setting is indispensable because there is a paucity of resources in health systems. This fact (i.e. of existence of scarcity) must be acceptable to any priority setting exercise at the beginning of the process, as complications of erroneous decisions regarding priority setting are significant (Mooney and Donaldson, 2004). Secondly, if this concept of scarcity is not acknowledged by the pivotal stakeholders, then any attempt to get the endorsements from any priority setting method is expected to fail. Thirdly, priority setting is also important for trying to find if some redistribution of resources can have better outcomes (Mooney et al, 2012 and Cromwell et al., 2015).

**What is meant by “Local” level?**

Within the health care sector prioritisation happens at three levels: micro, meso and macro levels (Logan et al., 2004). As the name suggests, macro-level indicates to the broad government level decisions. At the meso-level, earmarking the resources for health across different areas of health services happen. Finally at the micro-level, priority-setting happens through decision-making of health professionals. These priority-setting levels are a continuous part of decision-making (Logan et al., 2004). In this article, the micro and meso levels are assumed to be ‘local’ level.

**The local decision makers: Who are part of the Advisory panel?**

The advisory panel is normally set up to scrutinize the inputs (or costs) and outcomes of suggested modification in the health care sector and utilise the knowledge gained in enhancing the overall outcome. Generally, there is scrupulous consideration about the composition of the advisory panel and also of the different stakeholders whose advice and opinions will be asked for. The vital point is to make the panel representative but not so large that it becomes unmanageable. The make-up of the advisory panel depends on the queries under deliberation and the scope of the activity, but most probably it comprises of a blend of managers and doctors along with public representation. In the UK, NICE formed an advisory committee in 2002 to include the public’s viewpoints in its decision-making. This panel has thirty members selected from England and Wales’ population and comprises the Citizen’s council. They discuss the moral, social and ethical issues pertaining prioritisation of health care. Even though this approach is steady at the national-level in appraising evidence, sub-nationally (i.e. locally) the practice of decision-making by NHS is inconsistent (Mullen 2004, Devlin and Sussex, 2011). Robinson et al. (2011) found in a study of the advisory panel in England’s Primary care trusts (PCT) to be mainly composed of senior level NHS managers and clinicians. There was an acute paucity of the involvement of the common public and carers. Wiseman et al. (2003) and Kemp et al. (2008) believe that the advisory panel should be a multidisciplinary and a heterogeneous mix of people with the public being a part of the decision making process.

**Rationing in priority setting decisions:-**

Since the scarcity of resources is an undeniable truth, there is some degree of rationing in the health systems around the world (Logan et al., 2004, Teng et al., 2007). Priority setting entails that in practice some process of rationing is necessary. By default, health systems around the world (including NHS) followed implicit rationing which means that decisions taken are based mainly on political and historical arguments and the criteria for those decisions are not conveyed in a clear way (Mitton et al., 2003; Mitton and Patten, 2004). Ralph Crawshaw in 1990 (p.662) said: “Rationing in Great Britain has been implicit... It is a silent conspiracy between a dense, obscuring bureaucracy, intentionally avoiding written policy for macro-allocation (rationing), and a publicly unaccountable medical profession privately managing micro-allocation so as to conceal life and death decisions from patients” But priority setting has become more explicit in that both the decisions and the reasons behind them are clear. The argument in support of explicit priority setting is that it will promote accountability and ensure efficiency (Shiell and Mooney, 2002; Peacock et al., 2007). PBMA is an example of explicit rationing.

**Establishing a prioritisation framework:-**

Other than PBMA, there are a lot of approaches that can be utilised for explicit priority-setting exercises of health care services. This includes using economic evaluation methods like cost-utility analysis (CUA) which uses QALY league tables. Another new method of priority setting is multi-criteria decision analysis (MCDA) which incorporates discrete choice analysis (DCE). Accountability for reasonableness (A4R) is one more framework available in the literature for priority setting is. A4R acts as an ethical guide for stakeholders to make the approach fairer and more equitable.

These approaches can be used together in an over-lapping manner to make a framework for priority setting (Peacock et al., 2009). But PBMA is gaining more prominence over the others because of its strength in economic principles as described below.

### **What are the economic concepts and principles of PBMA?**

The PBMA approach is fundamentally based on two main economic concepts: 'opportunity costs' and the concept of 'margin'. What opportunity costs imply is the benefit or advantage that is forgone by not utilising some other resources. Its implication is that one needs to assess costs and benefits of various options in an intermittent basis (Mitton and Donaldson, 2004). One must examine the inputs and outcomes derived from the diverse health services, and it is most optimally done marginally- which notifies the extra gain or loss from an additional unit of resource. If the benefit or advantage at the margin per dollar/pound spent in service X is more than for service Y, there must be transfer of resources from Y to X. The method of redistribution must be continued till marginal benefit yields the maximum marginal or in other words one maximises the total benefit for the patients across both the programmes. The advantage of PBMA is that this approach makes the opportunity cost of spending in a new programme explicit (Grocott, 2009).

### **Why local?**

Ideally priorities must be established on the basis of hard evidence when assessing the effect of any escalation or cuts in the budget. This can become arduous as one needs to know the specific decision-maker involved in the project to understand the impact of the process of priority setting (Mooney et al., 2012). For example, if we assume that a decision must be made about the plausible effect of spending an extra one million pounds on cancer treatments in West Midlands. The decision for this can be taken from different clinical trials done in other places but the specific answer for West Midlands depends upon the current programmes in the place, the scope of the programme and the kind of patients that may get treated if the programme gets the money. The incremental benefit that may be gained in this programme locally could be quite distinctive to the benefits shown from trials done in another place.

In practice this implies that what is important is the local context: what are the marginal benefits locally, if there is an increase or decrease in the local programme there? While the evidence that is available already in the literature can work as a guide but using one's judgments from a local base is more important to know the effect of any decision making process. Therefore, local constraints play an important role in priority setting process and decision making processes (Hauck et al., 2004).

The points above have highlighted the importance of localising benefits, the same argument can be made for the costs accrued for the programmes. In fact this point is acknowledged readily and the interchangeability of cost functions from one place to another is uncertain and not preferred.

### **How is PBMA helpful in the local context?**

We know that doing complete economic evaluation of health programmes and calculating costs and benefits is a time consuming affair. It is here that PBMA has a big role to play. The key point here is that in relation to the existing programmes, using PBMA changes can be made for either increased or decreased funding between two programmes (Gibson et al., 2004). This mitigates the necessity to analyse all health care services and do a complete cost benefit analysis. Rather, health care managers and clinicians can bring about adjustments at the margin that will provoke the least damage for the service with reduced funding or attain the greatest benefit for the service with more funding. But executing these tasks again call into question the tough job of bringing decision makers from different backgrounds to a common platform or domain (Ruta et al., 2005).

### **PBMA: A common ground for decision-makers:-**

It is commonly felt that resource allocation is more of a managerial task, but the challenge is for both managers and physicians to work as a unit. For a fruitful tie-up between clinicians and managers collective leadership and similar objectives are imperative (Crosson, 2003). In his seminal paper on clinical leadership to coordinate the aims and objectives of medical professionals like doctors and surgeons with managers, Ham (2003) believes that one needs to "Harness the energies of clinicians and reformers in the quest for improvements in performance that benefit patients." PBMA augments the capability of physicians to involve themselves with managers to decide on resource allocation (Harrison & Mitton, 2004). It makes allowances for the intricacies and nuances of health care while complying with both the important economic views highlighted above. Therefore, when one applies principles of economics in resource allocation it is not about eliminating or introducing services but to find an optimum balance between the existing services (Ruta et al., 2005).

**Steps of PBMA framework:-**

The approach begins by a careful examination of how resources are being utilised presently before the focus shifts to the costs and the spending pattern. This can be done within the programmes of health care across health programmes in one organisation. The essence of this approach can be expressed by answering the following questions about how resources are used.

1.	Within any health service, what resources are available in total?
2.	Where are these resources being spent at the moment?
3.	Which are the services or sectors that can receive any new or more resource?
4.	Are there any services that can be provided less resources but in a more effective way?
5.	Can any service stop getting any funds if it is found that some areas/sectors cannot yet be funded?

The PBMA customarily requires seven main steps and utilizes the help of an advisory panel or administrative group to manage the tasks (Mitton and Donaldson, 2004).

It requires understanding the scope of the whole task and make the budget, after which the working group is formed which is composed of the advisory panel. The group is generally liable for effecting reallocation of resources and has a very crucial position in the whole PBMA procedure (Mitton and Donaldson, 2004). In the PBMA process an overseeing committee can be present where the public along with other members can take up a role in a steering committee or in a working group (Peacock et al., 2007).

**Key Issues:-****Proper Data Resources:-**

Programme budgeting data is important as it helps in assessing the allocative efficiency of the varied health resources. The access to local data has an influence on the possibility of success of the PBMA exercise. PBMA is considered to be 'data hungry' and puts stress on time management. Tsourapas and Frew (2011) reported that in many cases participants found it difficult to locate the necessary data for costs and outcomes. In fact some of them were forced to rely only on their value judgements for priority setting priorities and allocation of resources. The researchers reported a PBMA exercise which was successful due to the availability of proper data in Canada's Calgary Health Region. In contrast, they found that due to unavailability of proper data, a PBMA exercise of maternal, child and adolescent community service in central Sydney was not successful. Although PBMA is 'data hungry', Cohen (1995) and Peacock (1998) argue that even with crude data, PBMA can achieve a lot for priority setting. In fact, Peacock et al. (2007) argued that "PBMA is better than arbitrary processes and judgements, which may be the default option".

**Evaluation criteria: How success is defined?**

Any evaluation of PBMA is dependent on the criteria for judging success. In a literature review done by Tsourapas and Frew (2011), they found varying proportion of success when it is defined in various ways. It is evident that how one forms the definition of success has a major impact in the evaluation of any PBMA exercise. Two critical aspects for success in the implementation of PBMA that came out were that priority setting requires a 'champion' or good leadership and for guidance of the entire process, a health economist is required. Another proposed benchmark for the PBMA to be successful is if it can be repeated. For instance, for many years in Canada, PBMA has been repeatedly used in Calgary health service. For success the main features are a strong leadership, readiness of the organisation and efficient management skills (Mitton and Donaldson, 2003).

**Disinvestment:-**

Disinvestment has increasingly become very important in priority setting in health care as health services around the world are facing pressure for reduction or control in their budgets. But the balance and composition of the advisory group may result in a prejudice against disinvestment many times. The panel of members of the advisory group may be hesitant in favouring disinvestments, especially if the cut is from their departments' budgets. If stakeholders are absent from a particular specialty of the panel, then it may be relatively easy to pinpoint areas of the health care programme from which resources can be diverted to other areas. But this may turn out to be counter-productive in the long run as giving responsibilities to physicians of a particular specialty for divestments may create undue tensions between different departments and so participation may be limited in the future (Mooney et al., 2012).

Another important point regarding divestments is its link to investments and the overall budget of the PBMA exercise. Mortimer (2010) reports that the connection between the investments in a programme and the

disinvestments required is weakened if specific rigid boundaries for the budget of the programme is not fixed. As an example, if there is an expectation that resources will be taken from diabetic care to increase the budget of the activities in the radiology ward, then the scope of the PBMA process along with the programme budget must be defined properly. This must be done to cover the budgets for both diabetic care and radiology ward activities. Advancing the purview or scope of the PBMA process is prone to have favourable results if adjustments in the programme for diabetic care leads together heightened or dwindled demands in the radiology services. Edwards et al. (2014) reported a positive outlook on the PBMA framework in Wales and they gave an idea of 'prudent health care' whereby the PBMA exercise is a transparent process and backed by hard evidence, and any disinvestments recommended should be linked to the investments for the overall programme budget.

### Conclusion:-

Deciding on prioritisation in health care is an exceedingly demanding task. As seen above, PBMA is an approach where resources are shuffled explicitly and it engages not only managers and clinicians but also members of the public. PBMA can be considered as an avenue for sorting and commissioning health care functions and services, which has the ability to accommodate both the contrasting ways of managers and doctors within one common framework. PBMA also drifts away from the older inconsistent allocation methods based on political negotiation by incorporating sound economic principles. This helps local decision makers to decide on priority setting and also help in divesting funds for better health care utilisation.

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