



H N P D I S C U S S I O N P A P E R

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# Hospital Global Budgeting

Robert Dredge

September 2004





# **HOSPITAL GLOBAL BUDGETING**

**Robert Dredge**

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## Health, Nutrition and Population (HNP) Discussion Paper

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# Health, Nutrition and Population (HNP) Discussion Paper

## HOSPITAL GLOBAL BUDGETING

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Paper prepared for the World Bank's Resource Allocation and Purchasing Project

**Abstract:** This paper is a practitioners guide to the introduction of a global budget into a hospital setting based on real World Bank projects in emerging, former soviet countries and in the UK NHS.

It traces the steps from a centrally allocated, line item type allocated budget to one that is set on predetermined objective and measurable factors. These are based, where possible, on the health needs of the population served by the hospital. It considers how a global budget can be established and managed to generate local ownership and commitment to its delivery. It deals with incentives for both efficiency and performance. Examples of different contracting regimes, and how they fit into a global budget framework are given. Mechanisms for the periodic revision of the budget for issues such as inflation are given. There are separate notes on how a global budget can fit into a policy regime, how to cost services, and how to arrange contract for individual services. There are also suggestions on how to fund special payments that may vary from year to year, such as capital, research and development and Training and Education.

**Keywords:** resource allocation and purchasing, health care financing, global budgets, contracting, costing hospital services.

**Disclaimer:** The findings, interpretations and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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## FOREWORD

Great progress has been made in recent years in securing better access and financial protection against the cost of illness through collective financing of health care. This publication – *Hospital Global Budgeting* by Bob Dredge – is part of a series of Discussions Papers that review ways to make public spending on health care more efficient and equitable in developing countries through strategic purchasing and contracting services from nongovernmental providers. Other guides will cover topics on case mix payments and ambulatory provider payments.

Promoting health and confronting disease challenges requires action across a range of activities in the health system. This includes improvements in the policymaking and stewardship role of governments, better access to human resources, drugs, medical equipment, and consumables, and a greater engagement of both public and private providers of services.

Managing scarce resources and health care effectively and efficiently is an important part of this story. Experience has shown that, without strategic policies and focused spending mechanisms, the poor and other ordinary people are likely to get left out. The use of purchasing as a tool to enhance public sector performance is well documented in other sectors of the economy. Extension of this experience to the health sector is more recent and lessons learned are now being successfully applied to developing countries.

The shift from hiring staff in the public sector and producing services “in house” from non governmental providers has been at the center of a lively debate on collective financing of health care during recent years. Its underlying premise is that it is necessary to separate the functions of financing health services from the production process of service delivery to improve public sector accountability and performance.

In this Discussion Paper, Dredge provides a useful guide for policy makers introducing or reforming global budgets in the hospital sector. Many countries with publicly funded systems of healthcare have adopted global budgets as a key funding mechanism. One of the major attractions of the global budget model is that it can combine administrative simplicity with some incentives for performance enhancements. Furthermore, experience has shown that the information needs of this type of payment mechanism are less than more complex payment systems such as diagnostic related groups and itemized payments. One major disadvantage of global budgets is that they do not provide as strong performance incentives as do some other output based payments systems. Furthermore, if the service unit is small, global budgets may fracture the health insurance pool needed to protect patients and providers against unexpected expenditure variance. Policymakers how are aware of these constraints can use global budgets effectively in combination with other mitigating policy instruments.

*Alexander S. Preker*

Lead Economist  
Editor of HNP Publications



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“Financing mechanisms should be seen as the means to achieve and sustain fundamental health system goals such as equality and improved health status. Financing reform is not an end in itself”.

## INTRODUCTION

Hospital funding mechanisms are a key part of the process of reform in many healthcare systems. For sometime many countries with publicly funded systems of healthcare have adopted global budgets as their key-funding block. The Bank in recent reform programs has also sponsored this model. With this in mind the Bank has expressed an interest in developing this practitioners manual.

The manual has been commissioned by the Human Development Network of the World Bank. Its purpose is to assist Bank staff and counterparts when they are considering the introduction of a system of global budgeting for healthcare institutions. The manual consists of two elements: -

- This paper, which describes the principles and practical implementation issues for such a system; and
- Training materials in support of the paper

It takes, predominantly, a purchaser prospective and demonstrates how traditional line item type funding systems can be transformed into global budgets. Various levels of sophistication in the budget, including prospective fee for service payments, are considered. It is designed to be a practical guide, not an academic paper.

One of the major attractions of the global budget model is that it can combine administrative simplicity with strong incentives for performance enhancements. As such it can deliver real progress in a cost effective way with relatively unsophisticated information. It can be used to incentivize both the purchases and providers of healthcare and can deliver both service reorientation and cost efficiency. Experience shows that the information necessary to support global budgets is usually readily available in even the less developed management cultures of healthcare.

A global budget is, at its simplest, an overall spending limit or target. It will define the volume of service that is to be delivered, and its total price. It is usual for the budget to be prospective and agreed for a defined time period (i.e., the fiscal year).

The main purpose, and advantage, of a global budget is to control the aggregate total spend on a particular program, service or healthcare institution. However, budgets can be refined to enable the flexible application of funds within the total. It can encourage the development of changes to service delivery patterns and the inclusion of incentives (and in the event of non-performance penalties) to reward quality, appropriate clinical practice and efficiency.

## PURCHASER ISSUES

The purchaser is taken to be the organization or agent who at the simplest level agrees to, and funds, the payment to the provider. In the context of this manual the purchaser is: -

- A statutory organization charged with purchaser, commissioning or payment for health care on behalf of a pre-selected population; and is
- Financed largely or entirely from a public funding source, be this a direct tax collection, a social insurance fund or a hypothecated tax base.

Within this framework purchaser will generally be undertaking their role within a national or regional health policy framework. They will be attempting to quantify and prioritize the health needs of the population for whom they are responsible and purchasing healthcare that fits within this framework. They will have an active interest in the effectiveness of their purchasing, and should consider this alongside measures and initiatives in education and prevention that will lead to reduced demand for future interventions.

The main role of purchasers is to secure health services for the population they service. In so doing they must ensure that the services are appropriate to, and satisfy, the health needs of their population. They must be cost effective and also meet any pre-set standards of quality.

Purchasers can exist at various levels in a system hierarchy, and can be responsible for very different populations (both size and health needs). In terms of a population size gradation there are models emerging that group responsibility around the following types of organizations: -

- Family doctors either individual or small groups. The budget will be used to provide services only for patients registered or responsible to that group of doctors;
- Family Doctor Collaboration – where, to deliver better economy of scale or to reduce risk doctors join together to pool their individual budgets into a larger fund;
- District Health Funds (Authorities) – generally based upon first tier local government administrative boundaries;
- Regional Health Authorities – larger administrative boundaries generally second tier governmental boundaries;
- Consortia Agreements – which can be put into place at any or all of the above levels, and is a formal association of the bodies. Consortia generally came into being where the risk to individual bodies is such that an enlarged population pool is appropriate. This will be useful in the provision of high cost/low volume activities that are irregular in their demands. Consortia arrangements can also be driven by the desire to achieve economy of scale in administrative functions. Consortia can, in some countries, be formalized into a separate legal entity, perhaps called an Agency, whereby the cost of the Agency is met by the sponsoring organizations.

The design of the budget will need to take full and proper account of the relationship between the population covered and the services that the population is entitled to receive.

The most fundamental starting points for a global budget is the definition of the population it is to cover, the services it is to provide and the financial allocation in the initial base year of the budget. Once the base allocation is determined periodic (annual if possible) reviews will be needed to allow for such factors as:-

- Population changes
- Input price inflation
- Technological advances
- Relative needs of population
- System efficiencies

If the funding agent chooses to decentralize some purchasing functions to more local agencies then an equitable allocation formula must be developed. This will rely upon the demographic distribution and relative needs of the local area. Locality funding would be made proportionate to the total funds available, based upon the quantification of relative needs, or some other assessment of rational and equitable distribution.

## THE BUDGET FRAMEWORK

The overriding aim of a global budget is to place a limit on the total amount of money spent on healthcare. The total will be predetermined by the funding agent and will act as a cap on the overall system. Alongside this fiscal aim the purchaser will wish to ensure that both the quantity and quality of services delivered by the budget meet a predetermined set of volumes and standards. To achieve these objectives the budget must:-

- Determine the financial limit to the budget
- Determine the managing agents or institutions who will be responsible for achieving the budget targets; and
- Determine the process by which budget performance will be linked to the flow of funds to institutions or agents. This should extend to monitoring of access, volumes and quality of service provision.

The global budget must act as a positive catalyst to the system. It is only effective if it can be used to change behavior and responses such that the purchaser's objectives are better achieved. It must, therefore, have positive incentives for payers, providers and consumers and lead them to more rational decisions in the way healthcare resources are used.

In broad terms global budgets can be seen to have the following positive responses:-

- Cost containment
- Funding certainty
- Easier (cheaper) administration
- Improved co-ordination and planning of services; and
- Elimination of unnecessary services

There are some counter balancing risks associated with these potential gains. The most commonly recognized is the possible adverse effect that cost containment can have on the quality of health care provision. These behavioral responses will need to be considered in the design and implementation of the global budget. Care must be taken to minimize the downside risks whilst achieving the potential efficiency gains of a global budget. Invariably the risks and rewards will be driven by the financial framework of the budget, and in turn, the financial process of the healthcare system.

The system must also be explicit about the services that are to be provided from the global budget. Equally there must be certainty about services that are not the responsibility of the global budget. This clearly is fundamental to the design of the budget, and its system of operation.

Services to be included can be identified in a number of ways. This could be to define:-

- Sectors of healthcare (e.g. nursing homes, preventive care hospitals);
- Services of facilities (i.e., all services provided at defined institutions);
- Specific treatments (i.e., an inclusive list of medical and clinical conditions that will be provided);

and once this positive list is determined any services that fall outside of it are excluded. Given the nature of medical practice and the impact of technology such as prescriptive approach has inbuilt problems. These relate to the need to consistently review and revise its appropriateness and effectiveness. However, most systems of publicly funded healthcare have some form of exclusion, usually on the basis of cost effectiveness or of clinical appropriateness.

Hospital interest in the population covered will focus on the identification of patients to whom they are committed to provide services. The global budget will need to have a precise method by which this can be done, usually through a health or insurance population registration index. This will need to be sensitive to the demands for emergency and out of areas type treatments. The proper verification of rights to care must not become a barrier to appropriate equity and access to emergency treatment. Some models of global budgets have gone as far as to introduce a formal agreement – a contract – between the purchaser and the provider. This will define right to services on the basis of:-

- Universal access by all to the facility with the purchaser undertaking an initial screening to determine and demonstrate to the provider that the patient has rights to treatment; or
- Limited access to specific facilities based upon residents with administrative arrangements to reimburse hospitals for services given to non-residents.

In the latter cases the hospital will need to be confident that it can identify which patients fall into which category. The former is sometimes referred to as a host purchaser (i.e. the purchaser shares a geographical identity with the provider – a town or municipality). The hospital will also have to be confident that it has suitable arrangements for recovering the costs of treating patients outside of any contract arrangements. This will include the treatment of any patient who is not covered by any global budget (i.e., uninsured or indigent).

Identification of the population to benefit from the budget will, in the first instance, rely upon existing data. These will be variable in quantity and early efforts will be needed to identify the full population included in the risk pool.

Where employment or tax based systems exist then registration cards are often used or modified to provide proof to benefit. Where there is a positive individual payment or contribution then the payment record can serve as this proof. Failing this a simple registration system will have to be developed.

## **THE GLOBAL BUDGET**

### **OVERVIEW**

A global budget can be defined as:-

“An overall spending target or limit that constrains the price and the quality of the services provided”.

It can have many forms and can be applied to all, or just certain parts of a spending program. Equally it can be applied to all, or parts, of the population covered by the purchaser, the facilities in which services are provided, or the services offered by the healthcare institutions.

The manner in which the global budget is funded is not a feature of the budget itself, and the collection of revenue to fund the global budget and the process and mechanics of risk pooling will not be further considered in this paper. However, the design of the budget, and the manner in which it is managed, is likely to be strongly influenced by the funding methodology. The extent to which the global budget can comprehensively include all sources of revenues will certainly impact upon the strength of its success in delivery policy objectives. The higher the proportion of revenue included in the budget, the greater the probability of achievement of policy objectives.



The budget will need to consider how to handle any income or co-payments made directly to the provider of services by patients. The difficult issue of informal payments cannot be ignored.

A global budget will operate more effectively if there is a single agent acting as the purchasing body. This may be an identifiable, legal entity or a consortium of agents working together in collaboration to set and monitor agreed policy outcomes. This arrangements will incorporate any policy issues and imperatives required by the public funding body, if this is not the direct purchasing agent. This may extend to specific initiatives targeted at small elements of the population covered by the budget. These can be service program or geographically based.

The administrative mechanism by which many global budgets are managed is often some form of contract. This can be a formal legal instrument or an administrative quasi-legal process. It can incorporate elements on financing, outliers, volume, quality standards and outcomes. The extent to which these various elements are developed will depend upon the management capacity of the healthcare system and the policy objectives of the purchaser.

The hospital global budget will be a prospectively agreed sum within which operating expenses of the healthcare institution must be contained. It will act as a cap on total spend, and lead to a clearly defined limit to the resources available from the purchasing agent. The purchaser may be tempted to specify specific constraints on the use of the budget, for example, by requiring fixed sum budgets (within the total) for certain input lines. However, experience strongly suggests that such constraints act against the overall effective utilization of the budget. Hospitals should be given freedom to spend their budgets as they wish, provided that service targets are achieved.

A global budget introduces a clearly defined resource constraint on the expenditure of a hospital. It has been argued that this control is essential because of the unique economic characteristics of the healthcare environment. In many countries most of the population is included in a risk pool arrangement and do not bear the full cost of their individual decision on how they utilize health services. The consequences of individual's behavior do not act as a financial constraint on their demand for services. There is a commonly held ethical view that an economic market based on willingness to pay should not be used to ration access to healthcare. In these circumstances the global budget can be seen as a fairer way to limit and allocate the use of healthcare.

Advocates of market forces hold a counter view that global budgets distance patients from the rational and efficient use of resources. This is because individuals are shielded from the full financial consequences of their actions, and have few incentives to act in a cost effective manner. They point out that a global budget is an artificially imposed spending limit and, as such, frustrates the full efficiency of a true market.

The reality is that global budgets are an integral part of the healthcare systems in many countries. Countries that operate global budgets do not do so in a uniform way. Budgets cover a range of populations and services and are not necessarily comprehensive. The degree of prescription within the budget is also variable, and can range from indicative hospital spending targets to detailed input line budget allocations. Generally other expenditure such as capital, research and teaching are funded outside of the service budget (but may be allocated through a parallel global budget type system).

Under a system of global budgets the key financial objective of a hospital is to contain operating costs within the allocated global budget. This is often achieved by some elements of control over the volume of activities performed. Hospital budgets are, in some instances, varied to reflect the marginal cost for differences between planned and actual levels of activity.

Countries that have experience of global budgets have recognized that the full efficiency gains that can be made will not happen automatically. They will require some explicit delegation of management responsibility to the hospitals. In turn this relies upon there being sufficient management capacity at the hospital to realize the potential of the budget. Decentralization of management capacity, and responsibility is an important prerequisite for obtaining micro-efficiency. Further explicit measures and tools should be built into the budget to provide incentives for cost effective behavior. These may lead to medium to long term developments of explicit case mix and quality indicators, limited to payment mechanisms that incentivize appropriate clinical interventions.

### **HOSPITAL GLOBAL BUDGET**

The underlying principal upon which the financial budget for the hospital should be set is that of equity. This is taken to ensure that:-

- Budgets are set with a clear aim of establishing an allocation that is fair to all patients, within the constraints of available resources;
- Fairness will be demonstrated by an equivalent potential spend per head of covered population taking due regard to the demographic, epidemiological and socio-economic factors that influence the demands for healthcare;
- Where changes are proposed a reasonable period is allowed for transition to allow hospitals and patients to plan for the continuity of services.

Global budgets require that there is a trade off between the cost (price) of a service and the volumes of services delivered from the budget. This assumes that a predetermined minimum quality standard is maintained. If a provider is able to reduce the unit cost of an output then the total volume of services provided by the budget will increase. Equally if unit costs rise then the total volume will fall. This is because of the simple truism that, in a global budget:-

$$\text{Budget} = \text{price} \times \text{volume}$$

and as the budget is a fixed sum, then if expenditure is to be contained within the budget and price changes then there must be a proportionate change in the volume delivered by the budget.

It follows that data that can establish the price and volume of services is required to quantify the budget. The level of sophistication and aggregation of this data – i.e., facility, clinical specialty/program, or individual case – will depend upon the accuracy of information currently available. Experience has shown that most systems have some data that can be modeled to provide these basic building blocks.

There are three broad approaches to the mechanics of setting the hospitals global budget. These are:-

- Historical – where data exists for actual expenditure on hospitals or facilities;
- Capitation – where municipality based program of spend can be determined; and
- Normative (benchmark) – where an externally set rate is applied to the service provided or to the input line items that make up the expenditure of the facility. The global budget is the sum of these line items.

Within each of these processes it is desirable to include a mechanism to adjust the budget for any differences between the planned volume of services provided and the volume actually delivered. Whichever model is used the initial year baseline budget would need to be adjusted annually to allow for the cost of inflation and any additional share of GDP allocated to healthcare. Inflation would need to

recognize the particular impact of medically related expenditure and not general prices. This is because these tend to increase at a rate higher than general inflation and thus the real purchasing prices of the healthcare budget will be eroded if this refinement is not included in the budget.

There will be sources of funds that legitimately pass to hospitals that will be kept outside of the global budget. In addition to this there will be payments for special categories of services such as:-

- Capital investment
- Medical and other staff training and education; and
- Research and development

These payments may not be equal, year on year, in an individual hospital (although it is to be expected that they will be broadly consistent across years within a healthcare system). Because of this they cannot form part of the annual global budget and need some form of separate funding system.

### **GLOBAL BUDGETING MECHANICS**

The introduction of a system of global budgets will probably require changes to other elements of management and financing. Without many of these the full benefits of the system will not be achieved. The main advantages of a system of global budgeting will be:-

- Certainty to both purchasers and providers
- Control significant reduction in the risk of overspending or over committing purchasing and providing budgets thus contributing to macro-economic efficiency
- Transparency ease of audit and accountability; and
- Incentives giving a solid basis for decentralization and local autonomy and local responsibility for spending decisions.

These gains will be enhanced by clear contracting arrangements between the hospital and its funders.

The global budget will be set, initially, on a mixture of historical costs, per capita expenditure and relative efficiency measures. These latter should be linked to benchmark costs for key clinical activities. The contract for each provider will give the financial budget, specify the amounts of services to be delivered and introduce some measurement of quality.

The provider element of the system will no longer be a simple cost centre that can be subjected to detailed and direct central control. It will have to respond to the purchasing plan by delivering cost effective and appropriate care. They will organize the resource available – manpower, capital infrastructure, supplies and services – in an optimal way. They must have the managerial authority to realign existing budgets and not be constrained by a residual ‘line item’ budget requirement. In practice it may be wise to introduce such autonomy in a phased manner, so that local management capacity can develop and behave accordingly, and service continuity can be secured.

### **SETTING THE BUDGET**

The simple fundamentals of a global budgeting system are that:-

- There is fixed and pre-determined sums available to spend on the provision of healthcare; this being allocated to a purchasing agent that may be national or local;

- There is a prospective settlement of the total to be allocated from the purchaser to the provider – the global budget; and
- Global budgets require a trade-off between price (costs) of the service and the quality of services provided (assuming the cost of quality is constant).

this latter points follows from the simple observation that under a global budget:-

$$\text{Budget} = (\text{Price} \times \text{Volume})$$

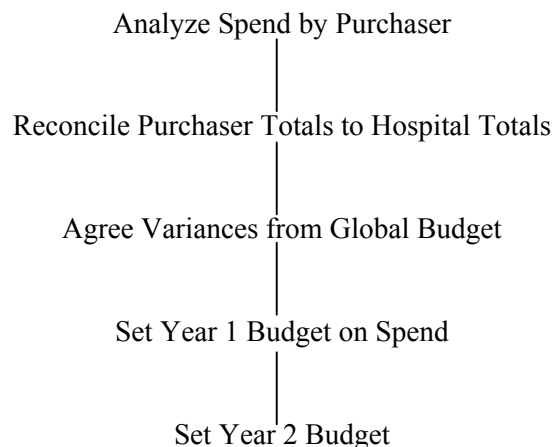
and to remain within the global budget the expenditure of the facility and/or volumes of services provided must be adjusted in a direct relationship that is constrained by the sum of the resource available. It follows that to set the budget data is required on both the price of services and the volumes to be delivered. The degree of sophistication and dis-aggregation of existing data sources will determine where the calculation process can begin. Global budgets can, and have, been successfully set in systems with data at the facility and/or specialty level. Patient based data, and procedure based costing, is not a prerequisite to introducing global budgets.

There are three broad approaches to the mechanics of setting the global budget and each will be considered in detail. They are:-

- Historic
- Capitation, and
- Normative

#### HISTORIC BASE

For the first year of the global budget it is important that both purchasers and providers can be satisfied that a fair allocation is made and that services can be maintained. If the allocation process is one whereby an existing geographical and/or institutional relationship is maintained then it is easy to show such continuity. This would mean that the current funding level is maintained, a nominal global budget based upon the new mechanics for setting budgets is calculated and transitional arrangements planned. If, as is more likely the case, a degree of decentralization to more local purchasers is an element of the reform process then a two-stage process may be required. This will enable existing expenditure to be reallocated to the responsible purchaser, before moving on to the dynamics of the new funding model. This approach could be summarized, based on the total spend in the hospital, as:-



In order to analyze the spend by Purchaser, it will be necessary to establish the patient flows and costs. Ideally an average of 3 years flows will be needed to give some time trend based stability. Patient flows should be categorized by specialty and if possible division of complexity. Procedure (DRG) based data is not a necessary information requirement; average specialty level data will be adequate for this initial exercise. The patient flows will need to be costed, and the following process may be helpful in this task:-

<b>TASK</b>	<b>DATA</b>
Quantify total activity by each Purchaser	3 years activity data Exclude services outside of global budget
Agree transfer and cost of patients responsible to other Purchasers	Volume and costs of patients
Allocate activity to provider	Provider code or source
Establish price base	Determine if cost per case, per stay, per specialty
Establish value of activity by Purchaser/provider	Agree current year prices
Reconcile total costs at 5 to current spend	Current and projected costs
Establish any purchaser/ provider variances	Determine if caused by change in unit price or variance
Recost total costs and balance to global budget	May need some pro-ration between purchasers and providers

The reconciliation process at Step 8 will also resolve any issues of overspending in the current year. These will be absorbed into the new global budget in that only the available resource will be allocated. In order to deal with any service issues that this gives there will need to be an understanding of the cause of such a problem and agreement on how it can be resolved.

In some cases the providers will have more robust data on the residence of patients. If this is so then a simple process could be undertaken based upon the following:-

<b>TASK</b>	<b>DATA</b>
Quantify activity by purchaser	3 years activity data Residence code/address
Analyze purchaser base into pricing categories	Treatment codes
Determine price base	Could be share of total cost, cost per case or similar
Establish purchaser cost	Volume x price
Compare total cost at 4 to current operating budgets	Establish any variances on a Facility or specialty base
Adjust total at 5 to equal current budgets	Pro-ration if needed

This will establish the expected global income budget to be allocated by each Purchaser to the hospital. It will, by simple reanalysis, enable the purchaser to set their total global budget for each of their providers and reconcile this to their overall resource limit. This process will lead to an agreement and

understanding of the global budget by both purchasers and providers. This will demonstrate that purchasers can afford to continue to buy the current volume of services for their responsible population. Providers can also be confident that their current income is secured and that their operating cost base is affordable and sustainable. The historic cost base has a clear merit in that there is a degree of certainty for both parties and further for patients, that services can be maintained.

### **CAPITATION**

Whilst the historic basis calculation has the merits of simplicity and stability it does perpetuate existing resources flows. If population, and service provision can be demonstrated to be in some way out of balance then it will not deal with issues of equity. This is important in emerging and/or rural countries where main centers of population may have a disproportionate centralization of services. In these circumstances a move towards a model of funding based upon capitation will lead to a more equitable distribution of resources. If there are significant inequalities in the current allocation then movement towards a capitation base may have to be phased to enable transitional and capacity building issues to be adequately addressed.

Capitation aims to distribute resources between providers based upon the relative needs of the population they serve. It has to be done within the context of the total sums available. There is a zero sum game at play in the process. Any provider who gains from the new formula will do so at the expense of others who will lose some of their budget.

Capitation funding directly to providers is a very complex arrangement. It will require that the population that the providers serves can be defined with certainty and further that the range of services provided to that population can also be clearly defined. Where a provider offers either a very narrow and specialized range of services that can be clearly disaggregated from the services of other providers then the model can be relatively straightforward. Equally if a comprehensive range of services is given to a clearly constrained population in which there are no other providers then again a simple model is possible. Single specialty hospitals are examples in the first category, district hospitals examples of the second. For most realistic situations there will be a range of providers, and also some cross boundary flow of patients. Modified capitation models will be required to deal with these issues.

A method of developing the capitation based global budget could be as follows:-

<b>TASK</b>	<b>DATA</b>
Agree services to be covered	Analyze total activity by specific codes
Determine factors that drive needs for service	Demographic, socio-economic and access data
Establish formula that isolates 2 from total global budget	Weighted capitation base model
Calculate share of global budget	Pro-rata to relative needs Use cost weights approach
Determine which providers deliver service	Historical provision, verified by quality accreditation
Allocate budget share to eligible providers on basis of population covered.	Capitation basis of provider population

As such this requires a considerable volume of relatively sophisticated data. It also needs advanced modeling skills and may be expensive to maintain and refine. Because of this it has not been widely adopted or used.

### NORMATIVE APPROACH

There are many variants of the normative approach to setting budgets. In essence they all share the same principal that an external rate setting mechanisms determine a unit price that, in turn, forms the basis of the budget. The process takes a pre-determined rate for services and applies it to the volume of services that the purchaser requires of the provider. Generally this is prospective rate, fixed for the budget year.

In its simplest form it takes no account of the current levels of activity, access or provider costs. The method could be applied in the following way:-

TASK	DATA
Determine activity base for global budget	Historical data from provider Aggregate at appropriate patient care level
Agree price norm to be used	'Industry Best' if not data available National average cost per case/procedure Procedure base (DRG type) cost if known
Apply price norm to activity	Cost x volume
Aggregate budget for provider	Total of (cost x volume) by patient care level

The approach is simple and very transparent provided that the appropriate level of data is available. It also has the added dynamic that purchasers can apply a cost norm that represents their view of an acceptable level of cost. By so doing it can force efficiency from providers. If the provider has a cost structure that exceeds the norm then it will be forced to become more efficient to survive. However, if this efficiency pressure is too great there is a real risk to market exit by the provider. This will then lead to a withdraw of service to elements of the population, and hence real issues of unequal access. Equally if a provider is efficient and can deliver service at better than the cost norm it will benefit by being able to utilize the financial surplus thus created to develop more services, improve quality or reward its staff. This is a very simple and powerful dynamic, but probably requires some provider regulation to guarantee continued comprehensiveness of services.

There may be legitimate short-term reasons why providers can justify some financial support under a system of normative budgeting. These could include the physical condition of the facility that may mitigate against fully efficient service delivery. Other factors such as poor local infrastructure that supports the hospital stay, such as inadequate or variable community support could be an issue.

If a normative method is to be used then the factors that play into the calculation such as case mix, severity and even localized market (pay) factors must be fully allowed for. Without these the formula itself could lead to inappropriate responses by providers.

One application of the normative approach that is sensitive to the relative cost positions of individual hospitals and the need for them to become more efficient is the use of norms to set differential efficiency based reimbursement rates. This process would set the norm as the general reimbursement rate, but allow some time-based flexibility over its achievement. For example, if the norm was 100, but a provider could demonstrate a current cost of say 120 then it could be reimbursed at the rate of 110, 105 and the 100 over

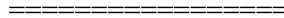
a three-year period. This would give purchasers an immediate efficiency gain and give the provider a period for adjustment.

**LINE ITEM**

In many emerging countries hospitals have traditionally been financed on the basis of centrally directed line item budgets. In these the central funding agent has determined not only the total budget of the hospital but has decreed exactly how the budget will be spent. In many cases this prescription is enshrined in laws or regulations, and there is little or no ability to move monies between the line items, irrespective of the local needs, demands or ability to effectively spend the line item budget.

A simple line item input budget could include the following headings:-

- Salaries
- Salary Tax
- Food
- Drugs
- Operating Expenses
- Supplies
- Repairs
- Other expenses



Hospital Total

The hospital will be required to account for its expenditure in accordance with this categorization. This approach has the benefit of assuring the funding agent that it can determine and control the input costs. It may also be a positive tool in that it can give some assurance about continuing employment. However it has many obvious drawbacks including:-

- 1 Inflexibility It does not allow for in-year or inter-year changes in the relative costs of inputs
- 2 Incentives It gives no incentives to clinicians or managers to refine their behavior or treatment patterns.
- 3 Year-end A perverse incentive exists to ensure that all the budget is spent up, as generally there is no ability to carry forward surplus or deficit into further years.

In conceptual terms a line item budget could be viewed as a service of very specific global budgets, each line item being a self-contained and discrete budget. However, such a rigid approach will invariably lead to sub optimal performance by clinicians, staff and managers. The line items can be transformed into a global budget by a series of relatively simple steps. These will rely upon data being available for each line item, and also an analysis of the purpose, function and treatment specialty that it was applied to. A global budget could be built by the following methods:-

<b>TASK</b>	<b>DATA</b>
Determine functions/program basis for future management/ budgeting	Analyze function of hospital into clinical areas and supporting services (see below)
Allocate current line item expenditure to revised structure	Current expenditure data analyzed to each new function on basis of: <ul style="list-style-type: none"> <li>• Actual data (i.e. function as a cost centre)</li> <li>• Allocated on basis of</li> </ul>



TASK	DATA
	<ul style="list-style-type: none"> <li>• Direct cost</li> <li>• Indirect cost allocation</li> </ul> (See Appendix 3 – A Note on Costing) OR Establish transition year for data capture during which expenditure accounted for at functional cost-center based
Review functional/departmental split of historical base expenditure.	Activity related data for each department
Agree Global Budget for Hospital	Sum of existing line items
Set Internal Functional Budgets	Based on historical split and review to reflect current/ placed practice.

The final step is to determine the functional and departmental composition of the hospital in terms of the way future management lines of accountability are to operate. This could be as simple as determining a number of functional cost centers, for example:-

- Clinical department
  - Surgery
  - Medicine
  - Therapies
  - Laboratories
  - Radiology
- Facilities support
  - Maintenance
  - Energy
  - Catering
  - Cleaning services
  - Transport
- Administration

These departments will be established as individual cost centers for future financial reporting and budgeting.

The current salaries and salaries tax input line budget can be allocated directly to most of these service areas. This will be done on the basis that individual members of staff will be working in one of these departments, and thus the total staff budget for each can easily be aggregated. If staff works in more than one function then their costs can be apportioned on the basis of the hours they spend in each. The full employment cost, including any payroll tax, must be allocated to the department.

The allocation of non-pay expenditure from the current line items will depend upon the level of disaggregates of the existing accounting data. There are two extremes:-

1. The line item expenditure is already analyzed to individual functional cost centers such that data on use (and cost) of expenditure is collected at the departmental level. In this case the individual line items can be allocated to departments, and the departmental budget.
2. Line item expenditure is not analyzed in any detail other than to the subjective line. In this case there are two options, i.e.
  - a) allocate, on the basis of indirect cost apportionment methods, the current expenditure so that it is allocated to a function/department on a national basis of usage;
  - b) Instigate a data capture period during which new cost centers for the functions are established. Code expenditure to each department, rather than the hospital as a total. At the end of the period set the functional budgets.

In both examples it will be necessary to reconcile the new functional budgets, by line-item category, to the overall current line-item budget.

For many of the line items the level of aggregation may be too high for meaningful management. A good example is supplies. It may be more helpful to disaggregate this into more detailed sub-headings that reflect the type of analysis that is required to understand the assumption of resource in the hospital. Local circumstances will determine the type and extent of sub-analysis.

If this is to be done then the accounting code structure should be changed to allow data to be captured directly to this level of analysis.

The costing and cost allocation techniques, and examples of practical methods of apportionment are explained in detail in Appendix 3, A Note on Costing.

The out-put of the above exercise will be a matrix that analyses the line item budget into their functional cost centers, such as:-

Input Line Item	Line Item Total	Functional Split			Transport	Admin
		Surgery	Medicine	Therapy		
<b>Salaries</b>	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>		A <sub>n</sub>
<b>Salary Tax</b>	B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>		B <sub>n</sub>
<b>Food</b>	C	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>		C <sub>n</sub>
<b>Drugs</b>	D	D <sub>1</sub>		D <sub>3</sub>		D <sub>n</sub>
<b>Operating expenses</b>	E	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>		E <sub>n</sub>
<b>Other</b>	X	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>		X <sub>n</sub>
<b>Total</b>	Y	$\Sigma_1$	$\Sigma_2$	$\Sigma_3$		$\Sigma_n$

The hospital now has a two-way analysis of its expenditure; that is by subjective input line item, and by operating functional departments.

The hospital management then needs to review these initial budgets and be satisfied that they reflect the current patterns of expenditure and planned workload. This can then address any imbalance between the line items and the function. If, for example, it is believed that any one line item budget is greater than the total needs of the hospital, but it has been spent to ensure no overall loss of budget, then this surplus can be reallocated to other more needy budgets.

The hospital global budget is then the total of all of the departmental budgets. This is also the total of the old line items. However, the budget is now expressed in terms of direct lines of management accountability. It can be utilized within a flexible framework to ensure there is:-

- Overall control functional heads are responsible and accountable for service and budget delivery;
- Flexibility management between line items and functions can be allowed, within pre-set limits. It is usual to have restrictions on any movement between pay and non-pay lines as this protects the funding for the continuing recurring commitment to pay budgets. There can also be some flexibility at year-ends to allow for limited carry forward of end of year balances on each budget. This discourages spending of unused budgets on other than optimal purchases.

Functional Heads will become budget holders, and take responsibility for their costs and productivity. They will require training and technical coaching to ensure that they are able to succeed. They will also need reliable and credible financial and activity data to manage the budget.

### **MIXED MODEL**

In the practical application of the model it may be useful to incorporate elements from the discrete processes outlined above. By so doing the positive elements of each can be brought together with the clear aim of maximizing the gains from the global budget. In particular by amalgamating models a positive balance between stability and incentives for change can be brought into play.

There may be a need to refine this to allow for the cost of patients treated “out of boundary”. Such cross-boundary flows of patients are not uncommon and if material and not balanced on the basis of being equal to outflows then a process for correction to the budget is needed. The methodology for this can apply. The methodology for this can apply to flows to local, county or regional centers. A simple method is to take appropriate cost weights and apply them to the activity flows. The global budget is then adjusted for the net cost of this activity.

The performance element of the budget can initially be based upon the achievement of a small number of high-level performance targets. In most systems data to support items such as:-

- % reduction in average length of stay
- % reduction in number of patients readmitted after discharges  
and
- No increase in number of patients admitted
- 

is available.

Appropriate targets can be set and the performance component will only be released upon the achievement of these targets.

Each provider can be allocated a global budget based upon a combination of:-

- Historic budget
- Capitation share; and possibly
- Performance based incentives

With the share allocated as the historic budget declining overtime. This will clearly shift the emphasis away from historical funding to a performance-based process. In practice, it could be done by changing the weighting components, which for illustrative purposes may be:-

<b>Weighting Factor Year</b>	<b>Historical costs</b>	<b>Weighted capitation share</b>	<b>Performance based budget</b>
<b>1</b>	95%	5%	0%
<b>2</b>	90%	5%	5%
<b>3</b>	70%	20%	10%
<b>4</b>	50%	30%	20%
<b>5</b>	0%	50%	50%
<b>5+</b>	0%	50%	50%

And there is a gradual move away from historic base towards capitation and performance as the drivers in the allocation process. A further merit of this model is that other factors can be easily added into the overall formula if and when they are established and accepted.

## **PERFORMANCE INCENTIVES**

The overriding aim of a global budget is to set a limit on the spending on healthcare. There must, however, be a framework for incentives for good, and penalties for poor performance. This must apply to both the purchasers and providers of healthcare if the system is to deliver the revised activity volumes from the global budget.

Agency Theory indicates that there are few real incentives for publicly funded healthcare systems. Mindful of this several systems have introduced quasi market instruments to recognize and compensate for this. These are usually some form of contract between the purchaser and provider. The design of the contract will be fundamental in determining the way in which the players in the system act and respond. The less sophisticated the contract the greater the need for incentives, penalties and monitoring. Within this the real administration cost of monitoring must be a consideration and over elaboration may not result in an optimal solution.

There must be appropriate systems for dealing with volume variances both above and below the planned level. The cost structures of providers will determine the sums in question when these adjustments need to be made. Recovery (and payments) at marginal cost rates may be appropriate. To be effective there must be this link between budget performance and payment, both current and future. The budget must have the power to change the flow of future payments if providers are to respond to volume and quality performance targets. Without them a global budget can become, in effect, a block grant to be spent at the will of the provider with no guarantee of services to the public.

The way in which incentives and penalties are structured into the system will be strongly influenced by the financial processes that support the budget.

If the primary allocation process is to devolve agents such as region, municipalities or Insurance Houses then solutions are not necessary. The agent will be responsible for the achievement of the budget and will take the risk if expenditure exceeds the budget. Similarly if the budget is paid directly to a hospital it will bear the risk of any overspend on its global budget. If underspendings are likely then the simplest way to rectify them is to make an adjustment to the budget in the subsequent year.

### **INCENTIVES THROUGH CONTRACTS**

To ensure that there is clarity and transparency in the relationships between the funding agent (Purchaser) and provider of care it is important that there is a written agreement of the responsibilities and obligations of both parties. Where the structure is such that a formal, legally enforceable, contract is possible then this should be put in place. Where the relationship between the purchaser and provider is administrative then a formal Service Level Agreement should be made. This will act as a quasi-contract and the parties behave as if it were a contract, although there is a no final remedy in a Court of Law.

Within the fixed spending cap of the global budget, there needs to be some refinement to ensure that:-

- Activity levels are achieved
- Quality standards are maintained; and
- Service developments are consistent with purchasers' wishes

### **PURCHASER/PROVIDER BALANCE**

This guide is written to assist with systems that is predominately funded from public, tax based systems. In most countries where it is to be applied the provision of care will also be managed by and in the public sector. Because of this it would seem reasonable to introduce a general principal that providers plan to recover only the reasonable costs they need to incur to maintain the volume, quality and safety of their hospital. This, in turn, relies on explicit and transparent activity and costing discussions between purchases and providers at the outset of a contract period.

If the above principal is agreed then there is an immediate impact on in year variations to volumes achieved or desired. Additional in year activity can be undertaken at marginal cost only, within the normal operating range of the provider. If the purchaser were able to afford extra work in year then the provider is justified in only recovering the marginal cost; anything over this would generate a surplus.

This is because the provider's fixed and semi-fixed costs are already recovered in the initial contract agreement.

There are likely to be variances from the activity levels planned into the initial contract. There must be some payment adjustment to recognize these; or else there is a clear incentive for the provider to continually underperform. Equally if a provider continually exceeds the planned activity then they will create a financial deficit. The global budget should be flexed to allow for some element of variance. The range of variances will reflect local circumstances and affordability, and must be within a pre-agreed set of parameters and possibly within a fixed global budget that allows flexibility between sub-budgets, but does not change the overall budget total. For example, it may be appropriate to move monies from one specialty to another if demand varies from the planned level.

There will need to be a clear cap on this level of movement if the basic concept of the global budget is to be sustained. There will also have to be clear, pre-set parameters on if and how funds are transferred.

Any such model that leads to an increase in the total budget available to providers implies a contingency or reserve held back by the purchaser at the time of initial contract agreement. Whilst this may be prudent it could distract from the overall effectiveness of the system.

A clearly defined and measurable connection between provision and payment is required. This must deal with the current period and also have the ability to impact upon future payments. The financial mechanisms must be constructed so that they give incentives to achieve the overall budget aims, and also such that they can be used to penalize non-performance. At its simplest this could be at the aggregate outturn level – who keeps a surplus, who absorbs any deficit? There are a variety of circumstances that causes these outcomes. The budget must be designed to positively support (or penalize) the party best placed to influence these outcomes.

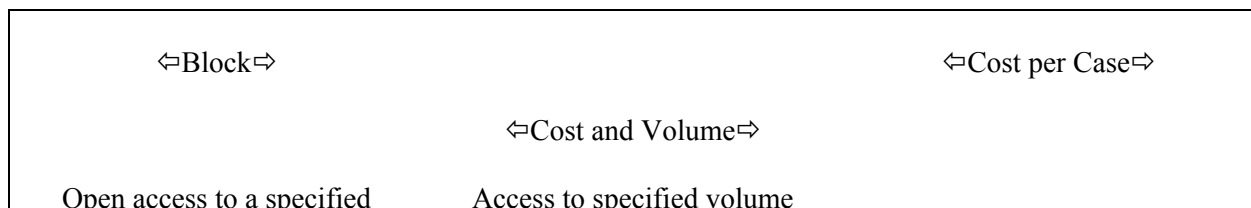
In themselves, global budgets could not be guaranteed to deliver incentives or efficiencies. The linking of payment to performance is clearly a strong incentive in any funding process and the principal applies to global budgeting. To be effective a global budget must establish a clear and direct relationship between the delivery of a budget (the financial, activity and quality) and the receipt of current and future payments. To change behavior and patterns of service delivery the system must have the ability to alter the flow of payments.

The global budget is advocated as a simple, effective and easily administered system for reimbursing hospitals. It will be the detailed design that incorporates the dynamics of the system. At the most simple level the issue of the aggregate financial risk – who keeps a surplus or who funds a deficit – is a basic design issue. Decisions on this will shape and determine the other drivers in the system. There are a variety of circumstances that give risk to a surplus or a deficit and the design must take account of the best way to share these risks. A fundamental design parameter is that the organization best placed to control the outcome, and determine action towards the desired policy goal, should be responsible for the consequences of those actions.

In broad terms contracts can be thought of as falling into three broad categories. These are:-

<u>Type</u>	<u>Key Feature</u>
<b>Block</b>	Fixed sum payment Defined service access
<b>Cost &amp; Volume</b>	Defined service and minimum volume level Fixed sum for minimum volume level Marginal cost for extra volume
<b>Cost per case</b>	Defined service Fee per patient Case-mix base

Actual contracts can be seen to be continuous in terms of complexity and sensitivity to actual numbers and costs of patients treated. This can be represented as:-



service for a fixed fee	for a fixed fee	Each case treated and costed/ charged for separately
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Whereby in basic block contracts the volume is described in terms of the amount of access rather than the number of patients treated. Within this framework a concept of Indicative Block Contracts has developed. This lies somewhere between the block and cost and volume contract. Access is guaranteed up to a pre-required level of activity. If activity exceeds that level then a new agreement is struck. In effect an Indicative Block Contract ups the volume risk of the provider, and the financial risk of both purchaser and provider.

There will need to be refinements to deal with patients who are treated outside of the contract. This will cover emergency conditions where a patient presents to the hospital, but is not the subject of a formal contract between the hospital and their responsible purchaser. In these circumstances treatment cannot be denied and the purchaser must subsequently, retrospectively, meet the cost of treatment. There may be circumstances whereby a patient, or their clinician, elects for treatment in a hospital where no contractual relationship exists. In these cases the purchaser must have the right to agree to pay for treatment; the provider must have a positive agreement before commencing the treatment.

The different contract categories have differing dynamics in terms of risks, incentives and penalties. In simple terms they can be considered to be:-

<b>Contract</b>	<b>Purchaser</b>	<b>Provider</b>
<b>Block</b>	Certainty over costs Control over total spend No efficiency incentive Financial risk shifted to provider	Certainty over income Incentive to be efficient Incentive to minimize volume/ reduce quality Takes all financial risks
<b>Cost &amp; Volume</b>	Certainty over costs Cap on affordable volumes Incentive to achieve volumes Shared financial risk	Fixed and semi-fixed costs met Variable cost uncertain Incentive to be efficient/contain costs Shared financial risk
<b>Cost per Case</b>	Absolute control over volume/spend Risk of lack of capacity Expensive to administer “Money follows patient” Retains all financial risk	All income at risk Incentive to downsize/ minimize risk of excess cost or capacity Expensive to administer Minimal financial risk

In terms of the financial risks the three contract types demonstrates very clearly the potential to shift risks around the system. This will apply equally to both in-year surplus and deficits, and there will need to be a year on year adjustment process to ensure that some equilibrium is maintained. Without this there is a risk of unplanned withdraw of services or facilities.

### **EFFICIENCY GAINS**

On itself the global budget may not be sufficient to ensure that efficiency will be improved. However, under some circumstances the global budget can have strong incentives for inefficiency. The way any

contract mechanism is designed can give incentives for achieving stated targets but they may not be enough to generate real efficiency gains. There will need to be a specific agreement and possibly specific incentives to ensure that efficiency gains are a continuing element of the process.

Management incentives and capital investment linked to service gains can both be used to deliver efficiency. This will have two potential impacts on the cost/volume relationship in a global budget for either:-

- Unit costs are reduced and so the volume of services that can be achieved with the (fixed) global budget can be increased; or
- Volume purchased can remain constant, but the total sum allocated to the global budget can fall.

In both cases clear efficiency gains can be demonstrated. Given the universal pressures on healthcare budgets it is reasonable to expect the designers of reformed systems, through any purchasing arrangements, to require annual productivity gains. If the monies released from such gains remain within the healthcare system then there is a global incentive for efficiency, although if the individual hospital releasing the gains does not benefit the incentive is diluted. If the monies remain within the hospital, that is to say the global budget is not reduced although activity volumes are increased, then there is a real and direct incentive for the hospital to deliver the efficiency. The redeployment of any such gains should be on new services agreed between the hospital and purchaser, and be consistent with any overall strategic or service plan of the purchaser. Purchasers can, therefore, use productivity gains to improve and increase the range, volume of and access to services for its responsible population. Providers can retain gains to redeploy on internal developments and also to maintain a stable cost base.

## **NON BUDGET FUNDING**

The global budget is designed to deal with the recurring revenue funding of the hospitals. In addition to this there will be other funds. These will be legitimate, but are inappropriate for the global budget because they are either extraordinary or irregular. There are two broad categories namely:-

- Funds from patients; and
- Specific purpose funding

They should still be estimated and planned into the business process and budgets of the hospital.

Payments made directly by patients can be for a range of services, but generally will be for:-

- Co-payments within the legitimate funding/insurance process;
- Self pay or private patients; or
- Patients outside of the resident population

Co-payments will be to an agreed schedule dependent upon the service provided. These should be added to the total income of the hospital and some independent form of legitimate verification be put in place to ensure that they are properly accounted for. Self and private pay access will enable individuals who do not have rights of access under the global budget to be treated. The hospital should be free to set a scale of charges that reflect the true cost for those services. Access must not compromise the availability of services to patients covered by the global budget. The charge must cover the variable cost of the treatment and make some contribution to semi-fixed costs and preferably to fixed costs (see Appendix 3, A note on costing). If this is the case then private patients are enabling the hospital to generate a surplus on the activity and this can be applied to other services.



The income collected from co-payments and private patients should become the responsibility of the hospital. It will be estimated at the start of the year and a total agreed with the purchaser. This total will be deducted from the forecast operating cost of the hospital and the purchaser will set a global budget that covers the net costs of the hospital. Income collection then becomes a risk (and incentive) to the provider and will act as an incentive to the efficient collection of these monies.

The system must allow for the reimbursement for patients who are part of the overall systems responsibility, but whose purchaser does not have a global budget relationship with the provider. These can be either emergency patients who fall ill when visiting the locality or specialist (tertiary) referrals from a hospital to another. The reimbursement model can be one of the following:-

- Purchaser to purchaser
- Purchaser to provider
- Provider to provider

In a purchaser to provider arrangement the purchaser could agree to pass funds between themselves that reflected the costs of patients treated by hospitals who had treated the patients. As such the ‘host’ purchaser would set the global budget and add an element to it to allow for the cost of non-resident patients. It would collect this from other purchasers. This would mean the purchaser taking the risk of income collection. It will work only if there are established and regular patient flows. A clear advantage of this process is that the provider has to deal with only one purchaser, and so it is administratively simple and cheap. The ‘host’ purchaser also collects knowledge on the full extent of activity and income to the hospital. This may be valuable in future budget setting discussions.

In a purchaser to provider relationship the provider may choose to strike a formal contract with the non-host purchaser. This will be appropriate when volumes of activity are regular and material. In effect a secondary global budget will be agreed with the minor purchaser. The agreement may specify a given number and/or type of patients that are limited within the global budget. If a cost per case process is agreed then a simple invoice is sent to the purchaser. However, this will increase administrative costs.

In a provider-to-provider relationship the basic model must allow for the host hospital to be funded for all of the resident patients, wherever they are treated. To facilitate payment the purchaser must construct a matrix of costed patient flows (based on a number of patients by type multiplied by unit costs). A redistribution matrix emerges that looks like:-

	<b>DISCHARGES FROM</b>				
<b>Discharges to</b>	<b>Hospital 1</b>	<b>Hospital 2</b>	<b>Hospital 3</b>	<b>Hospital 4</b>	<b>TOTAL</b>
<b>Hospital 1</b>	Own patients treated	Patients from Hospital 2 treated at Hospital 1			Total treated at Hospital 1
<b>Hospital 2</b>	Patients from Hospital 1 treated at Hospital 2				

<b>Hospital 3</b>					
<b>Hospital 4</b>					
<b>TOTAL</b>	Patients from Hospital 1 treated elsewhere				

And this can be costed to give a fund flow matrix that is then actioned on a hospital-to-hospital basis.

In order to maintain the integrity and benefit of the global budgeting system the number of patients subjected to these payment processes should be small. A general rule would be that a global budget should be in place if the value of work exceeds 5% of total income.

There must also be a rigorous system that identifies each patient to the responsible payer. A residence code is probably the best and simplest method for this.

Purchasers may wish to initiate special programs or initiatives outside of the main global budget. These could be targeted actions to deal with a particular problem or political initiative, for example to equalize access to population elements or to reduce long waiting. Similarly pilot studies or clinical trials may be required before a new process is offered for general consumption. In such cases a one-off agreement could be struck that ensure that variable costs are fully covered.

Provided that the above principles are applied then there is little cause to make any further in-year adjustments to the global budget. The impact of initiatives into future years must be remembered when setting that year's budget.

In the above description no distinction has been made about the nature of the patients who will need to be treated outside the main global budget. This needs to be clarified, as there are two general categories- namely:-

- Emergency treatments who require immediate treatment; and
- Elective referrals who require specialist treatment

Emergency patients should be treated on demand. The responsible purchaser should, whatever the funds – flow model being used, accept the cost for these on the production of appropriate verification and reasonable costs. Purchasers should be informed of their liabilities for these patients on a regular basis so that they can plan for these costs. Purchasers will need to include a specific budget or resource in their own annual budget to cover the cost of these patients.

### **SPECIFIC PURPOSE FUNDING**

There are some further sources of funding that are often present in existing processes and need to be played into the global budget. In financial terms the most significant are:-

- Medical and Professional Education; and
- Research and Development

### TRAINING

Training and development programs will be a necessary and desirable part of any health system. Their funding often involved a combination of central funding and a fee per trainee. Providers will want to identify the existing costs of staff currently within these programs. They will need to recover the costs of such items as:-

- Salaries
- Course fees
- Teaching staff
- Accommodation
- Training materials
- Administration

Which can be collated on a staff group basis to enable both purchasers and providers to understand the full cost of training. Further this will provide important data for future manpower planning as it identifies the extent of current investment and the number of people, in training.

If some costs are shared between several staff groups then they need to be apportioned appropriately, probably on the basis of student numbers or contact time. The trainees may be making a contribution to service delivery and if so then this element should be charged to the provision of services and funded through the global budget. This is because if the trainee were not available then other staff costs would be incurred to cover this element of their input. The provider must aggregate the training related cost of each staff group. The total cost of this will be removed from the providers aggregate base level total expenditure.

It is desirable that a separate agreement is made on the number of trainees and the funding process. A second global budget based on numbers of trainees can be made. This will give certainty to providers that costs are met, and to purchasers that there will be a future flow of trained staff to continue to deliver services. This simple process can be summarized by the following steps:-

1. Define staff groups and training program
2. Quantify numbers of trainees by program
3. Cost each program, including overheads
4. Establish service element of the training
5. Pass service cost to hospital budget
6. Pass training costs to purchaser
7. Agreement on training numbers and global budget for training

There may need to be a modification to the above general model where medical staff training is being undertaken. In this case the practical time taken by senior staff to train students may mean that their productivity, in terms of patients seen per clinical session, may fall. There may also be a tendency to undertake diagnostic tests and procedures to demonstrate issues to students. These will add costs to the overall treatment of patients and should be reflected in the training agreement.

One way to establish the extent of these additional costs is to take average costs of similar procedures from teaching and non-teaching institutions. Any additional costs could be ascribed to teaching and then

excess costs be removed from the global budget and funded from a separate agreement. Alternatively they can be incorporated into the training global budget.

## **RESEARCH AND DEVELOPMENT**

Research and Development (R & D) is an active component of health systems. If the system wishes to protect and sustain this then a process similar to that outlined above for training can be used. The principle to apply is that current costs are identified and removed from the global budget for services, and also from the cost base of the hospital. The element of R & D funding that had been identified as being currently paid for by the purchaser would form a separately identified income line. The purchaser and provider could identify the specific projects that the funding was to be used for. Such a process would need collaboration between purchasers, providers and academic bodies. It would also have to demonstrate that R & D was funded on the basis of merit and be transparent in its decision processes.

Commercial funding of R & D may be an issue. Provided that it meets standards of ethical and clinical efficiency then this can be an important supplement to public funds. However, it is essential that there is public subsidization of the costs of this type of R & D. The funding must be able to cover the fully absorbed costs of the trials or research. This means that the costs of salaried employees, consumables and overheads that work partly on this R & D, partly on services covered by the global budget, must be clearly identified to R & D. These costs must be recovered if non-explicit cross subsidization is to occur.

Having defined a financial cap and a service framework that constrains the availability of care to a population there will invariably be services that elements of the population desire and can afford to pay for. A decision on how to handle this is an integral part of the totality of a global budget system. If such additional services are permitted the revenues received for any such services may be counted outside of the global budget. Equally the cost of provision will not be charged to the budget (nor any activity a counter towards achieving global budget totals). Prevention of a system of extra payments may lead to incentives for 'informal market' or inappropriate non-accountable payments. It is better regulated within the system.

It will also allow for greater flexibility within the system and accommodate changing preferences of the public. It will, however, have the undesirable impact of causing inequalities in access, as the poorer elements of the population will generally be denied these added services.

If a process of extra budgetary services is to be allowed then it will need to be regulated such that it does not detract from the global budget goals. Equally the capacity of the system must be focused on the global budget and its population. Extra work should be performed when there is capacity available over and above that needed to satisfy the global budget.

Where extra budget services are provided the hospital must recover the full cost of providing the services. The global budget must not subsidize these extra services. A transparent process of cost allocation and recovery will be needed to ensure that this happens. It may be appropriate for some of the services to be undertaken at marginal costs, however, where genuine spare capacity exists. However, generally full cost recovery principles should apply.

## **ANNUAL ADJUSTMENTS**

The real term value of the global budget must be maintained. After allowing for improvements in efficiency that may be actioned by an agreed and explicit reduction to the budget, other issues do need to be considered. These include:-

- **Inflation** – The cost of changes in input prices as they impact on the healthcare system
- **Economic Growth** – To sustain the share of GDP that is spent on health; and
- **Demographic** – Changes in relative population size or composition

These can be incorporated into some of the formula calculations that drive the global budget. Expert opinion may be needed to determine factors where objective data or policy related decisions are needed. Both purchaser and provider must agree to these changes.

### INFLATION

Inflation is the measure of the change in input costs leaving aside any relative gains from productivity or efficiency. It reflects the increase in, for example, the unit labor cost per hour of work or the purchase price of a component or service. It is likely to be the most volatile element of any adjustment process. The choice of the best measure of inflation is crucial. In most countries the cost of inflation in healthcare systems is different from any average of GDP or retail prices. Healthcare input costs tend to rise at a faster rate than GDP or general prices. This is particularly the case for non-pay costs where the international influence of new technologies compounded by exchange rate fluctuations is a factor. The substitution effect of new for old technologies is also a contribution to this trend.

Inflation measurement based upon the general economy has severe limitations when applied to healthcare. However, if there is no capacity to build a hospital specific index then it may be the only available start point. If so then it should be adjusted for the actual wage changes in the health sector, and any non-health related spend areas such as housing, be removed.

There are many ways that inflation can be practically measured. The key decision is the level of detail that is analyzed, and the refinement of the measurement tool. The more complex these become the harder and costlier they are to maintain. The input profile of health costs can be seen by input line item disaggregation of total costs. These generally fall into two broad categories, which are pay and non-pay. These, at least, should be kept separate, as the rate of change in unit costs will generally be very different. These components should be further sub-divided so that different staff groups and non-pay product lines can be identified. This is only useful if data on the prices for the components is readily and regularly available. For pay this should be the case; non-pay may be more difficult.

If input costs can be analyzed into generic groups then the best way to measure inflation is to collect data specific to each of the input categories. Pay increases can be obtained early from the providers, or from a national pay structure. The weighted average of pay increases can be calculated from each group's individual increase. This total can then be fed into the overall inflation calculation.

Non-pay data could be obtained from a sample of input prices based on one year's unit cost compared to the next. This must give sufficient coverage to the range of products that make up non-pay costs. This can be done through purchase ledger systems, if in place, manual records or a shared process between providers whereby each hospital agrees to monitor a certain product range.

The next step is to agree a procedure whereby the annual uplift can be incorporated into the funding process. There are many ways to do this, but essentially they are variants on prospective assessment or de-factor actual measurement. Prospective assessment requires confidence in the model and method of assessment. If this exists then the inflation increase can be added to base budgets. Inflation will be assessed from trends in pay and non-pay expenditure items from the data available in the building of any health spend related indices. Any constraining factors that impact on healthcare costs in particular can be

allowed for. If there is national or regional wage bargaining that is not concluded before prospective adjustment is agreed then this introduces two interesting dynamics into any negotiation on pay. The first is that staff, and their trade unions, will become aware of the level of increase assumed. This then sets a level of affordability that hospitals will find hard to deny. The second factor is a balance to this. It is that this knowledge also sets an upper limit on affordability, for any increase in excess of it will have to be met from elsewhere in the global budget.

There is a related issue around when purchasers release the cash funds needed to pay for inflation. If the inflation increase is built into a prospective budget, and the provider receives this all in one payment at the start of the year, then there will be a cash flow benefit to the provider. They will receive monies before they have to pay them out. If inflation is low this is not a material matter. In all probability most purchasers will receive income throughout the year. They are then likely to pay providers regularly, normally each month. This will broadly match income to expenditure. However, if inflation is running at a high rate then the cash flow matching of income to expenditure is a bigger issue. One solution would be to average out payments so that, for example, if payments were made monthly on an equal basis, then the simple compound effects of inflation could be paid each month.

In circumstances of low inflation a single uplift can be applied to the global budget, with an annual adjustment to take the true payments from the estimate to actual. If there is a high rate of inflation then periodic (at least half yearly and possibly quarterly) adjustments may be appropriate to protect the cash flow of providers. Again there must be an end of year adjustment to bring final payments in line to actual outturn costs.

If healthcare is to maintain its share of the national economic spends then it must have the base global budget increased by at least the level of growth in the economy as a whole. In order to utilize this effectively this should be a policy aim of the purchasers. Providers can respond by planning how best to utilize any such increase in real resource. Health systems will consume real growth in two particular areas:-

- Demographic changes; and
- Technological advances

Healthcare cost per person may vary by factors of up to 10 times dependent upon the age of the individual. The very young and the very old consume by far the greater share of resources. If there is any significant shift in population composition, or variations between Regions or Districts then this must be recognized in the global budget formula.

### **TECHNOLOGY**

As healthcare becomes more technologically complex and as these techniques migrate from country to country then the relative cost impact cannot be ignored. New techniques are rarely cheaper than the ones they replace. Whilst they may give real gains in terms of diagnosis and outcomes they generally come at a cost. This introduction needs to be controlled and planned.

Under a global budget the revenue available to support such changes will be contained within the capped total. The process of capital rationing will, to an extent, control the cost of new technology, as much of it will rely upon new capital investment to enable it to happen. A macro level global budget system has two broad means of funding the cost of technology (and other developments). These are:-

- a) Recognize the explicit cost of these developments and fund the provider for them. This will entail some form of central reserve or priority fund that is ‘top

sliced' from the total available to the purchasers (and subsequently not available for general distribution). The cost of these changes will be known as the investment prioritization stage, and so can be recognized and placed into the system, or

- b) Place the risk on the provider to ensure that they have sufficient income to cover their operating base and the cost of these developments. This could be funded by a general growth income to all budgets or by requiring efficiency gains from providers.

The first model gives an assurance of funding and sustained service. It is a centralized process and so can also be used to further any macro policy aims. However it gives no incentives to providers to be prudent in their bids and could encourage inappropriate developments. The second method places all risks on providers and could discourage developments in services.

### **DEMOGRAPHY**

The impact of changes in the age-sex distribution – more the age element – is well documented. Whilst the issue of an aging population tends to impact more on developed countries, it needs to be considered in any global budget. Equally the impact of changes in a young population and fecundity also needs to be recognized.

The cost of these shifts in population can be qualified in broad terms, although the direct impact on individual services is less measurable. Generally these costs rise slowly, and should be contained within general growth in health spending under this global budget.

### **COSTING ISSUES**

Contracts will be established on the basis of planned values of patient's activity and budget costs for these activities. The budget will cover the full costs of the hospital and, as such, allow for the fixed, semi-fixed and variable costs that are consumed in providing the care. Individual specialty or procedure costs will include an element of all three cost types. In very simple terms the hospital will seek to recover its total full planned costs, plus any acceptably surplus required for continuing activities, from the planned volume of services it seeks to deliver in the year. It will not necessarily be the case that for every procedure, service or patient the actual price charges is equal to actual costs.

Where individual price does not equal cost, for the hospital at the start of its business year, the practice must be that:-

$$\text{Planned Total (volume x price)} = \text{Planned Total Costs} = \text{Total Global Budget}$$

This notion has interesting dynamics in the management of the global budget, the hospital budget and the appropriate price that should be agreed for any changes to the volume of services purchased during the year. Under the above hypothesis the fixed and semi fixed costs of the hospital, which, by definition, will not change in year, will be factored into the calculation of planned total costs. They will be recovered, in full, from the initial baseline global budget. The risk of their not being recovered and thus the hospital continuing to trade, are minimal. If purchasers wish to increase the volume of activity in year then the provider will be able to supply the extra patient services at the marginal cost only. For most small increases in volume this will mean the variable cost only. Fixed facilities, plant and equipment plant will be in place and its costs covered in the base costs. Any payment over the marginal cost would generate a surplus to the provider.



The marginal cost could exceed the variable cost if the hospital had to increase its semi-fixed or fixed costs. In this case the so-called step cost will be determined by the size of the volume increase, and the hospital's current position on its cost curve. Knowledge of this relationship may well be useful in determining the financial consequence of failure to achieve activity volumes.

If volumes do not match planned levels then the contract should also allow for the recognition of the marginal costs saved or incurred. Any unplanned excess work should lead to a deficit for the provider. The global budget should not be changed to accommodate this until there is a clear contract (or agreement) clause that sanctions it. Without this, the fundamental policy goal that global budgets support, namely the containment of costs, will be destroyed. The provider, who is the agent best able to control the volume of activity, must take the financial risks for this.

If there is under activity then the surplus generated by this will initially lie with the provider. Under a block contract they would retain it, under a cost per case payment system it would not arise. Under a cost and volume contract the variable cost of any under activity lying outside of the agreed activity tolerance bands will generally be returned to the purchaser. For purchasers this demonstrates the financial merits of cost and volume contracts.

All of the above relies upon there being a clear understanding between the purchaser and provider of the cost structure. There also needs to be a clear agreement about how volume variance will be handled within the financial framework of the contract. Global budget, supported by contracts, thus has powerful incentives for cost containment, cost control and volume (and thus access) assurances.

Appendix 2 and 3 gives further detailed guidance:-

- Costing
- Contracting

## CAPITAL

Capital expenditure is generally funded and accounted for as a separate budget. This is because of the special nature of capital. It is the expenditure on items that produce services for a period beyond the normal accounting year. Routine accounting and expenditure plans deal with the one-year consumption, generally termed revenue. Capital is for items with a productive life beyond one year. Capital spends may also vary significantly from year to year. Because of these special factors it is sensible to exclude capital spend from the normal global budget.

A working definition of capital could be that it is expenditure on goods or facilities (assets) that:-

- Have a productive life beyond one year;
- Can be a single item, or a group of items that collectively provide a service, but do not stand alone; and
- For practical purposes have a minimum purchaser price (around \$5000 is a general mark).

Items of spend falling within this definition will be the subject of a separate program and budget. In practice capital assets are usually land, buildings, and equipment. A more complex set of capital assets can be created if private finance is involved. These are sometimes referred to as deferred assets, where legal ownership may be obtained following the payment of a number of years of revenue 'rent'.



## DEPRECIATION

Assets are usually bought into account at their historical purchase cost. Over their lifetime they will lose value, and this cost is generally termed depreciation. An asset will be depreciated over its expected productive life. This varies for different categories of assets. The annual depreciation charge will need to reflect this. Depreciation is generally charged in equal parts (i.e. as a straight line basis) over the life of an asset and it is usual that:-

- Land is not depreciated, it does not lose value;
- Buildings and their fittings are depreciated over their expected remaining life time;
- Equipment is depreciated over its estimated life

Asset lives are set by the hospital, but must be realistic (and there are International Standards for this).

Depreciation is not a cash outlay but it is retained within the organization. It is a revenue charge that will be included as a component of the cost of any service. It can be 'recycled' within the hospital to pay for new assets.

## FUNDING

Capital programs must balance the need to replace any existing equipment and facilities alongside the desire to invest in new and emerging services and technologies. Capital prioritization processes should be put in place that allow for this, as well as undertaking a rational evaluation of the relative benefits of any new investment. Having done this then the individual hospital capital budget can be constructed.

The very nature of capital expenditure meant that it could be irregular. A significant spend in one year may be followed by no major scheme in a subsequent year. This has an impact on the way capital is financed because a hospital will not require a consistent and regular annual capital funding for major schemes. However, on a system wide basis it is likely that there will be more or less equal demand for capital each year. There are two principal ways that this can be funded, either:

- Central, system wide, capital budget that is allocated on a basis of priorities;
- Individual schemes funded by commercial loans

A third variant, the so-called 'Private Finance Initiative' (PFI), is considered later.

## CENTRAL FUNDING

Under a model of a centrally held budget the hospital would need to make a call to the funding agent (Ministry, Health Fund, Regional Authority or equivalent) for the capital scheme. This would outline the health needs served by the scheme, the costs, benefits (financial and non-financial) and the contribution made to health gain and policy advancement. The central agent would then need to prioritize any bids and plan expenditure over the life of all agreed schemes within the budgets available to it.

Under such a system there is a risk that capital appears to have no direct cost to the hospital. As such there may be incentives to bid for schemes that are not fully justified. There may also be no discipline in the way in which capital assets are utilized, maintained or safeguarded, as they are effectively free goods. There is, of course, the issue of identifying and funding any additional revenue costs that arise from the investment. Invariably there will be utility and facility costs, as well as the recurring cost of the expanded services.

A perceived advantage of a system of central funding is that there is an overall macro level control of the total spends. This may be an issue within broader socio-economic policy. It also allows for a transparent

and ration, policy and service based, determination of where capital is invested. A further advantage in emerging systems is that there is a minimum guaranteed level of investment that is tax (or publicly funded) based, and not at risk to decisions by investment agencies. Some sustainable development is therefore assured.

The financing of the central budget may be from the tax (or equivalent revenue) funding stream and/or from borrowing by the central fund from commercial source. Given the size and commercial/political status of the central fund it is likely that commercial lenders will view it as a less risky loan than to individual hospital. The interest charged on any such borrowing will be less than to individual hospitals, and so the overall cost to the system will similarly be reduced.

Some countries that rely upon a centrally funded system for large capital spends have introduced a quasi-market system of capital charging. This imposes a charge on the use of capital, over and above depreciation, that is met by the hospital. It can be in the form of a real cash repayment to the central fund as if the capital was a commercial loan (i.e. repayment of the original capital sum plus nominal interest as outstanding balances). Alternatively it can be a performance management measure such as a target rate of return on capital assets employed. In this case the hospital would have to generate a revenue surplus on its operations that equated to a pre-set percentage of the value of capital employed.

The purpose of either of these variants is to demonstrate that capital is not a free good. As such they will encourage a more rational set of investment decisions and improve efficiency in the system. They will also cause the hospital to consider, and be satisfied that full revenue costs can be met from future revenue flows.

#### **COMMERCIAL LOANS**

Hospitals may be allowed to finance their capital spending by recourse to commercial loans. These will be based upon the financial status of the hospital, and the view taken by the lender about the risks in the scheme.

Any loan will be justified by the business case for the scheme, and will need to demonstrate how the loan will be financed over the lifetime of the asset. The cost of such loans will be:

- Repayment of the loan over the lifetime of the asset;
- Interest on the amount of loan outstanding;
- Depreciation on the value of the asset as it is used.

The overall cost of capital under a market based system is unlikely to be less than under a centrally funded one because the lender will generally judge individual hospitals to be riskier investments than system wide funds.

The advantage of a loan-based system is that it allows individual hospitals access to capital that, on the face of it, is unrestricted. Investments based on business cases and local needs will be available, and there will be unconstrained by any global budget that is fixed at the central funder. In reality the ability to service the cost of future loans will put a constraint upon the total that can be afforded by the healthcare system, and this will be the same as under a central budget system. There is a risk under a loans system that local pressures to develop services could lead to over assumption about future income recovery.

#### **PRIVATE FINANCE INITIATIVE**

The 'Private Finance Initiative' (PFI) model that has emerged in some countries in recent years is worthy of brief consideration. This development is essentially a replacement or addition to current publicly

funded capital. It operates by allowing private organizations to fund, own, part operate and part-manage facilities that are effectively leased or rented back to the public provider. The public provider then agrees to a long-term contract that repays over the assets lifetime the full cost of the scheme.

As well as being a means of funding new capital for healthcare that is not chargeable to the public sector capital account, the PFI is said to give opportunities to incorporate commercial and creative management into healthcare. These lead to improve efficiency, quality and cost effectiveness. They also transfer a significant element of the risks of financing and operating the facility to the private sector. These risks can be consider as:-

- Design and construction                      cost or time overrun on the actual building and commissioning of a new facility
- Performance                      -                      if design errors have occurred
- Operating costs                      revenue cost for maintenance, support services are fixed for the hospital, managed by the PFI provider
- Termination                      if PFI parties can not meet standards, in initial contract then risk of loss of whole contract (and residual capital costs)
- Technology                      -                      likely to include need to upgrade at preset periods

These are seen to be a number of views for and against the PFI on a source of providing publicly funded system of health. These could be summarized (not exclusively) as:-

<b>FOR</b>	<b>AGAINST</b>
<ul style="list-style-type: none"> <li>• Access to otherwise limited capital</li> <li>• Projects tend to be completed sooner than under public management</li> <li>• Focus on life cycle cost and allows for life time standard of physical facility</li> <li>• Allows hospital to focus on clinical activity</li> <li>• Transfer risk to private sector</li> </ul>	<ul style="list-style-type: none"> <li>• Private funding more costly than public</li> <li>• Loss of control of assets</li> <li>• Costly and elaborate task to specify contract and detailed requirements</li> <li>• Detailed management of PFI contract needed</li> <li>• Public provider still responsible for healthcare delivery</li> </ul>

Any PFI project will need rigorous evaluation to ensure that it does represent value for money and is also affordable. Local accounting regulations may also be an issue if the exclusion of any capital used to fund PFI is not to be a charge to the public capital.

### **BLOCK ALLOCATIONS**

Within these budgets there should be an allocation for each hospital to spend at its own discretion. This will be for small schemes of replacement or renewal. A cap on the total spend on any one scheme within these programs is reasonable. This will mean that the hospital cannot spend a disproportionate amount on large schemes. This will also protect the smaller replacement schemes necessary to the everyday functioning of the hospital. The total budget should be proportionate to the size of the hospital. This can be measured by turnover. Equally the individual scheme spend limit could be adjusted to allow larger hospitals to spend more per scheme. Again this can be done by turnover, for example, using a weighting for capital spend based on turnover of the largest hospitals.

Schemes with projected spends that exceed the hospitals block limit will be subject to a business case. This must demonstrate how they fit into any overall service framework of the purchaser. These will include:-

- Demands/needs for services;
- Option appraisal on alternative means of supply;
- Impact on other purchasers;
- Financial and non-financial costs and benefits; and
- Justification of a preferred option

Conventional cost benefit and option appraisal process can be used to develop these cases. A consistent appraisal method would be needed to evaluate the relative needs and benefits of the service. Of particular interest will be how access to relatively deprived elements of population is secured. Under a central fund system this process will lead to the prioritization of bids and in turn to the capital budget of purchasers. Given the process described above the purchaser will be able to openly justify the capital budget and the reason why schemes are included in it.

There will be revenue costs that arise from capital spend. Any such cost from block spending should be met by the provider. This gives an incentive to invest in areas that add to productivity and efficiency. Cost for major schemes should be agreed with purchasers and form part of a revised global budget.

## **MANAGING THE BUDGET**

In most financial reform projects the introduction of global budgets will be seen as a radical change. Alongside it will be even more radical changes in the movement from centralist to decentralized processes for the management of healthcare. In some instances global budgets will replace centrally imposed line item budgets that had prescribed, for the hospital, the budget for specific expenditure headings and resource inputs. In most cases, there was little flexibility allowed in the movement of budgets between these line items, irrespective of the relative demands on each line item.

During the transition from line item to global budgets there may be a need for some retained central direction on the application of the global budget. The principal justification for this is that the providers (and purchasers) will need time to adjust to the concepts and mechanics of global budgets. There will be a need for a technical and managerial capacity building program. This must involve both the development of technical tools and aids to assist in the introduction and implementation of the budget – process and procedure movements and on-line resources – as well as the management training needed to develop the managers in budgeting techniques and practices. There will also, of course, be the need to build, test and implement the appropriate monitoring and control processes to support the new budgets.

Global budgets will operate successfully only if there is a degree of autonomy, authority and responsibility delegated to the hospitals and, in turn, to the managers within the hospitals. The provider must be free to manage the resources paid for by the global budget. It must organize them in the manner it best sees fit to deliver the quality, quantity and cost targets established by the budget and detailed in any contract. It should be given the revenue and capital global budgets, clear targets and an agreed understanding of the risks and rewards, incentives and penalties within the system. Beyond that targets are being achieved. Purchasers will be able to demonstrate appropriate responsibility and accountability by monitoring the budget and intervening when this indicates that plans and agreements are not being achieved. Their ultimate sanction is to withdraw the contract.

Providers, in spending the global budget must be able to show that they have met the service, targets agreed with purchasers, (quality, quantity and cost). In doing this they will have met minimum legal requirements in pay rates and other areas, and have applied the budget only for the specific purposes agreed within and by purchasers. They must be willing and able to account for the entire budget and

demonstrate that all expenditure is legal and appropriate to the provision of healthcare. They must, of course, also keep within the total budget.

If a well-balanced process of funds flows is in place purchasers will receive their income in a more or less regular way. If this is the case then monies due to hospitals should be paid on a regular basis. This will underpin stability in the system as staff and suppliers will have confidence in the regularity and certainty of payment.

In some instances payment to purchasers may be irregular. It is in their interest to consider a process to even out this irregularity. This may be by planning cash flow and costing of resources if they exist or undertaking short-term borrowing to earn the cash for. Both have a cost to the global budget – the interest paid or lost on the monies used.

This solution could be seen to place the risk entirely on the purchaser. However, the hospital does suffer a real opportunity cost. This is the value of income foregone to the global budget to finance the cash flow.

## APPENDIX 1: INTEGRATION WITH BROADER HEALTH POLICY

A number of interdependent policy objectives can be strengthened by the use of global budgets. These cover access, equity and continuity of supply. In the latter context an often-understated benefit of global budgeting systems is the financial certainty they bring to both purchasers and providers. This enables financial planning to be such that service provision and continuity should be assured. This, in turn, can deliver certainty to the patients that services will remain available, and lead to a rational choice and timing of access.

To assess the potential impact on:-

- The unit used to allocate the budget;
- The level of financial risk;
- How risk is imposed;
- Method of adjustment for risks in the population covered by the budget;
- The treatment of activity volume changes; and
- Expenditure for uncompensated care

Three models can be used to describe the responses of global budget systems. Whilst this is not an exhaustive categorization for all models of funding reform it is a useful comparative model that demonstrates the broad range of responses of global budgets. They are:-

- Managed competition and premium limit;
- Rule setting with volume standards; and
- Individual provider budgets

The issues that each give for global budgets will be briefly described.

Managed competition and premium limit systems constrain the total spend by placing a limit on the absolute, or insurance premium.

This is often through regulation although in some circumstances competition between insurance schemes may act as a sufficient controlling force. The managed care element of the process will impose a limit on the choice of providers available to the insurer, and may also determine treatment protocols and pathways within the provider. As such this is a sophisticated model more appropriate to countries with developed information systems and managerial capacity.

Budgets can be allocated on a per-capita basis to the managed care agents and may reflect adjustments for the various demographic and epidemiological pattern of the population covered. Under this system the budget of the managed care agent is the sum of the adjusted per capita rates. This would then become the total available to distribute to providers. The incentive to both the managed care agent and the provider is clear to contain expenditure within the budget total. There will be incentives to either contain or reduce unit costs and possibly to reduce the volume and quality of services offered. There will need to be a process that ensures that appropriate quality is maintained and that patients are not denied treatment that is clinically justified.

Under a model of Rate Setting with Volume Standards the budget can be allocated directly to providers. The budget can be set using a fee for service or cost of facility basis to reflect the expected volume of services that will be provided. Providers, therefore, have a fixed rate of payment that reflects their

historical cost patterns and also their activity profiles. Adjustments may be agreed on the basis of movements in either costs and/or volume beyond the levels agreed in the budget.

Under this model there is the obvious risk to the providers. Because payment is prospective and fixed way have to manage the total costs of services within the total global budget. The incentive is, therefore to control unit costs and activity volumes. In the latter case purchasers will need assurances that services are not being denied to patients solely to contain total costs. A further risk is that annual changes in the budget will be affected by any differential pattern of distribution of the total global budget across sectors or institutions.

This could be balanced by a decision to maintain the share of the budget to the sector. However, this would deny any ability to respond to appropriate shifts in patient demands, epidemiology or technical advances. In many instances it is exactly these behaviors that financing reforms wish to stimulate (e.g. reducing lengthy inpatients episodes, shifting to ambulatory care). Because of this a ‘pace of change’ model should be agreed that allows for change, but protects institutions from short-term significant shift in resources.

The third model is that of individual provider budgets. Budgets are allocated from the funding agent directly to the Hospital. The budget could be established on the basis of historical cost and over time sectoral or other changes can be made by the reallocation of the budget between institutions. There may be a case for developing payment mechanisms that reflect any change in the type and/or variety of patients being treated, and some models use detailed prospective rates for services based on clinical categories of activities (Diagnostic Related Groups or local derivative). The risk for providers is that their unit costs exceed the payment rate, or that overall payments could be capped if the total global budget was at risk of being exceeded. Again hospital cost control is a strong incentive in this system and the quality aspects of concern for purchasers.

Where hospitals receive a true global budget to provide a range of services – with no case mix measurement or compensation – then macro level agreements on the overall activities, and their patient mix is necessary to protect purchasers and patients.

### **IMPACT OF A GLOBAL BUDGET**

The introduction of a global budget will give rise to and be the result of changed behaviors by both purchasers and providers. They will, in turn respond to the constraints, incentives and penalties that are an integral part of the budget mechanisms. The most negative response will be to reduce either volumes or the quality of services provided to patients.

The process by which it is funded will directly influence the way in which the hospitals respond. Simple block type global budgets will, with active monitoring of volumes and quality, place pressure on the hospital to improve unit cost efficiency. This may, in turn, cause them to look to alternative and/or innovative ways to treat their patients and to improve utilization rates. The opposite effect of ‘cream skimming’ reducing quality or looking to shift costs to other parts of the systems has to be monitored, and solutions be in place to minimize the risk of this.

Similar responses can be anticipated in a rate setting or institutional budget model. The overriding purpose will be to contain costs.

In itself the use of a global budget should not impact on access or equity. It should at least perpetuate existing practices and patterns, and indeed be sufficient to reimburse hospitals to maintain this level of service. Incentives to become more efficient will be different to providers who have unit costs above or

below any rate setting model of funding. A block global budget has the risk of perpetuating existing relative efficiency (and inefficiency) and so there needs to be some levers to encourage change towards better efficiency. The use of benchmarks and incentives based upon them may be helpful here.

Access problems can arise if the global budget does not increase inline with demand for services. In most systems current funding will be inadequate to meet the aspirations of patients and clinical stakeholders. However, in the developed countries that have a global budget system access and waiting is an established major instrument in rationing and managing the budget. Such as outcomes will make very explicit the extent to which access is being denied through lack of funding.



## APPENDIX 2: A NOTE ON CONTRACTING

### INTRODUCTION

Contracts are the written formalization of the process of agreements reached between purchasers and providers. The contract will define very clearly the following:-

- The purchaser and the provider;
- The scope, definition and volume of service to be purchased and provided;
- The price that will be paid;
- The minimum quality of service that will be acceptable; and
- The administrative arrangements that enable the contract to be satisfied.

The processes by which the contract is implemented, managed and monitored is the key to the success of the process and, can be fundamental to the delivery of the benefits of a global budget. The effective and efficient distribution and allocation of healthcare resources are dependent upon this process working and working well. The contract, and the terms written into them, must therefore reflect the strategic and policy aims of the purchaser and the provider.

The process will be most successful when the relationship is not one of commercial completion or gain, or of maximizing the risk transferred to the other party. Evidence from the UK suggests that maximum benefits are obtained when:-

- Purchaser objectives are clearly stated, both in terms of broad vision of health gain and as importantly in specific plans and targets for action and improvement;
- Providers demonstrate clearly how they can supply services that meet the purchaser objectives and that the exact nature and volume of service offered is understood by the purchaser;
- Purchasers make a transparent and rational choice in the placing of contracts;
- Contract negotiations and agreement is not undertaken in a legalistic framework.

Appropriate information and management capacity is required to successfully complete these tasks. Because systems are often constrained in these two key areas contracting systems have the tendency to concentrate on changes at the margin, rather than to review the entire activity and cost base of the service. A periodic review of the base, and if needed a rebasing of service configuration is a desirable action to undertake. This may be incorporated into the annual review of contracts, or into the continuing review of any 'rolling' (i.e., greater than one year) contracts.

### WHICH CONTRACT

Many variants on the simple three-fold classification of contracts outlined in the main text is in practical use. This next section seeks to expand upon these variants. In practice any practical combination of the available models may be appropriate.

**Block Contracts** are ones that commit the purchaser to pay a fixed sum, irrespective of activity, for access to services by its responsible population. Providers are guaranteed income. These are most often used in the high volume/low cost setting and often in the host purchaser/provider relationship. They are valid and useful where access must be guaranteed in areas such as accident and emergency and maternity services.

These can be extended to take account of more than one service or specialty. In effect the individual specialty blocks are aggregated into a hospital wide contract (with monitoring sub-sets at specialty level). An extension is to include an indicative activity level around the block payment. This will give a monitoring base for activity related to the contract and be useful in discussion on future years contracts. Failure to achieve the indicative activity level will not be penalized (nor activity above it be rewarded) under the most simple block contracts.

Cost and volume contracts specify a baseline, agreed and guaranteed level of funding provided that a baseline level of activity is provided. These can be set in many ways and depend on the degree of complexity required and specification in the information available. It could cover multispeciality aggregation of patients treated, or it could be specialty or even procedure specific. The base volume will be the minimum level of service to be achieved. Any extra patients will be treated at an agreed marginal price. There will be tolerance bands around the activity volume to protect both purchasers and providers. The purchaser will need to be assured that the minimum activity is achieved and that and extra work can be capped to a total that is containable within the global budget. Tolerances of 2% to 5% are usual; beyond this a new agreement is needed to extend commitment to payment. This then also gives the provider the assurance of payment and cost recovery.

The size of the tolerance band should reflect the size of the baseline volume and the potential for case mix shifts. A specific contract for an expensive procedure like bone marrow transplants may have a nil tolerance; a contract for general outpatients with low marginal cost a 5% tolerance. The tolerance bands will, if breached, give rise to payments to recognize actual volumes. There will be at pre-agreed marginal cost rates and can flow either way between the purchaser and provider. Generally their 'triggers' are put in place to protect purchasers and to contain total expenditure to the global budget.

In **Cost per Case** contracts the money flow will be retrospective. An invoice will be raised following treatment. There will be procedures in place to ensure that treatment is granted and payment underwritten. It does not always follow that there will be a single invoice for each patient. These can be aggregated to issue one periodic invoice to each purchaser. To further simplify the administrative processes a "pay on account" system can be used whereby the purchaser pays an agreed monthly sum to the provider and there are periodic (quarterly is usual) reconciliations and adjustments to the actual payment due

The range of contract details that will be paid by cost per case contracts are:-

- Agreement is in place on standards and cost (by specialty or procedure). Purchasers agree to pay a per case price as and when patients present. The total number of cases may be capped in the contract period, within this total the provider does not need further agreement to treat and the purchaser accepts the invoice.
- Each new referral requires a specific agreement to pay from the purchaser, based on the price for the procedure.

Clearly the transaction cost associated with the later example is very high.

## VOLUMES

In cases other than those where simple access is required, such as Accident Services, contracts will benefit from the clear specification of the volume of activity that is purchased. The crucial factor now becomes the definition and determination of the volume measure. This must be appropriate to the service being purchased and also measurable by both parties to the contract. It will then be linked directly to the payment made under the contract. Having determined the volume measurement and the level of activity

that the contract purchases there is some sense in allowing for a degree of flexibility around the absolute volume provided. However good the activity projection methods used to inform the contract, there would be little likelihood that it is absolutely the number of patients who present for treatment under the contract. A tolerance band around the contract allows for this, and when applied across all contracts, gives both purchasers and providers further certainty in their management of the overall activity purchased by the global budget. There will, therefore, need to be clear understanding on:-

- The level of activity that is allowed before further action is taken i.e., the  $\pm\%$  tolerance band; and
- The price to be paid or refunded for any activity that falls outside of the tolerance banding.

As contracts are refined the activity measurement can be developed to allow for changes that are subtler than absolute numbers of patients. Case mix adjusters, by using some form of cost or resource utilization weightings, may be appropriate. This is because the global budget, being fixed, may legitimately be applied to a lesser number of more complex cases (or visa versa).

A number of fairly simple measures of volume are in place in healthcare systems. They include: -

- **Number of Discharges (and deaths) –**  
This is a simple count of the patients treated. It is a universally applicable and available indicator of total activity. However, it gives no indication of the success or outcome of the treatment.
- **Number of Episodes of Care/Courses of Treatment –**  
A refinement of using discharges. This will cost each episode under the care of a specialist, and in some case multiple episodes that can make up the single discharge. Resource utilization tends to be concentrated in the early part of an episode, and so this measure may better reflect this. If used alone, however, there is evidence that inappropriate internal transfers can be generated to inflate the true volume of activity.
- **Procedures Undertaken –**  
Appropriate mainly for surgical interventions and may not directly link to conventional case mix measurement.
- **Number of Referrals –**  
This can be used to demonstrate demand for services and measure the breadth of caseload. It is appropriate for community type treatments such as dietetic or chiropody.
- **Number of Contracts –**  
Where treatment is more linked to the time spent with the patient and the contact may be more of a consultation than a clinical intervention. However, contracts can be very variable in terms of time (resource) consumed.
- **Direct Contract Time –**  
Actual time spent in contact with patients (but, needs a recording system that is reliable).
- **Number of Occupied Bed Days –**  
An obvious direct link to resource consumption and use of the budget, but if this is the only contract currency the incentive for providers is to maximize this, irrespective of clinical needs.
- **Number of Available Beds –**  
Useful when access needs to be guaranteed.

- **Input Measures –**

Such as staff numbers that need, or the purchaser determines need to be available, but in themselves this measure will not guarantee efficient use of the input. This measure is generally inconsistent with the main incentives that global budgets should give to improve efficiency.

Contracts must be written to reflect the best drivers for local improvement and rational resource use. They can include any number of the above measures, but must avoid over-elaboration or any incentives that operate against the overriding principles of the global budget.

**WHICH CONTACT WHEN?**

It is rarely the case that there is a single and simple one to one contract relationship whereby one purchaser and one provider operate in a closed system of healthcare. This could occur in a regionally based model where there was only a hospital, and no other significant provider of healthcare in the locality. In most instances hospitals will attract patients from outside of their immediate, or administrative, locality. However, the geographical proximity of the patient flows is not the best determinant of the contract type that best serves the purchaser and provider objectives. This will also have to develop to allow for the possibility of a provider becoming the purchaser of services for patients referred on from the hospital to another for reasons of clinical practice (these are often called tertiary referrals).

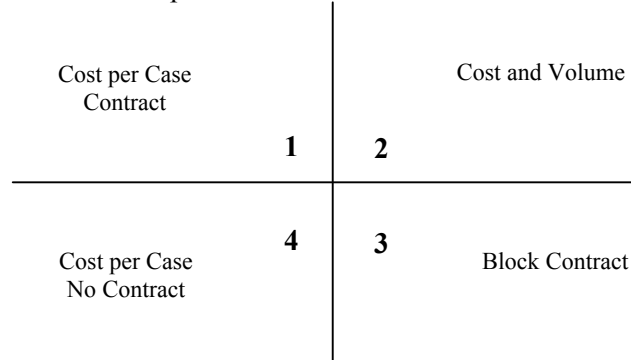
A categorization that leads to a rational model for determining which contract to apply in different circumstances can be built around the volume of patient activity, taking account of the per case and total cost of the service. This can be described as:-

COSTS			
<b>1</b>  <b>High Cost per Case/ Low Volume</b>  <ul style="list-style-type: none"> <li>○ High Risk to both (1)</li> <li>○ ‘Random’ presentation</li> <li>○ Larger risk pool needed (consortia)</li> <li>○ Longer term Contract 1</li> </ul>	<b>2</b>  <b>High Cost per Case/ High Volume</b>  <ul style="list-style-type: none"> <li>○ High Risk (1)</li> <li>○ Mainly tertiary/specialist services</li> <li>○ Case mix Crucial</li> <li>○ Very specific contract &amp; tolerance rules</li> </ul>	<b>3</b>  <b>Low Cost per Case/ Low Volume</b>  <ul style="list-style-type: none"> <li>○ Low Risk to both (1)</li> <li>○ Cost per case</li> <li>○ High transaction cost</li> </ul>	<b>4</b>  <b>Low Cost per Case/ High Volume</b>  <ul style="list-style-type: none"> <li>○ Local, general services</li> <li>○ Low Risk - predictable</li> <li>○ High Value</li> <li>○ Low transaction costs</li> </ul>
<b>Volume</b>	<b>Volume</b>	<b>Volume</b>	<b>Volume</b>

## COSTS

(1) To both Purchaser and Provider

and the nature of the relationship will lead to contracts modeled on the principle of: -



The key reasons for this, taking each section of the diagram in turn is that: -

### Section 1

A cost per case contract is appropriate here because; it will give some guarantee of access to purchasers for when their responsible population will need it, even if this is not an annual event. The best model will be for purchasers to join a consortia arrangement to increase the size of the risk pool. By paying annual costs based upon their relative population sizes they will, in the long run, be contributing to and receiving a fair share of the activity and its costs.

### Section 2

Lends it to cost and volume contracts, with detailed and well-defined tolerance bands. The 'cost' element of the contract will ensure access to services and that fixed and semi-fixed costs are covered. The volume element will deal with the variable and/or marginal cost of activity beyond any agreed baseline level of activity. Refinement around casemix within specialties will be a useful sophistication in these circumstances.

### Section 3

Activity and volume relationships in Section 3 suggest that a block contract may be the best approach to take here. The activity flows, and associated costs, are fairly predictable. Activity outside of the projected range will be relatively low cost and so the financial risk to both parties is small. This approach will also give economies in transaction costs, as these will be relatively simple and cheap.

In reality the purchaser will have limited capacity to negotiate and manage the multiplicity of relationships it will have with providers. It will tend to concentrate on the contracts that represent a significant element of its commitments. In these cases it will actively determine:-

- contract total values
- volume measurement
- case mix issues
- standards of services
- mechanism for managing and monitoring the contract

(and in itself this is a useful high-level summary of the contract process). Its major purchasers will effectively determine the quality standards for the provider. If different standards of quality are agreed for different purchasers then the impact on equity of access and care for all patients and the different costs

of treating patients for the same conditions are issues that must be recognised. This calls into question issues of equity for patients. More practically it will be difficult to differentiate these in day-to-day provision and costly to monitor any such model of contracts.

#### Section 4

In Section 4 the volume of patients do not warrant the transaction costs associated with a formal contract relationship. A published price tariff for casemix or specialty type, linked to verification of treatment, will be sufficient to generate an invoice for payment.

### **CONSORTIA**

Individual purchasers may come together to enable them to either increase their purchasing capacity (and hence influence as providers) or to form a larger risk pool for their responsible populations (and hence give themselves greater protection). Consortia also enable the individual purchaser to make better use of their management capacity and benefit from economies of scale, both financial and intellectual.

Usually one purchaser will emerge as the lead agent for the consortia. Often this will be the purchaser who has the closest working relationship with the provider. This may be defined in terms of geography or in the volume of work it contributes to the consortia.

The factors that will drive purchasers together to form successful consortia include:-

- services they wish to purchase are the same
- they wish to receive services from the same provider
- the type of contract they are content to agree is similar
- the risk pool is extended to deal with high cost/low volume cases and services
- increasing the purchasing volume leads to lower unit prices (costs)
- shared contribution can lead to new/better services beyond affordability of one purchaser
- transaction costs can be reduced

If the requirements of individual purchasers, or their contract specifications differ then consortia will not work.

The consortia will need to offset any of the economic gains of joining together against the cost of managing the consortia. One issue that must be addressed is the decision-making powers of the lead agent and the level of delegated authority they enjoy. To be successful this must be considerable, well defined and controlled within a formal process of governance established by the consortia.

Providers may find some benefits in forming consortia. This may be driven by the desire or need to respond to purchasers by better co-ordinating services or extending the range of services on offer. A good example is the provision of an entire episode of care that spans more than one provider or location. This is especially relevant to models of clinical networks and care pathways.

Whilst one contract will exist between the consortia and the purchasers the sub elements of it can be complex. It will need to define, for each provider in the chain:-

- the levels of service to be delivered
- the standards of care
- the exact responsibilities of each provider
- mechanism for transfer of patients

and the administrative arrangements will need to cover the payment processes, communication and probity processes for resolving disputes. The responsibility of each provider and the point of transfer to another provider have to be exactly defined. An approach to minimise uncertainty in this is to have agreed and well defined protocols that map the patient journey, and clarify the role of each provider in it.

### **DURATION OF CONTRACT**

Contracts tend to be set for a single year. This is to link to the cycle of funding of most systems. An advantage of this is that neither party is locked into rigid and immeasurable agreements. However, single year contracts to give some uncertainty to providers and may represent a risk to the continuity of services. In reality many patient flows are more stable and based on geographical access. For this reason a move towards a longer period for contracts may be sensible.

If a longer contract period is deemed to be appropriate then the usual model is for this to be for 3 years. In this the main elements of the contract are guaranteed for the period, but year on year marginal variations are accommodated within the overall contract framework. These also allow purchasers to give notice of change of service purchasing and providers time to adjust their configuration and costs, before the change is implemented. These are often termed ‘rolling contracts’.

### **SUMMARY**

The above note expands on the description of contracts in the main text. It elaborates on the range of issues that each of the contract models can deal with. A succinct summary of these issues, taken from the work of Greenlaugh et al, is provided in tabular form in Attachment 1 to this note.



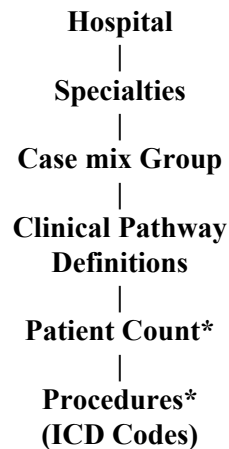


## APPENDIX 3: A NOTE ON COSTING

In order to achieve the organizational and behavioral benefits that can come from the introduction and use of a system of global budgeting it is useful to understand how cost behavior interacts with the budget. In particular it is helpful to have knowledge of the relationships between changes in activity and costs. At a more basic level a sound understanding of the cost of the hospital and how the various drivers of cost interact, is necessary to construct and negotiate the global budget.

The Note on Contracting outlined a range of possible ways in which the contracts that support global budgets can be constructed. Each of these and their variants will also require supporting costing information.

In order to understand the approaches that can be taken to costing the global budget and the contracts that support it, it is essential that the definition of the product to be costed be agreed. This is the activity and how it is to be analyzed and costed. Consequently this can be viewed in terms of the hierarchy of services provided by a hospital and increases in number and complexity as we move down the hierarchy. In general classification terms the hierarchy is:-



(\*Assuming that, on average, most patients have more than one procedure).

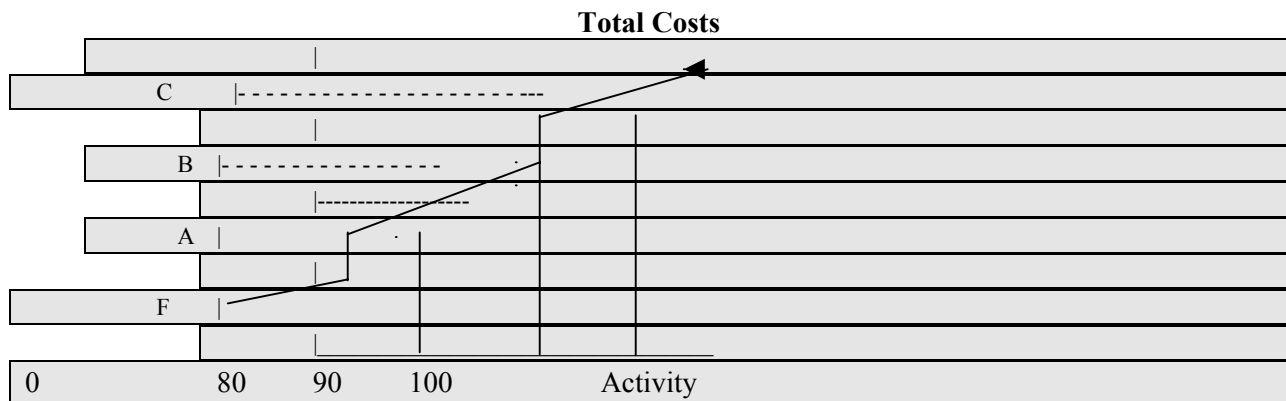
Contracts can be costed at any one of these levels dependent upon the degree of sophistication in the data captured. The more detailed the level of costing the more expensive will be the administrative costs of maintaining the costing system. There is evidence to demonstrate that adequate and sufficiently accurate costing for contracts can be achieved without introducing micro-level costing of the patient. (Dredge R and McNulty T – Costing for Contracting, USA/UK Case Study, HFMA London 1995).

To actually cost the services, irrespective of the level of patient aggregation, costs will need to be categorized and recorded in terms of both their behavior and type. Conventionally costs will be considered to be either:-

- Fixed**            Unaffected by changes in activity in a given period (usually the financial year);
- Semi-Fixed**    Fixed for a given range of activity (known as the normal operating range), but will rise or fall as activity changes outside of these bands; or
- Variable**        Near proportionate change in cost in direct relationship to activity.

Semi-fixed costs are often referred to as step costs.

In terms of the setting and management of global budgets it is probably the behavior of semi-fixed costs that are of the most interest. This is equally important to the provider hospital as it is to the purchaser. They become particularly relevant when the activity associated with the global budget changes outside of the normal operating range. Under these circumstances the unit price that is justified may differ even if the volume change is the same. Take the following example in the diagram below:-



The cost curve displays the conventional shape of a fixed level of costs (F) irrespective of the number of patients seen. This is the cost of providing facilities and overheads. This level of facility will deal with workload levels up to the first 'step' in costs. At this point, for example, a new ward or operating theatre is required to deal with demand beyond the step point. Below and above this point costs rise in a steady linear way to reflect the variable costs associated with each new patient (drugs, disposable medical suppliers, catering and the like).

If the hospital is currently providing 80 treatments a year the cost is 'A'. If it is asked to move to 90 the costs moves to 'B' and the increase is only in costs that are variable.

Unit costs per treatment will fall and the global budget becomes more efficient. If a further move of 10 new treatments is required then costs move to 'C'. Variable and semi-variable costs are incurred and the cost for the extra 10 treatments is C – B, which is clearly greater than B – A. The overall efficiency of the global budget may be reduced at this point, as unit costs at 'C' will be greater than at 'B'.

Step costs will be generated by the limiting factor on the service. Many inter-dependent facilities are required to make up the patients treatments and any one could be at its own individual step point. A case study for the surgical specialty of orthopedics undertaken by the author and others analyzed cost behavior to demonstrate that at certain activity points wards, theatres and radiology were the three principal cost centers that triggered independent movements in step costs. This is demonstrated in the chart at Appendix 1 to this note.

(Dredge R and Preen R – Understanding Semi-Fixed Costs, NHS Executive West Midlands 1995)

As well as classifying cost by the way they respond to changes in activity costing models generally require that costs be grouped into generic types. The categorization is set around how directly the cost can be allocated to the activity and normally are known as:-

<b>Direct</b>	can be attributed directly to the activity or output being measured and can be controlled by the budget holder;
<b>Indirect</b>	Shared over a number of facilities and generally are departments shared across the hospital. They are not directly under the control of the end user of service; or
<b>Overheads</b>	Cost incurred by the entire organization, but not directly related to volume or quantity of activity or service.

Some systems have adopted a standard classification of costs. This in turn can feed into a standardized approach to costing and the setting of global budgets. This is a particularly powerful approach if inter hospital comparisons of unit of procedure costs are to be used in any global allocation of budgets. Such an approach should ensure that consistent and comparable costs are available to establish any benchmark for testing relative performance, or for funding at true average cost levels. Examples of the standardized approach to cost classification used in England are given at Appendix 2.

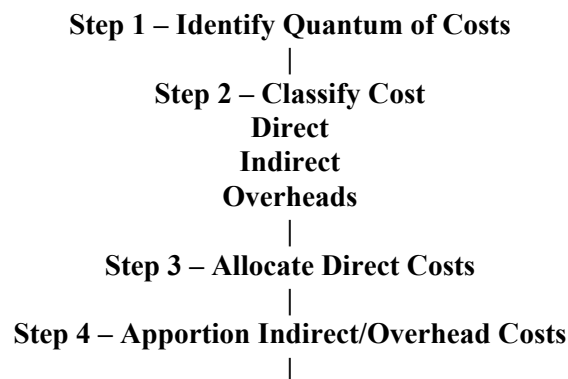
There are many excellent books and papers written on the topic of costing and costing techniques and this note does not attempt to replicate these. However, it is useful to summarize the basic approaches that can be taken to costing. These are useful to understand the dynamics of change in activity and the negotiation of global budgets. It also assists in the linkage of individual procedure pricing to the overall budget.

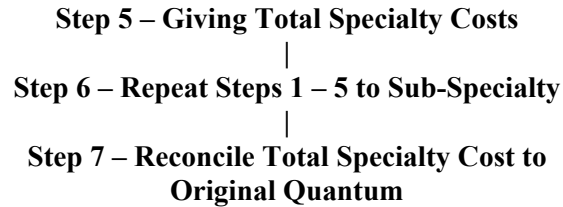
The overriding aim of costing is to ensure that the full cost of the product is allowed for in the calculated cost. In textbook terms this is full absorption costing, or 'Top Down' costing. An approach that can be successfully used is dependent upon simple data and fairly rudimentary technical knowledge. As such it is eminently transportable to most developing healthcare systems. Encouragingly there is little evidence that its end results differ significantly from micro, patient based approach. It has the virtue of simplicity and cost effectiveness.

The 'Top Down' approach needs to:-

1. Identify the total, hospital wide costs that are expected to be incurred in the year. This is calculated on the basis of resource inputs and utilization, expected levels of outputs and any agreed surplus/deficits generated in year. Sometimes this is called the quantum of costs; and
2. Costs classified in a standardized form such that they can be allocated to the service specialties that form the basis of the global budget.

The stages in the process then follow a simple series that take the total cost down to the level of the specialty or sub-specialty of the budget. It would look something like: -





3. Allocate direct costs to the specialty or department that generated the costs.
4. Allocate the indirect and overhead costs to the departments providing patient treatment services. This will be done on a standard basis of apportionment such that similar types of costs are allocated on a consistent and rational driver of costs. For example the costs of indirect support to staff functions could be allocated on the number of staff by department, utilities on space.
- 5/6. The total specialty cost is now available and if appropriate this can be further re-allocated to sub-specialty activities on a process similar to steps 1 – 4 above, beginning with the specialty total on the new quantum of costs.
7. It is crucial that the sum of the specialty costs is reconciled to the total hospital costs. The process of allocation and apportionment may have ‘lost or added’ costs to the total. These must be rectified or any decision based on the specialties level of costing will lead to inappropriate conclusions.

At the other end of the spectrum, in terms of approaches to costing, is that of the patient based micro-costing model. This is sometimes referred to as ‘Bottom Up’. The stages here are:-

1. Identify activity data;
2. Establish clinical protocols for procedures or case mix type group;
3. Agree range of procedures to cost;
4. Establish a cost profile for each procedure based on average resource consumption;
5. Cost the input resources on the profile; and
6. Reconcile total activity x cost to hospital quantum.

This will generally be undertaken on a specialty-by-specialty basis, with the specialty quantum of costs as the control total. The hospital information system will identify the activity undertaken (in terms of Dregs or procedures). Resource utilization profiles for the main procedures can be established. It is important to be clear that not all procedures warrant detailed costing. The Panelo approach, whereby a significant volume of resources is consumed by a relatively small number of procedures has been shown to hold for most specialties. Concentrate on these high total cost activities; the remainder can be costed at average rates with little cost or risk to the budget. This approach is justified not simply in terms of the ‘cost of costing’, but also because any price approach to micro-costing is flawed in those errors of estimation in apportionment or allocation of costs to small volume activities are bound to be present in the process.

Having decided on the DRGs to cost then a ‘bill of quantities’ of the resource inputs has to be established. If patient based records exist then these can be used, if not professional judgement on resource inputs is needed from clinicians. The care profiles can then be costed and evidence suggests that usually 6 or so major cost drivers will require detailed examination, and the remainder can be estimated. At the end of this it is again essential to reconcile expected total costs at DRG times planned activity to the budgeted hospital wide quantum of costs.

As stated in paragraph 11 above there is extensive literature on costing and its various techniques and application. This note is written to draw attention more to the application of costing in the management of global budgets and the dynamics of contracts and budgets. In this context the key relationship is felt to be the interaction of cost behavior and budgets, and the expectations this should give to purchasers when seeking to expand the global budget.

A useful example of this can be taken from the mechanics of the so-called internal market operated in healthcare in the UK from 1991 – 1998 (the basic rules of contracting still exist although the words used to describe it is now less market orientated).

The fundamental rule for costing and pricing has been that: -

Price = cost;  
Cost = full absorbed average cost; and  
No planned cross subsidization

Prices are subject to external audit to verify that these conditions are met. If implemented to the latter this means that any variation in prices would reflect provider cost efficiency. The rules will not allow one efficient (cheap) service to subsidize or offset an inefficient (expensive) service within a provider. All purchasers pay the same unit price. On this basis the planned quantum of cost of a provider is fully absorbed into its costs (=price) and so at planned activity levels all costs are recovered. The provider should; therefore, breakeven in financial terms and the global budget agreed at the start of the year is sufficient to meet the hospitals operating costs.

In the context of the UK, where the Government through its various agents is the only significant purchaser, no profit or surplus is made and thus the full monies voted by Parliament for healthcare are in fact spent on healthcare. Any inter hospital competition and comparison is on a true cost basis.

These rules apply to the setting of annual global budgets supported by contracts. The total planned cost of the hospitals will be contained in the activity and funding contracts of the global budgets. If a purchaser wishes to buy extra activity in-year then knowledge of the cost behavior of the hospital becomes crucial. Any extra new work can only be justified at marginal cost rates, because the fixed costs have been absorbed into the annual contracts. Marginal costs may or may not be only variable costs dependent upon the position on the normal operating range. The unit price will definitely be lower than that obtained in the annual contract.

This model gives a very clear incentive to purchasers to ‘hold back’ and purchaser later in the year. This behavior was certainly in evidence from small volume purchasers who were marginal to the main business of the hospital. Such perverse incentives need to be regulated.



## **ATTACHMENT 1: COST BEHAVIOUR – SEMI FIXED COSTS**

A case study was undertaken that analyzed in detail the cost components of an elective orthopedic service at a large general acute hospital. The attached cost graph clearly shows the range of outputs that can be achieved before each of the three main cost drivers for the service is exceeded. By way of simple explanation: -

- Ward costs included all of the regular nursing costs allocated to the specialty specific wards, and allow for a given maximum number of beds to be available;
- Theatre costs cover the full costs of available theatre sessions; and
- Radiology costs cover the share of cost allocated to orthopedic work and the step occurs when extra orthopedic work (only) pushes this to the point where additional equipment or staff is needed.

By way of interest the normal operating range for the service at the time of analysis allowed for an 8% variation in activity before step costs were incurred.





## ATTACHMENT 2: COST CLASSIFICATION (ENGLISH EXAMPLES)

	<u>TYPE</u>	<u>BEHAVIOUR</u>
<b><u>STAFF</u></b>		
Managers	Fixed	Overhead
Senior Doctor	Fixed	Direct
Nurse	Semi-Fixed	Direct
Allied Health Professional	Semi-Fixed	Indirect
Pathology Technician	Semi-Fixed	Indirect
<b><u>SUPPLIES</u></b>		
Drugs	Variable	Direct
X-Ray Film	Variable	Indirect
Maintenance Contract	Semi-Fixed	Indirect
Transport	Semi-Fixed	Indirect
Utilities	Semi-Fixed	Overhead
Depreciation	Fixed	Direct
Training & Education	Fixed	Overhead
Property Tax (Rates)	Fixed	Overhead





HEALTH, NUTRITION,  
AND POPULATION



HUMAN DEVELOPMENT NETWORK

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