

# Evidence-based priority setting

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## Abstract

*This paper describes evidence-based priority setting and resource allocation undertaken by a Division of the Women's & Children's Hospital, Adelaide during 1998-1999. We describe the methods used to combine program budgeting marginal analysis (PBMA), evidence based and "community values" approaches into one decision-making framework. Previous organisational changes involving the formation of multidisciplinary team and program management were pivotal in setting a framework to successfully complete the priority setting process.*

## Background

The Allied Health Division (AHD) is one of eight clinical divisions at the Women's & Children's Hospital. The AHD was formed in 1995 following the amalgamation of the Adelaide Children's and Queen Victoria Hospitals. The AHD at that time comprised six profession-based departments: Orthotics, Occupational Therapy, Physiotherapy, Pharmacy, Social Work and Speech Pathology. During 1996 and 1997 the AHD was redesigned to achieve a new service delivery model and structure based on multidisciplinary service programs. Each program was led by a Manager with clinical, quality, financial and human resource responsibility.

The organisational restructure highlighted that AH staff were dissatisfied with historical resource allocation decisions. Staff expressed support for decisions based on health benefit and consumer needs rather than decisions constrained by professional boundaries and historical practice. Similar issues were raised at health system level that led to the endorsement of PBMA as the priority-setting tool by the Department of Human Services (DHS) in South Australia and the WCH senior decision-making group.

A variety of approaches to priority setting have been described in the literature. Mooney, Irwig and Leeder (1997) noted that because health care resources are limited, the question is not whether to prioritise but how to prioritise services and resource allocation. A sole focus on needs analysis was rejected due to problems in definition of need and whether intervention assisted in addressing or reducing need (Mooney 1998). There has been a growing emphasis on health outcomes and cost-effectiveness in contrast to the previous focus on staff activity and cost minimisation (Rissell, Ward and Sainsbury 1998). Cohen (1994) suggested priorities were more effectively based on marginal analysis that reviewed the effects of altering resource allocation across health programs. Mooney (1998) advocated for citizens to set the principles upon which health care decision-makers made policy and resource allocation decisions. The strategic planning process reported by Alperstein, Thomson and Crawford (1996) used a population health outcomes focus to set priorities for child and youth health services in central Sydney.

Alexander and Hicks (1998) referred to the potential benefits of considering community input and discussion as part of a composite model encapsulating the elements described by the papers above into one model for the WCH. Consumer participation processes used by the WCH in determining the community's values in resource allocation and in developing the WCH resource allocation criteria were described (Table 1). These experiences were used further in developing the model used within the AHD.

Figure 1: WCH Resource Allocation Criteria

## Figure 1: WCH Resource Allocation Criteria

Funds will be allocated to those services which:

Improve equity in relation to health outcomes in South Australia

- The service is designed to treat or prevent the major health problems for groups most disadvantaged according to health outcomes statistics available
- The service is designed to improve access to those groups who experience barriers to health care

Prevent future health problems

- There is sufficient evidence that the service will prevent long term health problems

Ensure the hospital's efficiency

- There is no unnecessary duplication of services

There is evidence that the service is effective in improving health outcomes and/or quality of life.

- There is evidence that the WCH can provide a high quality service.

## Purpose

The purpose of the AHD priority setting process was to reallocate resources to maximise health outcomes within budget reductions. The AH Management team was required to develop a new service profile for the AHD based on evidence of services supporting the achievement of the WCH Resource Allocation Criteria; identify staffing, goods and services and management/ leadership requirements; and achieve endorsement of the change recommendations from WCH Executive and Divisional Chiefs group within required time lines.

## Method

The process included four elements: a focus on community values through the use of WCH resource allocation criteria and community values specific to the AH population; a review of literature and other evidence for health benefit against the WCH resource allocation criteria; epidemiological, cost and funding analysis of marginal services; and recognition of the opportunity cost to community and other WCH services if the AH service was reduced or ceased.

## Baseline data

With the reorganisation of the AHD into multidisciplinary service programs in 1997, AH program budgets had already been determined. This was in contrast to the first use of PBMA at the WCH in which a large initial investment was required to develop program budgets. Each program's services were described in terms of proportional emphasis on prevention; early diagnosis; early intervention; treatment/rehabilitation; maintenance; and services that focus on maximising the individual's capacity to care for themselves.

## Consumer/Community Value Identification

The nature of AH, with the diversity of services, patient needs and professional groups involved, added complexity to the determination of the "AH community". The following methods were employed to obtain consumer values in relation to AH services.

- a) Patients were surveyed to identify perceptions of health changes attributed to AH intervention(s), degree of satisfaction and areas for improvement. This involved a telephone interview of 90 patients and families.
- b) An AH forum was conducted where consumers participated in exercises in which they allocated resources to alternative AH services. The principles by which the AH consumers made their decisions were identified.

- c) The results of the report of the South Australian Health Ombudsman (1996) were used to identify priorities of South Australians in allocating health care resources.

## Figure 2: Evidence Rating Scale

Origin	Points
Randomised controlled trial (published/unpublished)	3
Well-designed controlled trial/no randomisation	2
Well-designed cohort or case control study	2
Comparison between times or places, with or without intervention	2
Literature/Cochrane collaboration/Internet (validated)/health outcomes	2
Expert Opinion	1
Consumer Opinion	1

When combination of evidence, select score for highest level of evidence

## Collection of Evidence

Allied Health clinicians were required to submit evidence that demonstrated the effectiveness or otherwise of their respective AH service in meeting the health needs of a target group of patients. Staff were expected to identify evidence (if available) of how the service contributed to the achievement of each of the WCH resource allocation criteria. A two-month time frame was given. Staff were advised of the rating scales to be used by the AHD Management team in reviewing the evidence submissions and ranking AH services accordingly. Evidence was provided by single profession and, where staff worked closely as multidisciplinary teams, evidence was provided and reviewed as a team.

As a centrally placed clinical Division with service demand driven by medical Divisions, the process designed for AHD differed to that used previously at the WCH. The number of stake-holders and diversity of AH services was extensive, including medical and nursing clinicians from other WCH Divisions and a wide range of community agency health professional staff. It was decided that AH clinicians would examine and present the evidence for services as a means of owning potential clinical practice change and improving the ability to advocate for services. This was a pivotal element in the Division's organisational development approach in fostering clinician-owned and -driven practice change. This differed from other Divisions where evidence was identified by project and finance staff.

## Review of Evidence

Allied Health Program Managers reviewed the literature and submission summaries provided by staff. A two-week time frame was allocated. Managers reviewed a number of services together to identify any issues of interrater reliability and then focussed on services from their individual programs.

Health evidence was rated against each of the WCH resource allocation criteria for over 70 patient areas. The Evidence Rating Scale (a) was used to rate the evidence provided based on origin of evidence. The content of evidence provided, including the quality of research design and quantity of sources, was rated according to the Evidence Content Rating Scale (b). The total score was determined by  $(a \times b) \times$  WCH resource allocation weighting.

## Figure 3: recommendation from evidence

Recommendation from Evidence	Points
Good evidence to implement	3
Fair evidence to implement	2
Inconclusive/no evidence to implement	1
Evidence to abandon	0

**Figure 4: weighting of WCH criteria**

Improves equity in relation to health outcomes in South Australia	.19
Prevents future health problems	.25
Improves health outcomes	.37
Improves efficiency	.19

**Figure 5: weighting of Service Aims (Health Ombudsman report)**

Health promotion and health protection strategies which prevent illness before it occurs	34.0
Services which diagnose illness and provide early treatment	30.0
Services that assist people with an illness to better look after themselves independently	17.0
Services which aim to cure illness and prolong the life of individuals with severe illness	9.5
Services which provide treatment and care for individuals suffering from common health problems such as asthma and diabetes	9.5

## Marginal analysis

The results indicated three distinct groups: highly scoring services (ie, quality and quantity of evidence according to most/all WCH criteria); a middle scoring group; and services that scored at a relatively lower level. Services in the low scoring group were re-ranked according to the proportion of the service aligned to areas more strongly supported by the community values identified from the community forums and Health Ombudsman report, and differences between costs and funding and number of patients for each group.

Clinical costing data obtained utilising hospital and Department of Human Services casemix data enabled cost and funding comparison according to diagnostic groups relevant to Allied Health. This provided the financial link to inform the program budgeting marginal analysis. Patient volumes, and thus the implications to patients and the community upon changes in resource allocation and service expansion/reductions, could be forecast. This component assisted the process in determining the “best buys” in terms of AH interventions that have a demonstrated health benefit to women and children. Marginal services from all programs were reviewed and re-ranked by the Divisional Chief to increase consistency.

## Consultation

The preliminary findings were presented to AH staff. This served as a driver for further consultation via face-to-face group discussions between clinicians and the AH Divisional Chief. In a Division that values staff consultation and participation, the use of a second consultation loop was critical to the final outcome. This recognised and gave staff opportunities to express emotion and difficulties with the process. It also resulted in heightened staff commitment to clinical practice change that they saw as being preferential to a service being ceased. The preliminary findings were presented to the WCH Executive and distributed to each WCH clinical Division for their comment and for the provision of additional literature evidence.

## Results

The highest ranking AH services were highlighted for increased resource allocation. The middle-ranking group was targeted for maintenance of resources. The lowest ranking group was divided into a group for resource reduction and a group for resource cessation. Recommended human resource structures and goods & services allocations were identified. Potential impacts to patients, families, WCH Divisions and community services were identified. They included impacts within AHD clinical teams and clinical teams across Divisions. The final recommendations were subsequently endorsed and have been implemented within the AHD since July 1999. Examples of changes are as follows:

AH services to neurosurgery/rehabilitation	resource allocation increased in AH paediatrics program (in Occupational Therapy, Physiotherapy, Social Work and Speech Pathology)
AH services to bereaved families	resource allocation increased in Paediatric and Women's Health Social Work
AH services to children with voice disorders	resource allocation reduced in Paediatrics (Speech Pathology)
AH services to children with scoliosis	resource allocation reduced in Paediatrics (Physiotherapy)
AH services for women seeking Transcutaneous Electrical Nerve Stimulation	resource allocation reduced in Women's Health (Physiotherapy)

## Discussion

### Limitations of the Process

The evidence collection phase revealed differing staff skill levels in literature review, submission preparation and understanding of the concepts of PBMA. Greater levels of staff education and resource support were required. This phase was conducted during December and January with high levels of staff annual leave, reduced access to University colleagues and library staff adding to staff pressure and anxiety. However this time was selected as preferable to other times of high patient activity. Outpatient service provision was reduced due to resource needs. It was an extremely labour intensive process. Microanalysis of services was the outcome rather than a systemic focus.

The WCH Resource Allocation criteria did not recognise regulatory requirements imposed on some services and revenue generating potential of others. The ability of the consumer consultation process to reflect the diversity of views of AH consumer groups could be questioned. In an organisation with strong commitment to consumer and community involvement, the use of the Evidence Rating Scale was challenged in that consumer opinion was not regarded equally to scientific research methods. The Evidence Rating Scale supported well-established clinical areas that had high levels of research supporting practice. Less established and innovative clinical practice that was supported by consumer feedback rather than randomised controlled trials received lower scores. Services with average scores related to all criteria tended to score better than a service with exceptional scoring in one criterion such as prevention.

Market/financial analysis highlighted inadequacies in the casemix-funding model in describing Allied Health involvement. Inadequacies of the Division's Information Technology feeder system were revealed. Although the AHD had developed Program budgets, there was a lack of detailed financial information to give an understanding of clinical team activity. Accurate baseline data on staffing and activity levels, accepted by staff, was critical to resource re-allocation. Lack of benchmarking data from other hospitals resulted in an insular focus to clinical costing review.

Inter-rater consistency could be challenged despite opportunities for evaluator discussions and initial score comparisons. Although the Divisional Chief reviewed all marginal service submissions, variation in interpretation could not be entirely eliminated. There were benefits in having managers not aligned to any one AH profession reviewing evidence. Some limitations in background knowledge required "pre-reading" to familiarise terminology, research approaches and indications for intervention.

Increasing emphasis on budget constraints reduced the potential gains in clinical practice change and innovation. Completion of the process to resolve the financial issues became the focus rather than determining a new prioritised AH service profile. Staff focussed on the core of their respective professions with resultant increased competition between professions. Clinical teams presenting evidence and submissions as a multidisciplinary group experienced increased team cohesion, while individual profession groups were driven apart by the process. The quality of multidisciplinary interaction reduced markedly. The process promoted defensive, not innovative, behaviour.

A significant weakness from the perspective of other WCH Divisions was the focus solely on AH intervention. The role of Allied Health and evidence of intervention within the broader cross Divisional teams was not examined. The question of the role of AH was raised - a service provider to patients and/or to other professions/Divisions? As a Division with demand driven by other clinical Divisions, there were issues in implementing resource re-allocation decisions.

Another aspect of the process that triggered debate was the question of what constitutes evidence of value. There was considerable comment by staff of the need to consider consumer perspectives and values equally to scientific/literature evidence. This was symptomatic of the considerable ownership that exists within the Division for the WCH value of consumer participation in service planning and development.

## **Strengths**

The process achieved its objectives. Recommendations for resource and service realignment according to best available evidence were determined, within financial constraints, and were endorsed and implemented. The AHD management team unanimously considered the process to be superior to resource allocation decisions based on expenditure history.

It challenged the notion that “there is not much evidence” supporting effectiveness of AH. In fact the wealth of literature evidence indicated this notion is a myth. The process provided enormous recognition of the significant value consumers and referrers placed on AH services. Consumer input served as a valuable reminder of the limitations of an objective decision-making process in retaining sensitivity to the human element in our business.

The evidence collection phase had many positive outcomes. There was an increase in knowledge based on literature evidence, and consumer and clinician opinion of effectiveness of AH services for clinicians and managers. Clinical practice change ideas were identified which AH clinicians owned. An improved ability to advocate for AH based on sound evidence of health benefits to the broader hospital and health community was identified by the management team. An increased desire for evidence-based approaches to professions and multidisciplinary teams in clinical care and decision-making was voiced by clinicians. An unmet market around Australia was identified for intellectual property, literature reviews, and an “Allied Health Cochrane database” documenting evidence of effectiveness of Allied Health services in positively influencing health outcomes. The Division was able to begin meeting these needs through the printing of AHD’s staff evaluation of literature as it pertained to women’s and children’s health. An increased ownership and desire for AH research was documented by staff.

Other benefits of the process included enhanced ownership of multidisciplinary collaboration in service provision; the development of a platform for discussions with University of South Australia to develop linkages with the Centre for Allied Health Research; the documentation of the diversity and number of AH services; the identification of priority areas for AH research; the demonstration of effective leadership by senior clinicians within each professional group in driving evidence based practice across AH multidisciplinary programs during the process; the establishment of an ongoing professional leadership role in evidence-based AH practice; strong ownership of the literature evidence as a result of clinicians review and submission; and the identification of the need of consumer involvement in review of literature evidence.

## **Recommendations for future priority setting processes**

A clearly defined decision-making process is imperative, which is agreed by the staff involved. Resource allocation criteria must be agreed and relative weightings determined. The criteria must support a high ranking of services mandated by regulatory requirements. A definitive end point must be determined at the outset. The process must be constrained, but flexibility must be allowed to support adjustments, increased face-face consultation when required and variations in patient activity.

Discussions with clinicians after the evidence collection phase is useful in facilitating ongoing commitment. The recommendation of face-to-face discussions rather than requesting written comments cannot be overemphasised. Clinicians must be given the opportunity to voice and embrace clinical practice change ideas that evidence review generates. This achieves sustainable benefits to clinical care and service delivery.

Communication must extend to other Divisions in each phase in the process, to inform how they can contribute and how decisions will occur and be implemented. Where resource decisions may impact on community service providers, consultation should occur externally with agencies affected. As with any change process, staff should be supported with realistic workload expectations and training. Human Resources and relevant unions should be involved in all stages of the process.

**Table 1: Allied Health PBMA Process Summary**

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1. DHS endorsed PBMA priority setting process
  2. WCH endorsed PBMA priority setting process
  3. WCH Division used PBMA for priority setting
  4. AH Program structure & budgets implemented
  5. Need for alternative resource allocation decision making process identified
  6. AH commitment to priority setting
  7. Program descriptions developed
  8. AH consumer forums held
  9. Methodology for evaluation of AH evidence developed
  10. Evidence collection consumer survey & literature/evidence review
  11. Assessment of evidence against WCH resource allocation criteria
  12. Service ranking
  13. Assessment of marginal services, AH consumer values, clinical costing & patient impact
  14. Preliminary recommendations
  15. Staff consultation/submission of further evidence
  16. Final recommendations
  17. Endorsed by WCH Executive
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## Conclusion

Any priority setting process needs to be viewed in proportion to the likely clinical and financial returns. The priority setting process undertaken by the AHD at the WCH has resulted in the AHD delivering only services that can demonstrate evidence for health gain according to agreed criteria. It has achieved a rigorous examination of clinical practice and ongoing impetus for clinical improvements within existing resources. It has established and extended the professional leadership role to include evidence-based practice and identified areas for research. The AHD is placed in a strong position to advocate for continuation and extension of funding to support its programs. If choosing to use such a detailed and multi-faceted approach to priority setting, a long-term view should be employed. It should not be viewed as a one-off process. Rather it should provide a baseline and a framework for ongoing service, program review and development.

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