

Part I

Concepts of Performance Indicators

THE EVOLUTION OF PERFORMANCE INDICATORS

While there are earlier records of investigation into performance, it is the work of Frederic Taylor in the early part of the twentieth century and his so-called 'scientific management' that laid the groundwork for modern concepts of performance management. As the result of the work of Taylor and others, private sector organizations, under the pressures of commercial competition, increasingly turned to the application of 'scientific' and behavioural methods to improve performance. Much of the focus of this effort to improve performance was in attempting to control the costs of production.

Public sector organizations significantly engaged with the issues of performance from the 1950s onwards in an effort to respond not just to financial pressures but also to emerging social and political pressures. These pressures required increasing efforts to improve efficiency and manageability of expanding government bodies. This led, among other initiatives, to the introduction of a method known as planning, programming and budgeting (PPB) to strengthen central control in the effective use of resources. The PPB system, which was widely adopted, was designed as an instrument for planning government activities more rationally, efficiently and effectively.

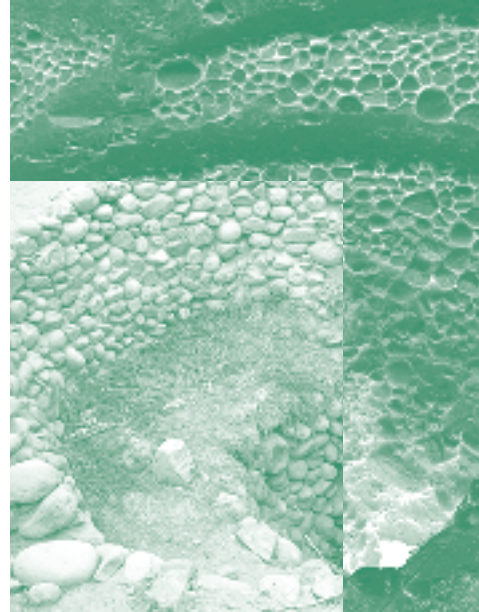
Other initiatives followed PPB, leading in the early 1980s, for instance, to what became known in the UK as the financial management initiative. The intention of this was that managers at all levels of government must have a clear view of their objectives and assess - and wherever possible measure - outputs or performance in relation to these objectives. In the early 1980s, these indicators focused primarily on measures of input and process. However, beginning in the early 1990s, the focus switched to the development of outcome-related performance indicators.

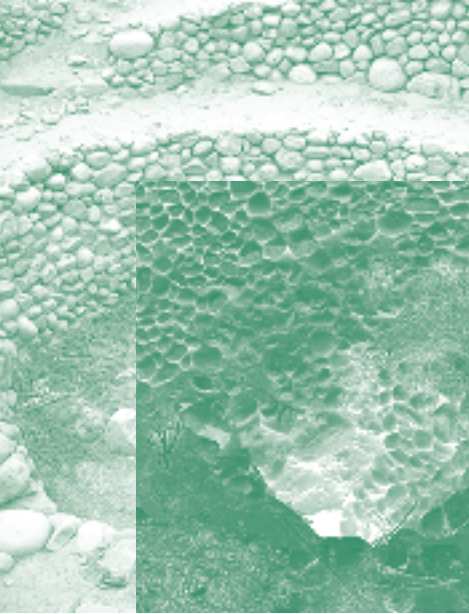
The techniques for performance measurement have changed over the years, but their purpose in the public sector has continued to focus on three concerns. These are:

- 1 The management of public expenditure and improved 'value for money' .
- 2 The managerial competence of government.
- 3 Public accountability.

There have also been shifts in the basis of measurement. These shifts can be characterized as:

- 1 A shift from treating financial figures as the basis for performance measurement to treating them as one among the broader set of measures or indicators.
- 2 Giving other measures or indicators concerning efficiency and effectiveness equal or even greater status compared to financial measures.





- 3 A change in performance measurement philosophy that regards performance measurement as an ongoing and evolving process.

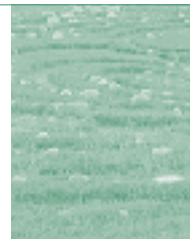
The importance of performance measurement in health services has been heightened by the recognition that new and often radical changes in the management of health care are necessary if higher levels of service are to be achieved. These new approaches to health care are enshrined in what has become known globally as health sector reform.

The strengthening of those organizational functions related to the management of the workforce is a cornerstone of effective health sector reform. This strengthening process, called human resource development (HRD), is directed towards improving organizational performance through the creation of a more effective and efficient workforce. HR indicators are designed to monitor current levels of organizational and human resource performance in support of this objective, as well as changes in these levels of performance (1).

THE PHILOSOPHY OF PERFORMANCE MANAGEMENT

Performance indicators have been developed to support the key principles of modern health care management, namely:

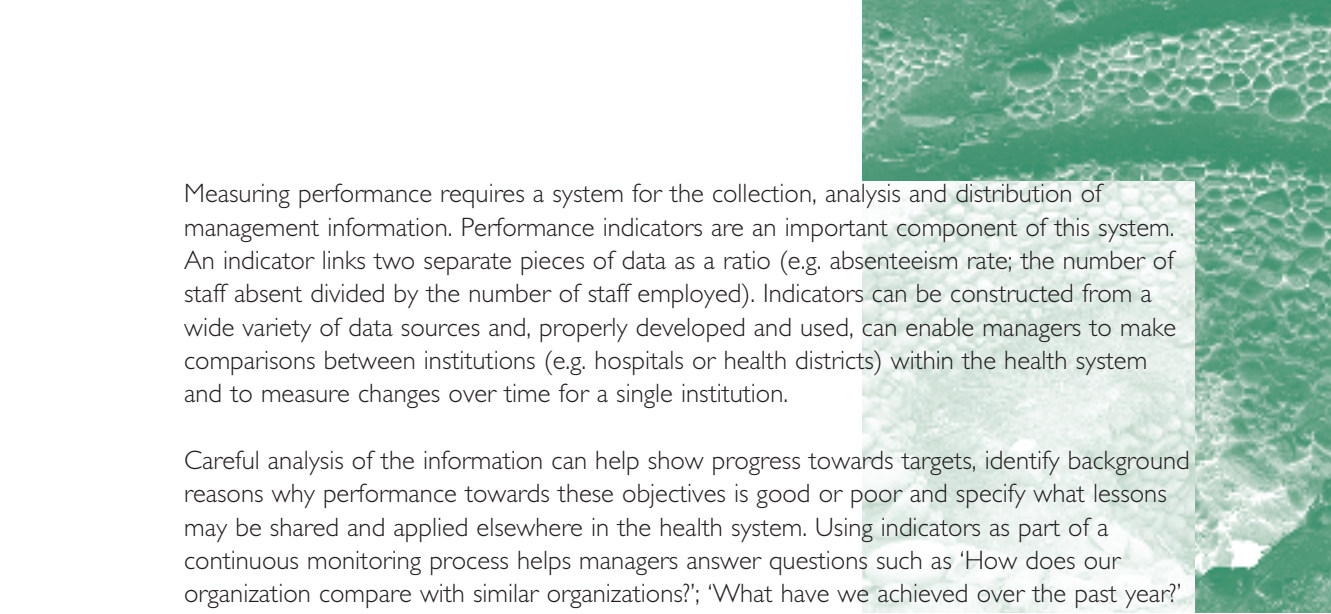
- Developing an organization that learns through assessing and managing its performance.
- Achieving an objective-based and business-oriented management style.
- Introducing management processes which support fundamental values of the organization, such as service quality, patient access and process re-engineering (health sector reform).
- Relating achievements in output and outcome to available resources and operational processes.
- Mobilizing (empowering) the workforce to enhance individual performance through performance management mechanisms.



MEASURING PERFORMANCE IN THE HEALTH SECTOR

As a consequence of the recognition of the need to improve the operational performance of health systems, there is a growing acceptance around the world that assessing the performance of health systems needs to extend beyond a purely clinical performance focus and include managerial performance. In other words, setting goals for the efficiency, effectiveness and equity of the health system is a legitimate focus for health service policy making. For managers to deliver against these goals means, in turn, developing methods to set realistic achievement targets, to measure progress towards these targets and, ultimately, for managers to be held accountable for their actions in achieving targets.





Measuring performance requires a system for the collection, analysis and distribution of management information. Performance indicators are an important component of this system. An indicator links two separate pieces of data as a ratio (e.g. absenteeism rate; the number of staff absent divided by the number of staff employed). Indicators can be constructed from a wide variety of data sources and, properly developed and used, can enable managers to make comparisons between institutions (e.g. hospitals or health districts) within the health system and to measure changes over time for a single institution.

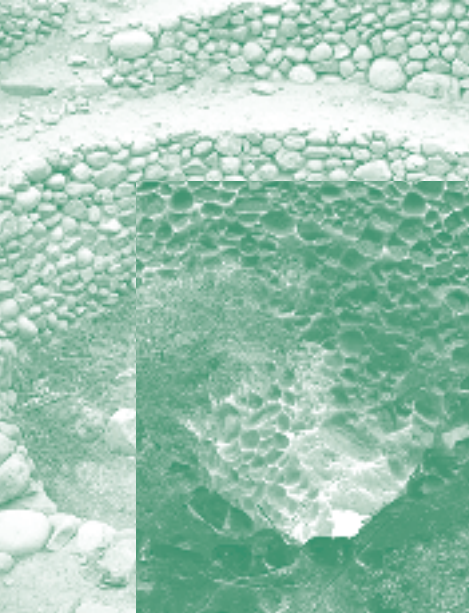
Careful analysis of the information can help show progress towards targets, identify background reasons why performance towards these objectives is good or poor and specify what lessons may be shared and applied elsewhere in the health system. Using indicators as part of a continuous monitoring process helps managers answer questions such as 'How does our organization compare with similar organizations?'; 'What have we achieved over the past year?' and 'How can we do better?'

Changes in the operating environment of many national health systems give this type of analysis an additional weight and urgency. Many of these systems are taking steps to shed a primarily 'administrative' culture - typically characterized by highly centralized organizational control with little devolution of responsibility - to a more 'managerial' culture with greater decentralization of control and local responsibility for resources throughout the organization.

This trend, which borrows much of its management strategies from non-health business management methods, can be described as a model of 'public management'. However, the potential benefits that these management principles may offer come at the price of a change in the culture of the people working in the health system, with more people being given the responsibility - and ability - to control resources.

If local administrators are to become managers, they need the tools to enable them to measure how well they are meeting the targets that have been set for them and to be accountable for the resources they manage. The most important tool in this respect is a reliable, up to date information base. Performance indicators are a key component of such an information base; helping managers to develop new management skills, undertake new responsibilities and generally ensure that the health system as a whole is moving in the direction set by the policy-makers.

This capacity to monitor performance is crucial in a decentralized system where, by definition, many more decision-taking points exist and there is a potential danger of losing the overall direction of the health system. There is also a risk that current inequalities in health care provision (eg access and outcomes) not only be maintained but increase. It is important therefore to measure and monitor what is happening to the health service system at all levels and functions. Individual managers need to know how their performance is changing over time and how the performance of different parts of the health system (eg different hospitals or health districts) compare with each other.



PERFORMANCE INDICATORS IN HEALTH SERVICE MANAGEMENT

Management indicators have been in use in health services for some 20 years, primarily in developed countries, where it was first recognized that continued growth of the health care sector, combined with increasing public expectations of the quality and availability of services, could no longer be sustained simply through ever-increasing cash injections. Many developing countries are now taking a similar view and are seeking to engage in some form of health service reform - increased efficiency and effectiveness in service delivery are fundamental objectives of these reforms.

As a consequence, efforts now focus on improving the efficiency and effectiveness of health care already being delivered, and on increasing the decentralization of health service management functions. This, in turn, has brought about requirements for better information and tools for use by managers. Performance indicators are an important component in this set of tools (3,4,5).

The use of management indicators, together with reforms in the approach to the provision of public sector health care, appear to have produced significant gains in the efficient use of resources. These gains are the result of a complex array of interventions and changes in society and it is difficult to apportion exactly those gains achieved by the reform process through the use of indicators. In ministries where indicators and reform have been adopted they have undoubtedly, and just as importantly, led to a much more vigorous approach in determining the most effective use of resources.

There are similarities between the concept of performance indicators and the 'Health for All' (HFA) statistics that are routinely collected around the world and which provide some measures of the changing health status of nations. However HR, performance indicators differ from HFA statistics because they:

- Focus on resource management issues rather than on morbidity, mortality or clinical functions
- Are for used by health service managers and clinicians at all levels in a given health system
- Provide comparisons between different components of a health system.

This change is also reflected in the way WHO collates statistics on health human resources. These are presented in a form intended to highlight organizational performance characteristics and not simply to concentrate on health and health-related statistics (10).

Performance indicators are now in common use across Europe (including the newly independent States) and also in North America. Elsewhere, as health sector reform processes gather momentum, the issue of good management and the tools to promote it are fast reaching the top of the policy agenda; this invariably includes consideration of performance indicators.

Performance indicators are usually not part of a 'new' information system. They should, with few exceptions, be based on data already collected in the health system. However, they do offer new ways of bringing together current data and giving managers new insights into potential underlying causes for management issues that these managers have to deal with. They lend themselves ideally to active rather than passive models of management which is exactly what health service reforms require.

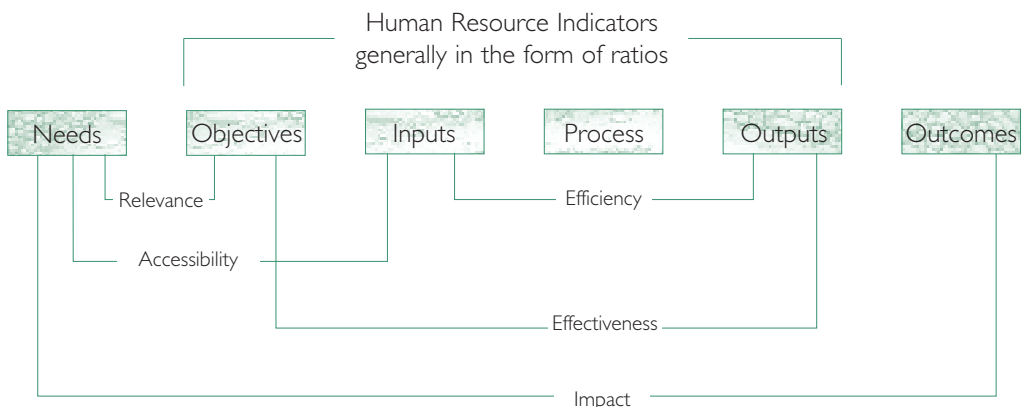
THE BASIS FOR HRH PERFORMANCE INDICATORS

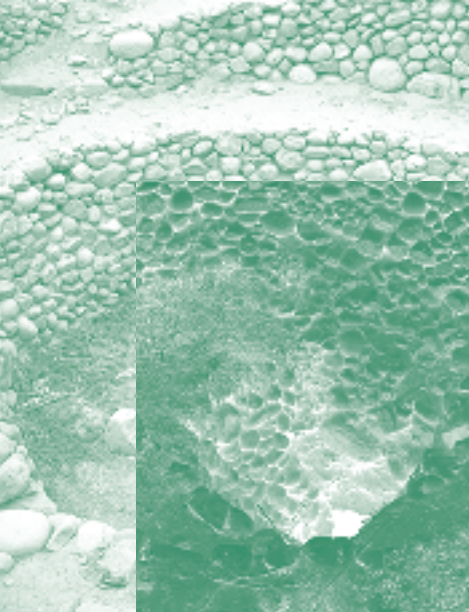
Management indicators combine two pieces of data in a single statistic, eg number of patients seen in a clinic per nurse. They provide an 'indication' of some characteristic of the organization that is a measure of efficiency, effectiveness or quality. Used singly or in groups, they highlight differences from some norm or standard of organizational activity and identify areas of organizational activity where more detailed investigation by managers may best be directed. These differences may be shown through:

- comparisons of the values of the same indicator(s) for other similar organizations
- comparisons with the value of the same indicator over time within the same organization
- comparisons with the value of some pre-determined standard, the national average value, or some other benchmark.

There are four main aspects of health service HR activity for which management indicators may be developed: inputs, processes, outputs and outcomes. Each of them addresses a particular question in HR management, as shown diagrammatically in Figure 1.

Figure 1 HR INDICATORS AND ORGANIZATIONAL PERFORMANCE





INPUTS - What HR resources are available and are needed in the health system? As noted previously, human resources account for the majority of health service costs. They are therefore a key component in inputs.

In comparing different parts of the health system, it is useful to be able to look at measures related to input, such as:

- relative proportions of different staff types, skills and grades
- staff costs in relation to the total health service expenditure
- numbers of staff relative to the local case load and population.

PROCESSES - How does the health service work as an organization for its human resources? With respect to HR, process issues include both the organizational environment in which people work (and the effect that this may have on their performance) and more direct measures of efficiency in the use of HR resources. For example, the first three indicators listed below give an indication of the quality of the organizational environment; the fourth shows a link between HR and other resource inputs to the health care process:

- staff turnover rates
- actual staff ratios compared to planned staff ratios
- proportion of newly recruited staff receiving training
- bed occupancy rates to staff employed.

OUTPUTS - Where it is difficult to provide a direct measure of how changes in the system affect the problems addressed (see 'Outcomes' below), 'intermediate output' measures are often used instead. These can be measured more easily, but only give an indirect picture of how the health status of the population is affected. With respect to human resources, typical output measures include

- the number of nurses per thousand clinic attendances
- trained nurses/ midwives per 1000 live births
- the total number of patients treated compared to available staff.

OUTCOMES - What are the final products of the organization? This area of performance is always difficult to measure in health service systems as there is often little agreement on the ways in which health outcomes (i.e. the change in health status for a person having been in the health care system) can be measured. There are a few direct measures, but proxy measures are also employed. Both require careful interpretation as a basis for any management action. Examples include:

- live birth rate compared to number of available trained birth attendants
- overall population mortality rates in relation to medical or nursing staff employed.

COSTS AND BENEFITS OF INTRODUCING INDICATORS

On the whole it is easier to estimate the main costs of introducing an indicator system than it is to quantify any financial savings arising from the benefits the system can bring. Costs can be more directly attributed to indicator activities and many of them occur in the initial stages of setting up the indicator system.

On the other hand, there is a time-lag before benefits start to occur (in terms of efficiency savings, for example). Moreover, not all benefits are easily quantifiable (eg those that may bring about intangible 'quality' improvements such as better staff morale or increased staff involvement and initiative in taking management action); nor can these benefits always be attributed solely to the use of the indicators. Nevertheless, it is worth attempting to identify potential benefits either in terms of outputs or outcomes or some mixture of the two to provide a justification for investing in indicator development.

Costs

Four types of costs are involved:

- 1 Staff costs
- 2 Training costs
- 3 Production and processing costs.
- 4 Action costs.

It is not possible to describe the scale of staff costs in general, since this will depend on the size of the public sector health service and on the importance and frequency of data collection and collation.

The most obvious costs are those associated with the creation of the indicator system itself. The introduction of indicators may well require a two-phase process:

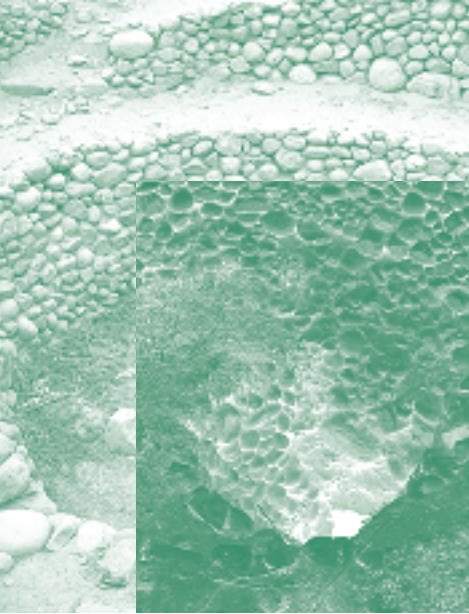
- 1 A pilot development, followed by
- 2 Expansion to a regional or a national programme.

It may be three to four years before a fully functioning system is achieved.

A project team will be needed during the pilot development phase, up to the point when the indicator process becomes a routine activity. The team's function is to promote the use of HRH indicators, manage the development process, ensure collation and analysis of the data returns, undertake follow-up investigative studies and provide guidance for decision-makers on possible actions to address those issues identified through the indicators.

Such a team must contain a senior officer responsible for either human resources or organizational development. The role of this officer in this activity is part-time and has to do not only with supervising the project but also with maintaining links to decision-makers at the centre and at the periphery of the health services.

One or more graduate staff capable of monitoring data returns and analysing the resultant performance indicator data must support this officer. The team will also require at least one computer operator working on a part-time basis and appropriate secretarial and administrative



support in order to process data forms and data returns and to maintain central links with the units involved in reporting.

Education and training are vital elements of any performance indicator initiative at all levels in the health system. Managers and recording staff from all institutions involved will require training. This concerns both the general maintenance of the system (eg recording and reporting data) and the application of the indicator information to management issues - in other words learning how to act upon the information obtained. The latter point is also of paramount importance to central-decision makers in establishing their role and sphere of action using indicators. Time and travel costs

must be taken into account both for the staff who will undertake the training and for those being trained.

Production costs must also be considered for materials to establish the indicator system. This includes costs for the production of training materials, of proformas to collect data and summarize information, of performance reporting systems for local managers, and of operational guidance manuals for local use of HR indicators. It is likely that producing reports and newsletters to share information throughout the health system will entail additional costs. In the early implementation stages of an indicator system there will also be additional requirements for central level support for local managers; this should diminish over time as local managers become more adept at analysing the information themselves. There will nevertheless remain a continuing need for greater flexibility in the use of resources at all levels of the system beyond that associated with current bureaucratic processes. At any stage, the conclusions drawn from an analysis of the indicators may indicate causal factors that require additional short-term resource inputs to facilitate improvements in performance. This in itself will add action costs as decision makers throughout the health system initiate actions to strengthen the weaker parts of the management system.

Maintenance of the indicator function at central and peripheral levels of the health system implies continuing but decreasing costs. In summary, the costs will arise from:

- the creation, retention and potential expansion of the project team as permanent and additional members of staff in the Ministry or Department of Health.
- time taken by existing staff throughout the health system to record and process data
- education and training of managers and recording staff across all institutions (including the recruitment and training of trainers)
- training workshops (at national and possibly regional/local levels)
- computer equipment (at the central indicator processing location at least)
- production of training materials, proformas for information, performance reports for local managers and operations manuals providing guidance for local use of HR indicators
- review workshops

- substantial travel and time costs during the four-phase development process, especially for initial project team visits to institutions
- additional short-term resource inputs to facilitate improvements in performance according to the conclusions of analyse. - the scale of resource requirement for this action may be determined not so much by need as by the provision of a pre-determined 'set aside' of resources from the national budget, allocated against a set of declared improvement priorities
- transmission of information to and from operational units (quarterly, half-yearly or annually), among different levels of the health system.

Benefits

Benefits will by and large be determined by the objectives for the indicator initiative; this will vary from country to country (and possibly over time as priorities change). However, measurable benefits can be derived from recording achievements in two key determinants of performance:

- 1 The 'condition' of the human resource in an organization.
- 2 The type of interaction between HR and the product of the health system.

For example, if indicators show that there is a high level of absenteeism in one hospital compared with all the others and action is taken to reduce that absenteeism, a crude measure of the benefit success may be the average number of working days saved. Similarly, there may be an improvement in the live birth rate as a result of action taken to overcome shortfalls in properly skilled staff (through recruitment or training) or improved quality of care standards (through better availability and improved training of staff).

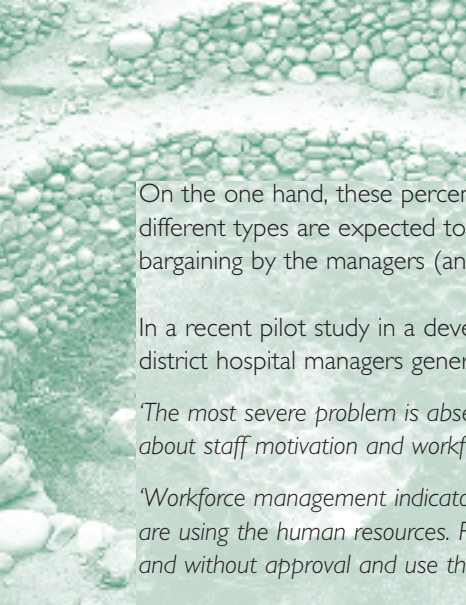
Benefits will include greater efficiency in health service provision and/or increased quality of the service provided. Importantly, a well-supported performance indicator system will lead to changes in focus from administration to management among health service managers and create an environment for managerial innovation that is currently lacking in many administration-based health systems.

MANAGER ATTITUDES TO PERFORMANCE INDICATORS



The way in which indicators are used will vary significantly among users and will reflect individual interest, current management processes and the organizational pressures and rewards for good management. They will also reflect the power and responsibility managers have over the resources at their disposal. The selection and use of indicators cannot be considered in isolation from the managerial environment in which they are applied. The findings of a UK survey (2) on what local managers found to be the most valued features of the national NHS performance indicator set were:

| | |
|--------------------------------|-----|
| Ability to allow comparisons | 28% |
| Highlighting areas of interest | 20% |
| Wide range of indicators | 10% |
| Ease of use | 9% |
| Standardized data | 8% |



On the one hand, these percentage rankings reflect the wide range of issues local managers of different types are expected to control; on the other hand, they provide a basis for resource bargaining by the managers (an important point).

In a recent pilot study in a developing country health system (9), interviews with participating district hospital managers generated comments such as:

'The most severe problem is absenteeism in this hospital. Therefore I can say that the indicators about staff motivation and workforce management are useful for my purposes.'

'Workforce management indicators are very useful. These indicators are important to see how we are using the human resources. For example I would like to get information on absenteeism with and without approval and use this information for staff appraisal'.

'They will be very helpful to define the problems and point the areas of action. However most of the time we don't have the available resources to solve the problem'.

'Comparison with other similar hospitals is useful. Staff working in this hospital are not aware of anything outside this hospital. Therefore such sort of comparison (provided by the indicators) might be helpful to see the different applications and results'.

'Comparisons are very useful. For instance if we consider the absenteeism rate and compare the hospitals with each other we can find out the reasons for high absenteeism and share the experiences of other hospitals having better rates. We can do the same type of analyses for the clinical activities and derive conclusions about the performance of each hospital'.

'Making comparisons to see the better examples may help to motivate the hospital staff. They can try to improve themselves and learn from others'.

'By comparing hospitals we can clearly identify how managers are using resources, where the major problems lie, and what appropriate actions to improve performance can be taken. This may also help to motivate hospital staff who can then try and improve performance locally. But you need to have a very good monitoring system. Performance indicators would be a very useful tool for this'.

Overall perceptions about the potential use of performance indicators were summarized as follows. The figures in parentheses indicate the percentage of managers expressing a particular view.

- As a tool for comparison of the performance of one hospital with other similar hospitals - performance evaluation (60%)
- Control over effective use of available resources (47%)
- Sharing experiences and learning from others to improve service provision (35%)
- To promote staff interest and motivate staff (23%)
- To identify problems and variations in service provision (23%)
- Comparison of clinical activities of hospitals (18%)
- Comparison of administrative activities of hospitals (12%)

There is clearly a perception that HR indicators can make a positive contribution in improving management and organizational performance.