Measurement of NHS service provision: activity levels or outcomes?

Walter Barker

It is useful to consider what has been the fastest growth industry in the NHS over the past ten years. A flippant response would be the volume of political hot air generated by the contending forces debating the reorganisation of the service. A more serious contender would be the administrative staff, who probably number several hundred percent more than they did pre-Griffiths, while health staff dealing with the public may have increased only marginally, if at all.

The winner in the expansion stakes would undoubtedly be the creation and flow of information, and the widespread introduction of computers and systems to structure and expand that flow. It has been a phenomenal development, to the point where we are now reaching overload in the ability of administrative managers - let alone health personnel - to grasp and synthesise the information. A more worrying form of overload lies within the systems themselves, often years behind in meeting contractual promises, or providing output of a volume and complexity beyond the understanding of anyone outside the narrow groups of those who designed the systems.

Activity as the basis for health service information

It is known that any information is as good or as bad as the concepts which underlie its collection. Much of the information flow emanating from the NHS could be described as a conceptual mishmash, however numerically robust it might claim to be.

It is essentially activity based, because that is how the Körner Committee reports (NHS/DHSS, 1982-1983) approached the task of measurement in the health service. Their view of the health service as an activity has dominated thinking over the past decade. It is a crude and essentially materialist view of health provision. Whether one looks at heart operations, hip replacements or GP surgery procedures, there is the same over-simplification of measuring how many staff at levels X, Y and Z have carried out how many procedures A, B and C.

While GPs or surgeons in the past may have counted ruefully the patients

handled or the operations completed on a particular day, most would never have thought of those stakhanovite statistics as saying anything other than how busy they had been kept. The exciting reality of what they were achieving was measured by the difficult cases which had been handled successfully, or the patients now mobile and living a satisfying life rather than being bedridden or suffering in some other way, as they once were.

Frater and Costain (1992) offer some perceptive comments on this issue, stating that since patients care about outcomes, doctors should be measuring it. They point out that a health care system which attempts to organise the provision of care according to the health needs of the population can function only if it succeeds in finding a way of identifying and measuring health gain.

Paucity of outcome measures

It is surprising how long it has taken health service managers to start demanding outcome measures, as they are now doing. For the past decade thinking has been dominated by the Orwellian view of activity; on Animal Farm, four legs were good, two legs were bad. For the NHS, four operations are good, two are bad. Forty patients at surgery are good, twenty patients are bad. It matters not if a successful GP practice has a strong health promotion focus so that the other 20 patient are doing more exercise and eating better, and thus have less need of the GP. That is not how health care is measured today.

Any evaluation of NHS service provision clearly needs to identify and measure outcomes as the key criteria by which the NHS can be judged. But this leaves unanswered the fundamental question of what are or should be the real purpose and outcomes of the NHS, and how should its progress be judged. In theory, a vast number of successful face lifts could be regarded as evidence of effective NHS activity. There are differing approaches to judging this effectiveness.

A. For the bureaucrat, the recruitment of rising numbers of doctors, nurses and other health workers and the provision of the needed buildings to house them, would be evidence of progress, provided the funding kept pace.

B. For many though not all medical personnel, the provision of sufficient curative services to meet the current and foreseeable ill health needs of the population, and the successful utilisation of those services, would be their evidence of progress, again limited only by the availability of sufficient funds.

C. There is no strong lobby favouring the third possible view of NHS service provision, namely how well does it succeed in fostering an awareness of healthy living, and to what extent does it keep most people healthy. Not only

is this view seldom put forward, other than in theoretical discussions about health, but most people would choose to invest nearly all NHS funding in option B. That, for them, is what the NHS is about. Most of the medical profession echoes the public's view.

Despite the strength of this populist view of the NHS, there is a powerful minority of medical and other thinkers who recognise, in common with Alma Ata, that prevention and development should be at the core of the NHS vision. This is not only a common sense position, namely that it is better to remain healthy than to fall ill and require treatment to restore health, but it is also likely to be the most cost-effective position. Prevention and development are usually low cost strategies compared with the almost limitless expense of both low tech and high tech medical procedures.

Any discussion of measurement of NHS service provision needs to start not with the Körner endeavour to count the brute activity levels of the existing service, but with a clear statement on what are or should be the NHS health goals. Health maintenance and health gains would certainly be a large part of that statement, with curative procedures taking second place, despite the fact that the latter would continue to use most of the NHS funds at present.

With this starting point, it should be possible to assess, quantitatively and qualitatively, the extent to which these new goals are being achieved. A focus on health in its positive sense would not exclude measurement of hospital services and the success or otherwise of their outcomes, as a subordinate part of the whole health picture. Is this an unattainable dream?

It is not always recognised that *what* is measured within a service, with the inevitable publicity given to such measurements, contributes a great deal to *how* the service itself and the wider public thereafter define the essence of that service.

The answer to the rhetorical question above (*Is this an unattainable dream?*) might be that a focus on health in its positive sense will remain an unattainable dream for as long as the NHS continues to focus on activity as the prime goal of measurement.

Activity level and the Community Health Services

The Körner Committee's six reports urged that the NHS measure activity in every branch of the health service, including the community health services. During the past ten years both the NHS and the public's view of the health service have been completely coloured by this concept. The more hyperactive the service the better it is seen to perform.

The application of activity measurement to the one area which is specifically dedicated to prevention, namely the community health services, is the most misleading of all the current measures of NHS provision. It has helped to divorce community health almost entirely from its primary role of monitoring, promoting and campaigning on behalf of public and individual health.

In this context two rather negative developments can be noted. There is an increasing drive to medicalise the work of health visitors, the one profession which is nominally devoted to prevention. That process takes various forms, most of which require the health visitor to accept a role which is little better than that of public health assistant to the General Practitioner. The much advocated concept of primary health care teams invariably mean teams of health professionals centred on a GP surgery with, in nearly all cases, a GP as head of the team. Inevitably the real prevention role of the health visitors is diminished as they become increasingly involved in various clinics and clinic-based activities. The health visitor whose sole or principal function is to work in the home with mothers, children and elderly people, is a rarity today. A further reality is sketched by observers such as Potrykus (1992), who points out that the latest reforms are continuing the process of shifting resources from health visiting and school nursing towards domiciliary care of sick people.

There has been a parallel development with midwives, who have throughout history seen themselves as non-medical women with the skills needed to help other women deliver their babies safely. The medicalisation of midwifery has occurred in parallel with that of health visiting, perhaps at a faster rate because the midwifery role is at the centre of the non-medical empowerment of women. A woman whose delivery experiences leave her feeling in control, is less likely to accept subservience in other areas of living. Despite a long and gruelling campaign to establish their independence, the majority of midwives are still faced with controls and direction (from obstetricians) that put most of them into the role of obstetric nurses. They too have in many cases accepted what they see as the inevitable, to the point where today a majority of midwives have neither the experience nor the confidence to handle something as basic as a home birth.

To summarise the discussion up to now, service provision should be measured essentially through its outcomes rather than its rate of activity. Activity levels, in the Körner model, should be totally subordinated to outcomes and should as far as possible not be presented in isolation, given the damaging effect this has on people's views of health and the health service.

Multiple causation

Various authors, including Thomas McKeown (1979) and Ian Kennedy (1981), have shown conclusively that health and morbidity are the products of many factors, including the social, educational, nutritional and other aspects of State policy, community environment and individual lifestyle. Despite this, the fallacy persists that health service provision is the prime determinant of health and morbidity.

The danger of believing in this fallacy is not only that the prime importance of environment and lifestyle is negated in people's eyes; it also means that the prevention and developmental aspects of public health and social policy are not seen to be needed at the centre of health service provision, nor do they get the funds to become an effective contributor to societal health. Community or public health has always been the poor relation in the health service. It is only when health service managers come to understand how much can be saved by focusing on prevention and development that community health services may come into their own. (Barker, 1991)

Socio-educational status

Of all the contributors to health, few can compare with the weight of the socio-educational cluster. A starting point for the measurement of health service provision should be to acknowledge that the socio-educational environment of home and community are the most powerful of all influences on health, superior to anything that might be done by the NHS. Thus, the socio-educational status factor (SES) needs to be measured and controlled for in every statement on outcomes. Without it there is no honest way of comparing like with like, or forming any credible judgement on service effectiveness.

How such SES indicators are constructed requires a strong conceptual base, combined with state-of-the-art statistics to tease out the meaningful relationships which exist between these indicators and a wide variety of health and morbidity measures.

To look first at potential SES indicators. Father's occupation is a key variable, however unfair it may seem in a theoretically gender-equal society. Its predictive power remains overwhelming. Beyond this, work done in our Unit over the past 12 years has pointed time and again to the fairly obvious fact that a spread of nine points across a father's occupation scale provides a stronger prediction that the peculiarly distributed 5 1/2 level social class scale which is so encrusted in all our thinking.

Housing quality is another powerful predictor, related to but also distinct

from father's occupation. The links with the health of the home environment need no emphasis.

Two further important predictors, at least in relation to families, reflect the mother's critical contribution. 'Mother's school-leaving age' and 'Mother's further education' have both shown up strongly in pointing to health and morbidity outcomes. It is clear why that should be so. In most homes the woman plays a major role in choosing the family's diet. She is also likely to be more conscious of the subtleties of health conditions in the children, and likely to respond sooner and more sensitively than most men would do.

Other SES variables which have some predictive power are factors such as ownership of telephone, car and central heating. Although there is a considerable overlap with father's occupation and housing, they do make some independent contribution to health and morbidity measures.

The value of a composite weighted measure of SES, as outlined here, is that it is health service neutral. In other words, it is not based on esoteric factors such as the number of elderly people on a practice caseload, or crude measures of the deprivation within a GP practice area.. The limitations of instruments such as the Jarman index have been well documented, most recently by Balarajan et al (1992).

How would SES-type data be gathered? Possibly from the same people from whom are gathered health and morbidity information, using stratified or other sampling to reduce costs.

Other predictors

There are a range of other determinants of health or morbidity, many of them well known and widely discussed outside the rather narrow confines of health service information. These include such obvious predictors as nutrition, smoking, water and air quality.

At a deeper level one could identify factors such as the educational levels of different members of a population group (and not just those of the mother), public knowledge about health issues, collaboration with or hostility to health service priorities, and finally the degree of control or influence exercised by the community over its local health services.

A simple example

The use of a newly developed instrument to assess the health and developmental outcomes of a key group in the population affords an example of how one important aspect of community health service provision can be

measured.

The target group are children from birth to four years. The health service is that provided by health visitors to the parents of those children.

Instead of adhering to the Körner model (now widely used) of asking health visitors to note how many 'contacts' they have made with clients each day, how many topics have been discussed with each one, how many miles have been driven in the course of this work, and other mechanistic information, our Unit has over the past seven years developed an Early Health and Development Monitor, with an accompanying suite of computer programs for data input and user-friendly analysis.

The Monitor is completed by a health visitor in the home within one month of a child's birth, again at around six months and then annually until the child is three or four years old. A single two-sided printed card is sufficient for recording almost everything of health-related and developmental importance in these first years of a child's life. The home visits to obtain this information take 20 minutes at most, although many health visitors use the occasion to do a health visit as well, basing some of the 'agenda' on what they have learned from filling in the Monitor items. Eleven health authorities are now using this instrument routinely.

Over the years of data collection on any individual child, about 180 items of information are gathered on the child and its immediate parenting environment; the analysis programmes collapse these into 70 variables which can be examined in a variety of interesting ways as determined by the user, comparing selected sub-groups, sectors, clinics or other categories based on health behaviours, such as breast-feeders vs. non-breast-feeders.

Among the variables gathered are:

- A range of birth information, some of it obtained from birth notification records and the rest from the mother
- Breast-feeding information
- Diet, assessed from a one-day 'intake', with the health visitor judging the adequacy of each of seven key categories of the child's diet
- Days spent in hospital each year, together with the reasons for each episode
- Maternal self-esteem, judged by the health visitor according to the responses given by the mother to four questions
- Developmental indices (from age 2 onwards) on language, social and cognitive development
- Home educational environment (e.g. reading-to-child activities)
- Statutory child protection information
- Father's or other partner's support in the child-rearing

- Disability and its management
- Life events and interventions

There are basic guidance documents for the health visitor, including a coding card which enables her/him to note the appropriate category, e.g. birth delivery factors or reasons for a hospitalisation episode.

The computer programs have been written in such a way that any requested analyses will automatically provide a breakdown of information across three or five socio-educational divisions, either based on absolute SES scores for comparison with other samples or other health authorities, or divided into selected groupings such as the bottom 25%, middle 50% and top 25% of the SES distribution.

Perhaps the most startling finding has been the considerable power of factors such as SES and mother's age in helping to predict almost every health or morbidity measure.

As one could expect, there are also noticeable effects of different levels of health visitor provision. Such issues are as sensitive as information on the differing levels of the same operation undertaken by different surgeons in different hospitals. They raise major questions about effectiveness - which indeed they should do. More fundamentally, they enable managers to look at the distribution of resources across a district or sector. Rather than the buggin's turn in which each sector gets an equal piece of the health visiting cake, managers can allocate different levels of health visiting resources according to the manifest need shown by the Monitor.

To date only a few managers have made the kind of positive discrimination for which this instrument is ideally suited. Perhaps that is why the Körner Committee mentality has been so damaging to health service thinking, because throughout the service managers now judge their staff primarily by activity levels, and not by the end product of health and development.

For the NHS to reach a level of understanding that health service provision should be measured by outcomes and not by activity levels will take a dramatic change of perspective.

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A caring government... Part 1

On homelessness...

"We've put the homeless into homes but some just go back on the street begging. They are the people you step on when you come out of the opera." Sir George Young, Hosuing Minister, June 1991.

On unemployment...

"A price well worth paying". Norman Lamont, February 1991.

On the NHS...

"We can't afford to have people lingering around for a recuperative holiday... We want the minimum beds necessary. We probably still have more than we need." Virginia Bottomley, then the Helath Minister, February 1992.

On blacks...

"He should have been a candidate in .. Wolverhampton, where his colour would have been more appropriate." Dudley Aldridge, former tory Mayor of Cheltenham, on the town's black tory candidate, John taylor, January 1992.

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