

Mental health

Around 18 per cent of NSW children and adolescents meet criteria for mental health problems at some time during a six-month period. Delinquency, thought disorders, attention problems and social problems are the most common mental health problems among children. Nearly 30 per cent of NSW adults may have at least one mental health disorder at some time during a 12-month period. The most common mental disorders in adults are major depressive episode, simple phobia, social phobia and alcohol dependence. In 1994, 797 deaths in NSW were caused by suicide or self-inflicted injury. Most of these deaths were in males. Death rates from suicide among young men aged 15-24 years have risen steadily over recent years.

Infectious diseases

Rates of *Haemophilus influenzae* type b (Hib) disease have declined substantially in NSW since the introduction of an effective vaccine in 1993. NSW has been in the grip of an extended outbreak of pertussis (whooping cough) since 1993. In late 1996 and early 1997 six NSW infants died of pertussis. Only 59.3 per cent of NSW children aged three months to six years were fully immunised in 1995. AIDS cases and deaths declined sharply in NSW in 1996; 338 new cases of HIV infection and 259 new cases of AIDS were reported in that year. Hepatitis C is the most commonly reported infectious disease in NSW, with 8,547 cases reported in 1996. The incidence of food poisoning in NSW appears to be increasing, with 1,248 reported cases of salmonella infection in 1996. Arboviral illness reports rose sharply in 1996, with 1,268 cases reported compared with 551 the previous year.

Dental health

In 1996 about two-thirds of NSW kindergarten children and 57 per cent of children in grade 6 had experienced no tooth decay. On average, the children had one decayed, missing or filled tooth. Hospitalisations for removal or restoration of teeth rose in all age groups over the period 1989-90 to 1995-96.

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PROGRAM BUDGETING AND MARGINAL ANALYSIS IN NSW

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In a previous issue of the *NSW Public Health Bulletin*, we reported the establishment of pilot projects in the use of program budgeting and marginal analysis (PBMA) to assist resource allocation and priority setting in NSW Area health services¹. This paper reports the results of these pilot projects.

The concept of measuring performance in terms of health outcomes and health improvement is widely understood and accepted in the health system. The challenge now is to use the concept of health improvement in practical planning of programs and services. This requires a focus on the process of planning and, in particular, priority setting.

In the past much of the emphasis in planning has been on identifying goals and targets and determining what the vision of the future is. While this is important, it tends to leave a gap between where we are now and achieving this vision. Service planning should be about judging where the service is, what the options are for change, what are the best options for change in terms of costs and benefits, and implementing change. One of the biggest challenges in this process is to link this with decisions about resource allocation and, in turn, to alter the balance of resources to achieve the optimal mix of services. It is resource allocation which drives our ability to deliver services, and changes in the delivery of services will only follow funding decisions. What economics contributes to planning is a focus on the role of resource allocation.

OVERVIEW OF PROGRAM BUDGETING AND MARGINAL ANALYSIS

Program budgeting and marginal analysis involves using principles of economics to assist the planning of services and the setting of priorities in resource allocation. It provides a framework for making decisions about how to shift resources and realign services to achieve health improvement and other potential benefits, while ensuring equitable access. It makes explicit the decisions about which services should be expanded and which contracted on the basis of what the effect of the altered pattern of services is on expected outcomes.

There are two stages. The first stage is the development of program budgets. These provide an information framework to allow the examination of the relationship between resource use, activities, outputs and objectives. A key feature of this framework is that programs are output and objective orientated rather than being focused on inputs and activities. For service planning, program budgeting is intended to answer the question "where are we now?"

Marginal analysis answers the question "what should we change?" In practice, the process involves developing and prioritising incremental and decremental "wish lists", i.e. activities which would be expanded if additional resources were available, and those which would be contracted if a budget cut were imposed.

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Program budgeting and marginal analysis

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Three aspects of the marginal analysis process should be highlighted:

- First, at this stage, it is a thought experiment. Although the budgetary expansion or contraction is hypothetical, thinking in these terms focuses the participants' minds on where the most benefit would arise from expansion, and where the least loss of benefit from contraction would occur.
- Second, thinking about contraction of services is as important a part of the process as thinking about expansion of services. If services are to be expanded, the resources must come from somewhere and the opportunity cost must be recognised. It is essential that the benefits gained from any possible expansion are greater than the benefits sacrificed elsewhere.
- Third, a crucial part of the process is identifying explicitly what these expansions or contractions mean in terms of the inputs (resources) used or freed up, the outputs gained or lost, and the outcomes achieved or forgone.

The principle underlying the marginal analysis process is simple. If the benefits achieved by expanding services in program A (identified by the hypothetical budget increase) are greater than the benefits forgone by contracting services in program B (identified by the hypothetical budget decrease) then resources should be shifted to allow this to take place, because it will result in a net gain overall.

PBMA has been used to assist priority setting in a number of health care settings overseas, and is being applied in South Australia. It had not previously been used in NSW¹. The priority-setting challenges facing the NSW health system are the same as those elsewhere, and the principles of PBMA should be readily applicable to the NSW setting. However, given that the advantage of a PBMA framework lies in its capacity to bring economics and planning principles together at a local level, it must also be tested at a local level.

OVERVIEW OF PILOT PROJECTS

Early in 1995 the Centre for Health Economics Research and Evaluation began working with the NSW Health Department to establish pilot projects in which PBMA would be used by Area health services. The aim was to test the applicability of the framework over a range of settings and resource allocation issues. Three pilot projects were funded, which offered a range of complexity, size and geographical spread:

- dental services in the Central Coast Area Health Service;
- asthma services in the South West of NSW; and
- child, adolescent and family health services in Central Sydney Area Health Service.

The Central Coast Area Health Service provides basic dental treatment and oral health promotion to all school children, basic dental treatment to adults with health care cards, emergency dental health care to children and adults with health care cards and dentures to eligible clients (pensioners). The dental service personnel believed there

was the potential to redeploy resources to improve outcomes for their clients. However, this required some assessment of the relative value of aspects of the service.

The Asthma Management Improvement Council was established for the South West of NSW in 1994, with responsibility for identifying prevention strategies and improving the health outcomes for people with asthma in the Area. One of the key components of this was the ability to link health outcomes decisions on resource allocation to asthma services across the area.

In 1994 Central Sydney Area Health Service had begun a strategic planning process for its child, adolescent and family health services in conjunction with the development of the new paediatric and youth services required in the Area following the relocation of the Children's Hospital to Westmead. The planning process was based broadly on the National Health Goals and Targets for Australian Children and Youth². PBMA was introduced after the planning process had begun as a way of addressing the resource allocation issues.

The projects have been described in detail in a report to the NSW Health Department³. Of the three, the Central Coast dental services project was the most successful. The project team used the approach to identify more clearly how resources were being allocated across the range of current activities. They then considered objectives in terms of highlighting gaps in service provision and the relative benefits of pursuing these different objectives. Resource shifts were then made. In addition, the Central Coast Area Health Service used the PBMA approach to provide a structure to help minimise the impact of a significant unanticipated budget reduction resulting from the changes in Commonwealth funding of dental services. In its ability to assist priority setting in the real world, the PBMA team here was the most enthusiastic about the merits and the success of the approach.

The South West asthma project was also successful. Here, PBMA was used to highlight the need for a better match between the resources devoted to particular subprograms, the objectives of these subprograms and the objectives of the asthma program overall. In particular, the PBMA approach revealed that most resources were devoted to acute treatment, and identified the need for resources to be shifted to education and prevention. It became clear that two things were needed:

- a clearer identification of the role and purpose of asthma education; and
- more and better evaluation of the effectiveness of these services.

As a result of the PBMA process, a review of possible models of asthma education across the service was undertaken, and a preferred model identified.

The Central Sydney project was less successful. The nature of the community services covered is more complex. Data collection and information systems for community health made it difficult to identify the relationship between activities and the objectives of programs. These problems were by no means insuperable but, more importantly, the strategic planning process already under way was based on a very different philosophy from that of PBMA, and it proved impossible to reconcile the two. In particular, the

first steps in PBMA involve an examination of how resources are being used to achieve objectives as a basis for guiding incremental change. In contrast, the first steps of the strategic planning process focused on goals for the future, and the resource implication issues were seen as secondary. Information about resource allocation, and a recognition that change involves incremental shifts from the current position, is fundamental to an economic approach to planning.

CONCLUSION

PBMA provides a framework to help to solve resource allocation problems in a systematic and explicit way. The pilot projects have shown it is a useful planning tool in the context of the NSW health system. They also highlighted a number of important issues in planning and priority setting, and it is worth noting the key lessons so far from the NSW experience.

First, committed leadership is vital to the success of PBMA, as it is to any planning process. PBMA was most successful where key managers understood the principles and were committed to the process.

Second, the NSW experience did reveal that the complexities of financial arrangements for health services, particularly Commonwealth-State overlap of responsibilities, present as many problems for PBMA as they do for other planning processes. For example, the asthma project team was frustrated by the limited scope to shift resources between subprograms because the Area does not control all the resources in the management of asthma.

Third, program budgeting often reveals a mismatch between the stated objectives of programs and the inputs, activity and outputs of the program. Explicit evaluation of resource allocation is in itself a very valuable process. It may also cause some discomfort, however, because it focuses attention on these mismatches.

Fourth, while information about costs and activity is important to planning, the collection of this information

should not become the objective of the process. PBMA can be hindered by the complexities and lack of consistency in financial and activity reporting. Across and within Area health services, there is still considerable variation in the level of detail in reporting, but this is not a major barrier. A realistic picture of how resources are deployed is a vital starting point to planning processes, and no planning process can be effective without this information. However, the picture does not have to be very precise and a "broad brush" approach will suffice. Where greater precision is appropriate is in evaluating the costs (and benefits) of proposed shifts from the current position.

Finally, a planning process which aims to achieve better use of resources must start from the basis of how resources are being used and from an understanding of the objectives of the service. It is tempting to see strategic planning as a "visioning exercise", looking only to the future shape of services and to future targets for health outcomes. This leaves a gap between planning and implementation.

PBMA is now being used or considered for use in NSW by a number of Area health services, including the Central Coast Area Health Service, Central Sydney Area Health Service, the Greater Murray Area Health Service, Macquarie Area Health Service and South West Sydney Area Health Service.

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2. Health goals and targets for children and youth. Adelaide: Child, Adolescent and Family Health Service, 1992.

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