

DALYs and Essential Packages

Briefing Paper

A paper produced by the DFID Health Systems Resource Centre

1. Introduction

Following the 1993 World Development Report “Investing in Health” the DALY and Basic Package approach has become extremely influential and has been implemented in a number of countries. At the same time it has generated considerable controversy in both policy making and academic circles.

This briefing paper sets out the:

- the rationale behind the DALY type approach
- the methodological and practical problems involved in its use and
- advice on how field managers/advisers/consultants should treat it

Its purpose is to improve awareness of the potential and limitations of the approach and to enable the reader to enter into constructive dialogue with proponents or critics of the approach. A more detailed paper has been prepared which goes into greater depth than is possible here.

2. Rationale for the DALY and Essential Package Approach

There is considerable inefficiency in the allocation and use of resources in both the developed and developing world. A disproportionate share of resources is usually allocated to secondary and tertiary sector hospital where the costs incurred are often excessive in view of the benefits achieved. Similarly, low productivity of the workforce, lack of essential supplies, especially essential drugs, and low levels of utilisation, especially at primary health care facilities result in further inefficiency.

The objective of the DALY/Essential Package approach is to assist development partners to get the best possible value for money by allocating their scarce resources using cost effectiveness as the main criteria. This approach, it is argued, is preferable to current approaches which rely on very crude incremental budgeting (i.e. last years budget plus 10%).

In order to measure cost effectiveness and allow comparisons to be made between different types of intervention the DALY (Disability Adjusted Life Year) approach was developed¹. The DALY is a measure of health benefits which takes into account the effect of health interventions on both life expectancy and quality of life. As the benefits of all health interventions can be measured in this way this allows comparisons to be made between different interventions and overcomes some of the problems inherent in other forms of economic analysis which are either only relevant for specific diseases or rely on placing a monetary value on saving lives.

¹ Note this is not a new approach, other similar approaches such as the QALY (Quality Adjusted Life Year) have long been in existence)

As shown in the schematic (at annex 1) allocating resources according to the cost effectiveness of the interventions involves.

- identifying the costs of certain key interventions (about which little was, and is, known)
- assessing the likely impact of such interventions (about which even less is known) and
- translating the expected impact into health benefits (with these benefits being measured in terms of DALYs saved).

Interventions can then be ranked in order of their cost effectiveness. With a fixed budget the most cost effective interventions would be financed first and this would continue until all of the available funds run out. In this way it is possible to develop a package of essential services which, if implemented, would significantly reduce the burden of ill health. The Basic Package set out in the 1993 World Development report was costed at \$12 per head and is shown below:

Interventions In 1993 WDR Basic Package

Intervention	Per capita cost (1990 \$)
EPI Plus	\$0.5
School Health (education plus deworming)	\$0.3
Other Public Health Programs (including family planning, health and nutrition information)	\$1.4
Tobacco and Alcohol Control	\$0.3
AIDS Prevention Program	\$1.7
Short-course Chemotherapy for Tuberculosis	\$0.6
Management of Sick Child (treatment of pneumonia, diarrhea and malaria)	\$1.6
Prenatal and Delivery Care	\$3.8
Family Planning	\$0.9
Treatment of Sexually Transmitted Diseases	\$0.2
Limited Care (pain alleviation, minor trauma and infection)	\$0.7
TOTAL	\$12.0

3. Drawbacks to the Approach

Theoretically this approach is very appealing. However, a number of drawbacks have become apparent. Some are methodological, others are practical relating to the feasibility of actually carrying out this type of analysis and also in terms of how to interpret the results sensibly.

a) Methodological Concerns

The search for an agreed and accurate measure of health benefits has proven elusive. Although the DALY type approach represented a major step forward in terms of developing a composite measure of health status covering mortality but also, previously neglected, morbidity. A number of criticisms can be made of the approach and

numerous other measures have been put forward. Some of these concerns relate to general concerns about this DALY type of approach others about the fact that the DALY is an inferior instrument compared to other similar approaches such as the QALY. The following criticisms have been made:

- **validity of the index** - initial estimates of the DALY index were made by the international health profession taking little or no account of patients perceptions, how they might differ from country to country and even region to region or how they might change over time. Although all approaches inevitably suffer from the fact that they are essentially subjective, it is argued that the means of eliciting preferences using DALYs is unduly complex and therefore unreliable and that other similar approaches are better.
- **weighting of DALYs** – there have been concerns that the current weighting which places greater emphasis on those in the 20 to 30 age group may be inappropriate. Evidence would tend to suggest that this approach is fairly reasonable although other factors such as general lifestyle factors such as smoking or whether the individuals have dependents is also important
- **whether to discount² and how** – there is a lack of agreement on the discount rate which should be used to discount health benefits. The higher the discount rate the greater the relative emphasis in the package on interventions which address infant and child mortality
- **focus on average rather than marginal costs³** – in theory the package should be based on marginal costs of interventions but it is extremely difficult to collect information on this. The concern is that the use of average costs will bias the package
- **focus on potential rather than actual costs** – the WDR package is based on costs assuming a degree of efficiency in delivery which is not being achieved in most if not all low income countries. Cost effectiveness for the same intervention may differ markedly both between and within regions and international findings should be applied locally with great caution.
- **bias against new technologies** – unless allowances are made, new and experimental approaches tend to be costly and may be inefficient at first until experiences gained.
- **focus on health service cost rather than total costs** – the approach considers efficiency in terms of public expenditure. However, some interventions might reduce public expenditure but increase out of pocket expenditure and costs in terms of time and travel by patients and end up more costly overall

² people would prefer to have benefits now than at some time in the future. A discount rate allows benefits which flow over a period of time to be measured in today's terms and allows, for example, comparisons to be made between interventions which bring benefits over different time periods

³ information is more readily available on the average costs of interventions. What policy makers want to know, however, is "how much does it cost to immunise an additional 100 people?" The additional of marginal costs may be very low if the immunisation team is already visiting the villages it may be very high if it involves hiring new staff to provide the service in a remote area

b) Practical Concerns

These concerns have revolved around the problems of actually estimating impact, whatever measure is used, and how to interpret the results and translate them into sensible policies and strategies once you have done so.

A major problem has been the overemphasis on defining an appropriate index when the key factor is really getting good estimates of the likely impact of specific interventions. Although international evidence can be useful results are very context specific and often effectiveness is based on estimates made by those with a vested interest and often unduly optimistic. Other key problems are:

- **the Basic Package tells you what to do not how to do it** – the approach proposed major shifts in resources within the health system but ignores the institutional and political realities of whether, and how quickly, these shifts can be achieved.
- **the approach does not directly address equity issues** – although many of the components in the basic package would be of immense benefit to the poor this is by accident rather than by design. Policy makers should therefore view the findings of cost effectiveness analysis as a starting point in determining policies and strategies and ensure equity concerns are fully taken on board in the final analysis.
- **capacity constraints** – Burden of Disease studies and cost effectiveness analyses are data intensive, expensive and time consuming and may take scarce staff away from more important tasks.
- **inconsistency with current budgeting framework** – the basic package is based on specific interventions. This is not consistent with Ministry budget lines which usually focus on drugs, salaries etc and there is no practical guidance on how the basic package should be translated into current budget lines
- **inconsistent with a responsive demand led service** – patients come to health facilities when they are ill. Should they be turned away or charged full cost just because what they need is outside the basic package?
- **lack of clarity about financing** – in many countries patients already pay for personal curative services from their own pocket. It is not necessarily the case therefore that the basic package should be publicly funded
- **the relevance of the \$12 package** – the \$12 figure has been extremely counterproductive and has obscured the main message of WDR 1993 – **to prioritise limited resources according to sensible criteria**. Countries spending \$4 to \$5 set out budgets to double expenditure when they have little or no hope of absorbing the additional funds effectively. It is also clear that of this \$4 to \$5 very little is currently being spent on the basic package. If one considers it politically unfeasible to stop funding totally for central hospitals and MoH HQ it may be necessary to spend \$18 before the \$12 package is covered

the approach is more relevant where vertical programmes are in place – although integrated approaches are usually more cost effective than vertical

programmes it is far more difficult to assess their cost effectiveness as many costs (such as those of multipurpose health workers) are shared between different uses.

4. Conclusions and Recommendations

The DALY approach to prioritisation may be useful but should be **applied cautiously**.

It is an **aid to decision-making**, not a decision rule in itself – equity and other factors must be considered

It is, with current techniques, quite a crude approach; estimates should therefore only be treated as **indicative**.

It can be an **expensive data-intensive approach and** may not be the best use of staff time.

If used sensibly, it can be **a useful basis for stimulating public discussion of priorities**,

The DALY approach should be considered in the light of the alternatives. On these grounds the DALY approach, for all its shortcomings, is **probably better than the other methods available**

Burden of Disease studies a usual precursor of Basic Package work are not very helpful. They generally tell us what we already know or suspect. At best they might be carried out periodically to assess overall health progress. At worst they may be an expensive luxury which poor countries cannot afford)

Where such studies have been carried out the data should be used with caution. Careful thought should be given to supporting or funding such exercises – they are most useful when there is major uncertainty what the key health problems are and what their relative importance is.

Key Documents

- ◆ *World Development Report*. 1993.
- ◆ “*Calculating the Global Burden of Disease : Time for a Strategic Reappraisal*”
Williams. Health Economics. Volume 8, Issue 1. February 1999.
- ◆ “*Global Comparative Assessments in the Health Sector*”
C.J.L. Murray and A. D. Lopez. Geneva World Health Organisation. 1994

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**Annex 1 - Schematic
Identification of Basic Package or Essential Health Care Package**

