## The NHS White Paper - working for people?

#### Radical Statistics Health Group

### Summary

The Review of the NHS was provoked to a considerable extent by a crisis due to underfunding, yet the White Paper shows no sign of rectifying this.

Although differences in 'performance' and managerial efficiency may contribute to the variation from district to district in measures of NHS costs and activity, these measures also reflect differences in the population, the way the services are organised, how the statistics are collected and random variation. Thus they are unlikely to disappear in response to changes which focus solely on how services are managed.

It is inappropriate to model general practices on American Health Maintenance Organisations, as the circumstances in the United Kingdom are very different, and significant savings are unlikely to result. Until the reasons for variations in the extent to which GPs refer people to hospitals can be clearly identified, it is inadvisable to introduce measures to curb high referral rates.

Accessibility and comprehensiveness are fundamental aims of the NHS. They are already being eroded and the proposals in the Review are likely to threaten them further.

The proposals for audit of care provided are welcome, but should not be confined to doctors, especially in view of the development by other NHS staff of ways of auditing their work. There has never been adequate funding for proper evaluation of care. To provide a rational basis for audit, more evaluative research is needed to establish what care is effective and appropriate. In the absence of this information, audit could degenerate into the policing of compliance with accepted but unevaluated methods of treatment. Over hasty introduction of audit may also be counter-productive.

Until the evaluation of the Resource Management Initiative is complete, it is too soon to recommend the installation of similar systems elsewhere. No indication is given about the future of recently installed Körner systems, and it would appear that only minimal data would be available from opted out hospitals. In any case hospital-based systems have severe limitations, and the time is now ripe for population-based databases which link data about people's characteristics and background with information about their contacts with health services. Unfortunately, it is more likely that priority will be given to systems which are hospital-based and financially oriented.

The Review contains little to indicate that adequate statistics about the health of the population and the care provided will be available in future. The lack of thought given to collection and uses of information is characteristic of the Review as a whole and it is unlikely that the changes which it is planned to impose without consultation will solve the pressing problems which beset the National Health Service.

March 1989

# The NHS White Paper - working for people?

# Radical Statistics Health Group

The approach to information and evaluation is symptomatic of the way the review looked at the NHS as a whole. As we do not have the time or resources to comment in detail on all the proposals it contains, these comments on the NHS White Paper 'Working for patients' concentrate on two aspects. They start by asking briefly whether the proposed changes are justified and whether they are likely to take the NHS nearer the objectives for which it was set up or help it solve its current problems. This is followed by a closer look at the proposals for monitoring and evaluating the care given by the NHS.

### Proposed changes

It would appear from its introduction that the White Paper bases its proposals for change on two underlying assumptions. The first is that spending on the MHS has vastly increased during the 1980s and that this has given rise to a 'massive expansion' in activity. The second is that there is wide variation in 'performance' and that 'reform' is necessary to correct this.

As our book 'Facing the figures: what really is happening to the National Health Service?' showed in considerable detail, the first assumption is false. Spending on the NHS since 1979 has failed to keep pace with changes in NHS pay and prices, the age structure of the population and new demands on the NHS arising from the AIDS epidemic, developments in medical treatment and the impact of government policies in other areas. While we would agree in principle with the statement in the White Paper that 'simply injecting more money is not, by itself, the answer', in practice many of the current problems of the NHS arise from underfunding.

As we showed in 'Facing the figures', the United Kingdom spends a lower proportion of its GDP on health care than many other developed countries. The table below shows that this difference can still be seen in more recently published statistics.

Health care expenditure in the European Community as a percentage of the Gross Domestic Product, 1982, 1985 and 1986

Country	Percentage		
	1982 <sup>3</sup>	19854	1986 <sup>5</sup>
France	9.3	8.4	8.5
Netherlands	8.7	8.3	8.3
West Germany	8.2	8.2	8.1
Ireland	8.2	8.0	n/a
Italy	7.2	6.7	6.7
Denmark	6.8	6.2	n/a
Spain	6.3	6.0	n/a
Belgium	6.2	7.2	7.1
UK	5.9	6.1	6.2
Portugal	5.7	5.7	n/a
Greece	4.4	4.2	3.9

The figures for 1982 were provided in Hansard on 15th April 1986 in response to a question to the Secretary of State for Social Services. As was acknowledged in the written answer, '...the UK spends less on health as a proportion of GDP than most other member states...'. In fact, as the table shows, only Portugal and Greece, the two poorest countries in the European Community, spend less than the UK on health care. In 1985, these same two countries, plus a third poor country, Spain, were the only ones whose spending fell below that of the UK. On the other hand, the United States outstripped the countries of the European Community. Health care spending secounted for 10.5 per cent of its GDP and 10.7 per cent in 1984.

It it also clear that compared with other countries, our present system is less bureaucratic, inefficient and wasteful, so the need for radical change is not apparent. It is significant that the only reason for major changes cited in the White Paper is the variation from district to district in measures of NHS activity and the cost of services. What evidence is there that these arise from differences in efficiency, or that the White Paper proposals will 'raise the performance of all hospitals and GP practices to that of the best'? As the government regrettably plans to implement the White Paper proposals without first pilot testing them in a small number of hospitals, districts and general practices, the second question cannot be answered fully until the changes have taken place. There are good reasons to question the underlying assumptions, however.

# Will competition improve performance?

The White Paper does not explicitly define performance, but it appears to equate it with providing the maximum activity at the minimum cost to the NHS. The idea that internal markets, in which the budgets of health authorities or hospitals would depend on the number of patients attracted, would improve efficiency through competition is based on two untested assumptions.

First, it is assumed that the variation in the measures of NHS activity and cost, often referred to as 'performance indicators', arises only from variations in managerial efficiency. Although this may play a part, a true picture of performance can only be achieved by considering a number of other factors which can affect patients.

For example, short post-operative stays are often regarded as a sign of efficiency and good management, although this is unproven, especially in the absence of measures of other factors which can delay recovery and of information about readmission rates. Yet performance indicators which measure lengths of post-operative stay take no account of numerous other factors which are known to influence it. These include patients' social and aconomic circumstances, their age and general health and the extent of community services. Some of these are, of course, provided outside the NHS by families, social services and voluntary organisations.

Another example is the rationalisation of services by closing small hospitals and concentrating services in larger hospitals. This usually saves money for the NHS, but often increases the travel and other costs involved in using the hospital services, particularly for people living at some distance from the larger hospitals. Another factor which is ignored is the quality of care, as the indicators only measure the process of giving in

Differences in the indicators themselves can also be affected by variations from district to district in the way data are collected and classified. For example, in some districts community midwives are shown separately, while in others they are included in the hospital figures. In other districts, the same midwives may work both in hospitals and the community, making the distinction irrelevant.

An important factor which has rarely been mentioned is random variation. Where indicators are based, as they often are, on small numbers of events, apparently wide differences may be no larger than would be expected by chance. Yet people do not usually check this before giving their interpretations of the differences.

The second assumption, that competition can create savings within the NHS, is based upon the success of Health Maintenance Organisations (HMOs) in the United States. In 'Facing the figures' we pointed out, however, that HMOs succeeded there by cutting the rates of hospitalisation and medical intervention in a country where these were excessive, by clinical criteria.

Where is the evidence that similar savings could be made here? Research in this area is lacking and, in its absence, we are expected to accept uncritically the superiority of the market. Yet no serious thought, and certainly no research has gone into the possibility that a major disadvantage of the American system may also be imported here. This is the higher cost of administration, which will inevitably arise from installing billing systems in hospitals, districts and general practices. At present, administration accounts for around 5 per cent of NHS expenditure in the UK, whereas it may be as much 21 percent in the United States.

## Controlling GP referral rates - a worthwhile objective?

Giving GPs a budget which they could spend on hospital services for patients on their list is one way of creating internal markets. It also opens up the possibility of controlling their referral rates.

There is known to be wide variation in the extent to which GPs refer people to hospital. The reasons for the variation are not clearly understood, although they are wider for medical than surgical causes. Even within surgery they vary from procedure to procedure.

Some of the variation is circumstantial. For example in towns without hospitals, GPs are the first port of call for people who night otherwise have gone straight to casualty departments. The referral rates of these GPs are then inflated by the need to refer many of these people to hospital. In any case, there is as yet no consensus as to what might be an optimum referral rate, let alone evidence that high rates are necessarily bad. Yet in the absence of such information, the government's main interest seems to be to curb high referral rates without first evaluating their impact on patients.

#### Accessibility and comprehensiveness

The review's two main objectives, set out in paragraph 1,8 are:

'to give patients wherever they live in the UK, better health care and greater choice of the services available:

and greater satisfaction and rewards for those working in the NHS who successfully respond to local needs and preferences.  $^{\rm L}$ 

The priorities here differ markedly from the 'Objects' in view' set out in the 1944 White Paper:

- '1. To ensure that everyone in the country irrespective of means, age sex or occupation shall have equal opportunity to benefit from the best and most up-to-date medical and allied services available.
- 2. To provide therefore, for all who want it, a comprehensive service covering every branch of medical and allied activity....
- 3. To divorce the care of health from personal means or other factors irrelevent to it....  $^{10}$

The White Paper promises that 'The NHS will continue to be funded mainly from taxation.' but the critical question is the extent to which this will not be the case in the future. Optical services are available only to people with low incomes or special needs and the extent to which the costs of prescriptions and dental services are paid for by charges to users has increased markedly since 1979.

Sterilisation, abortion and infertility services are examples of services where the principles of comprehensivesness and universal access to services free at the point of use have already been heavily eroded.

Doctors are paid item of service payments for doing sterilisations and there is a fixed budget for these, thus limiting the number which can be done in any one year. In 1987, only 44.5 per cent of abortions for women living in England and Wales took place under the NHS and a further 5.1 per cent were agency abortions done in the private sector at NHS expense. Thus just over a half of all abortions were not paid for by the NHS. As this proportion varies widely from district to district it is unlikely to be simply a consequence of women's preferences. The availability of services for people with infertility problems is very variable and this is likely to continue. The Department of Health stated in reply to a parliamentary question that 'The provision of infertility services is a matter for individual health authorities to decide in the light of local needs and priorities.' 12

Although the Prime Minister's introduction to the White Paper states that 'The National Health Service will continue to be available to all regardless of income', the document does not explicitly discuss the question of comprehensiveness in making the distinction between 'core services' to which patients need guaranteed local access and those which could be bought from outside the district. The list of 'core services' in the White Paper is not very specific and does not even mention maternity services.

Despite verbal assurances given by ministers when launching the review, the position is still unclear. Kenneth Clarke subsequently stated that he had not specifically excluded gynaecology and maternity services but went on to say, that 'I have not prescribed and I have no intention of prescribing a definitive list. The first and second of the working papers published on 20 February make it clear that it will be for each district to consider in the light of local circumstances what its core services should

It seems highly likely that the White Paper proposals will increase the need for people to travel to other districts for services. This will add to the money they will have to spend and the time they will have to give up to do so. There is a danger that this will make services more inaccessible to people who are least able to afford the cost of travel. For example, a recent analysis of trends in mortality from cystic fibrosis discussed the relative merits of specialised treatment centres and more localised forms of care. A study of one specialised centre had shown that disproportionate numbers of patients came from professional and managerial backgrounds and there was reason to believe that this might also be the case in other specialised centres.

Having said this, it is far from clear what impact the changes set out in the White Paper will have on accessibility of services, nor indeed whether they will increase choice for people who are able to afford the time and costs of travel to other districts. The proposals would seem to be designed with reference to acute, mainly surgical, treatment in metropolitan areas where hospitals are not too far away from each other. There has been no pilot project to test whether they would work in this context, let alone for other types of services or in other areas. This is particularly worrying for people in rural areas where the mearest district general hospital could be 20 or 30 miles away and may well be further.

Department of Health funded research has pointed to the need for evaluation of any proposals for change, particularly in view of the costs and disruption to services caused by the 1974 and 1982 reorganisations. <sup>15</sup> Yet, the government has ignored this warning and decided to impose on the health services throughout the United Kingdom a system which is totally untested and whose impact it appears to have no intention to evaluate systematically, or indeed at all.

### Monitoring the changes

Not only was there no prior evaluation of the White Paper proposals. It does not appear from the White Paper or the eight working papers that the government has any consistent strategy for monitoring or evaluating them as they are imposed. Changes to such a crucial part of society as the NHS ought to be very carefully evaluated but the only method mentioned explicitly is medical audit.

#### Medical audit

In principle, the idea that people working in the NHS should audit their work is very welcome. It must be asked therefore whether the government's proposals will enable audit to be done adequately, and whether audit on its own will be sufficient to monitor and evaluate the care given by the NHS.

The White Paper and the accompanying working paper on medical audit<sup>16</sup> confine their attention to medical audit, in other words peer review of doctors by other doctors. Thus it ignores the increasing amount of effort being made by midwives, nurses and other health service staff to audit the care they give. This omission is perhaps not surprising, given the way the White Paper rarely mentions any health service staff, apart from doctors

and managers. It is also interesting to note that while the Working Paper on medical audit considers that only doctors are worthy or suited to audit the work of doctors. the Working Paper dealing with consultants' contracts does not feel that they can be trusted to determine each other's eligibility for merit awards without the involvement of managers!

In order to audit the care being given, it is necessary to know whether there is any evidence that either new or, indeed, existing procedures are likely to be beneficial to the groups of patients involved, and even more important, to know that they are not positively harmful. All too often accepted treatments have not been evaluated in a way which could answer these questions, and even if they have the people who use them may not be aware of the conclusions.

For example, the Confidential Enquiry into Perioperative deaths asked very specific questions about deaths after surgery and anaesthesia. <sup>17</sup> It found that death was attributable to avoidable factors in a very small proportion of operations, but that there were some instances of moribund or terminally ill patients having operations which would not improve their condition. There is a need for many more randomised trials to evaluate specific treatments and therapies as well as systems to enable the outcome both of surgery and and of other types of care to be measured over a longer period.

The decision to give a grant of 16 million to the Cyclotron Trust for treatment whose effectiveness is unproven and which may well be harmful shows the shallowness of government rhetoric about the need to get value for money in spending on health care. The 16 million grant, more than twice the government's annual budget for cancer research, was given towards buying a cyclotron costing f 10 million to be sited at St Thomas' Hospital. The government will also pay 60 per cent of its running costs. This decision was taken against the advice of many cancer specialists and despite the discouraging results of a series of trials in Edinburgh.

Why then was the grant given? The Prime Minister's ophthalmologist, Richard Packer, who helped the Trust lobby her for the grant, attributed the Trust's success to the fact that it had offered the government a 'business package' in which it would get back profits from treating private patients.

In this climate, the prospects for better funding for research to evaluate care seem bleak. The need for it is not mentioned in the White Paper. In its absence, there is a real danger that audit could degenerate into the policing of compliance with accepted but unevaluated methods of treatment, particularly as the timescale for implementing it is relatively short. The working paper states that arrangements for audit should be in place in every district by April 1991. This contrasts with the view of a group of community physicians who have played a major role in promoting and implementing audit synstems in the North West Thames Region: 'Clinical audit...should be informal, voluntary, without sanctions and confidential between peers. Audit cannot be achieved rapidly and will proceed at a different pace in different districts and specialties.'

#### Better information?

Although the need for better information is acknowledged briefly in the White Paper, there is little discussion of what is needed or how it would be used. Paragraph 2.14 says 'There is at present only a limited capacity to link information about the diagnosis of patients and the cost of treatment. The Government believes that the best way to remedy this is by extending and accelerating the existing Resource Management Initiative.'

This is jumping to conclusions. Unlike the White Paper's other proposals this is being piloted in six hospitals, but the evaluation is not due to be completed until later this year. On February 4, after the publication of the White Paper, Ian Mills, Finance Director of the NHS Management Board reported on progress to the British Medical Association's Central Committee for Hospital Medical Services. He said, 'Nothing would be recommended or exported to the rest of the service until the evaluation had been completed. The Board needed to know that the costs could be more than outweighed by the benefits to patient care.'<sup>21</sup>

The one thing which is clear is that information systems will continue to be hospital-based. Will the statistics they contain tell us anything about the effectiveness of care, or the service being given to the population?

The fundamental flaw in hospital-based statistics had been recognised by the early 1860s and was set out by Florence Nightingale in her 'Notes on hospitals':

'Hospital mortality statistics have hitherto given little information on the efficiency of the hospital ie: as to the extent to which it fulfills the purpose it was established for, because there are elements the existence of which such statistics have hitherto taken no cognizance.'22

She pointed out that hospitals admitting people with 'ailments not of a dangerous nature' will inevitably have lower mortality rates than those dealing with 'dangerous and special diseases'.

The problem of correcting for these selection processes remains unsolved, despite the considerable body of work has been done in the United States to develop ways of coding the severity of conditions for which people are admitted to hospital. <sup>23,24</sup> For example, it is accepted that while individual neonatal intensive care units need to audit their own practice, long term trends in outcome in terms of morbidity have to be assessed by following babies born to geographically defined populations. <sup>25</sup>

A comparative analysis of hospital-based mortality rates published by York University aroused considerable interest, but it was subsequently pointed out that there numerous problems in interpreting the data from the new defunct Hospital In-patient Enquiry on which the analysis was based. The problems include the consequences of variations in coding and classification of diagnoses and treatments and variations in the way and extent to which people are referred to hospital.

These problems are likely to remain in the new Hospital Episode
System, which has now superseded the Hospital In-patient Enquiry. This aims
to collect information about all stays in hospital in England. It does so
by drawing data from local Korner systems. These systems were implemented
by health authorities within existing budgets at a time of financial
crisis. Commenting on progress so far, a Department of Health statistician
wrote, 'I know that a great deal has been achieved by many people working
hard to overcome problems, in the dedicated manner typical of the NHS, but

there is still some way to go before we have good enough data on all patient activity in all health authorities. 27

The White Paper does not mention whether, after all this effort, these systems will be abandoned in favour of the new billing systems. Even if they are retained and full coverage is achieved, there will be major gaps. There will still be no measures of severity of conditions, Although districts are implementing systems which will be able to link information about people's successive hospital stays within the same district, national statistics are based on numbers of in-patient stays rather than numbers of people treated in hospital.

It would appear that even the limited linkage of records between hospitals in the same district may be disrupted if some opt out. Working Paper 1 says about the provision of information by opted out hospitals. Some changes in the mechanisms for providing information will be necessary\_particularly to ensure that national requirements are kept to a minimum. It is also unclear what will be demanded from hospitals outside the NMS. In general, these hospitals do not routinely collect information about the people who use them, or contribute to national data collection systems, except where they are required to do so under the Acts of Parliament dealing with notifications of births and of abortions.

There is no possibility of allowing for patients' socio-economic circumstances in the Hospital Episode System, as no details are collected. Instead, people can be classified according to the average socio-economic characteristics of their post code sector as recorded in the last census. This is a relatively insensitive measure which can also become out of date.

Although hospital data collection systems contain diagnostic data about the state of patients on admission, on their own they have few morbidity data which could be used to measure the outcome of care. While some conditions, for example infections, may occur during the initial hospital stay, many other conditions do not arise until after discharge. For some conditions, morbidity cannot be measured until some months or years later. For example, the prevalence of some vision and hearing impairments and of cerebral palsy are commonly believed to be possible outcomes of poor care during labour or delivery or in the neonatal period, but these cannot be assessed with any degree of reliability until the age of about three years. Even then, there is no certainty that the impairments arose from poor hospital care rather than from conditions which were already present during pregnancy, or arose from illnesses or injuries after the child was discharged from hospital.

In hospitals taking part in the Resource Management Initiative, there has been considerable extra investment in information technology and staff to set up run the computer systems involved. When the Initiative was first announced in November 1986, it was estimated that initial development costs would be between f400,000 and f600,000 for each unit. This means that even if these estimates were accurate and costs have not risen, it would cost between f104 million and f156 million to implement the government plans to set up such systems in 260 acute units by 1991-1992. Kenneth Clarke is unwilling to name a figure, but has claimed that The cost will not be met at the expense of plans for patient provision'. If these considerable sums of money are available for information systems, is this the best way of spending them?

Although these information systems would give much fuller information

about the costs and activities of hospitals, they have little to offer in evaluating the effectiveness and outcome of care. As was mentioned above, this needs to be done in much more focussed ways. Furthermore, resource management systems in their present form would tell us little about the extent to which care is provided to those who need it in the population.

Working Paper 2 acknowledges indirectly that there are no statistics about morbidity in the population. When it proposes that health authorities will receive financial allocations based on their populations, adjusted for age, morbidity and the relative costs of providing services. I like the RAWP system which is being superseded, the Working Paper proposes using Standardised Mortality Ratios as a measure of morbidity.

# The need for more relevant statistics

It will be impossible to assess the impact of the White Paper proposals, let alone to monitor access to or take-up of care simply by enhancing hospital statistics. The extent to which people are admitted and how soon they are discharged from hospital cannot be divorced from their personal circumstances, nor from the extent to which care is provided by GPs, community health services and services provided by local authorities. Linking data about individuals from different sources in order to build up population based data bases, as recommended in the Cumberlege Report on community nursing services. would be a much better strategy for monitoring morbidity, the care which people receive, and their unmet needs. The rescently announced computerisation of the National Health Service Central Register, from which population-based age-sex registers could be derived, together with local Patient Administration systems makes it feasible to start planning for this.

There is nothing new in this idea. Florence Nightingale said in 1857 that rather being given misleading statistics about military hospitals, the commanders of the army needed to know how long the army would last at the current rate of mortality, whether the diseases which caused it were preventable and what proportion of the army was unfit because of sickness. The same applies to our population teday.

Statistics focussing solely on the costs and activities of hospitals and general practices will neither shed much light on the quality of the hospitals and practices concerned nor will it help in monitoring progress to equal access to effective and appropriate care for people at equal risk. Like the review as a whole, it will take us no nearer to the fundamental objectives of the NHS, and in the absence of population-based statistics, it will be very difficult to assess the extent to which the NHS is answering the needs of the population.

This is unfortunate, as numerous surveys show that most people value the National Health Service highly and feel that its strengths far outweigh its limitations. Of course there are aspects of it which need changing, but there is no evidence that the changes set out in the Review of the NHS will help the Service solve its problems and achieve its objectives, particularly as one of its most pressing current problem, underfunding, is ignored.

March 1989

### References

- Working for patients. The Health Service caring for the 1990s. Cm 555. London: HMSO, 1989.
- Radical Statistics Health Group. Facing the figures; what really is happening to the National Health Service? London; Eadical Statistics, 1987.
- 3. Written reply. Hansard, April 15 1986, col 361-362.
- 4. Written reply. Hansard, February 12 1988, col 404-406.
- 5. Written reply, Hansard, May 19 1988, col 556-557.
- Organisation for European Economic Co-operation and Development (OECD). Financing and delivering health care. A comparative analysis of OECD countries. Paris: OECD, 1987.
- Sanders D, Coulter A, McPherson K. Variations in hospital admission rates: a review of the literature. Oxford: Department of Community Medicine and General Practice, 1988.
- Peppiatt R. Patients' use of GPs or accident and emergency departments. Practitioner 1980; 224: 11-14.
- Wilkin D, Smith AG. Variation in general practitioners' referral rates to consultants. Journal of the Royal College of General Practitioners 1987; 37: 350-353.
- Ministry of Health, Department of Health for Scotland. A national health service. Cad. 6502. London: HMSO, 1944.
- 11. Office of Population Censuses and Surveys. Abortion statistics 1987. London: HMSO, 1988.
- 12. Written reply. Hansard. February 7 1989, col 641.
- 13. Written reply. Hensard. February 23 1989, col 803.
- 14. Britton JR. Effects of social class, sex and region of residence on age at death from cystic fibrosis. British Medical Journal 1989; 298: 483-487.
- Bevan G, Holland W, Haynard A, Mays N. Reforming UK health care to improve health: The case for research and experiment. York: Gentre for Health Economics, 1988.
- 16. Medical audit. NHS Review Working Paper 6. London: HMSO, 1989.
- NHS consultants: appointments, contracts and distinction awards. NHS Review Working Paper 7. London: HMSO, 1989.
- 18. Buck N. Devlin HB, Lunn JN. The report of a confidential enquiry into perioperative deaths. London: King's Fund. 1989.
- Smith R. Radiotherapy's second setback. British Medical Journal 1988; 297: 1625-6.

- Black N, Chapple J, Dalziel M, Spiby J. Step by step to audit. Health Service Journal 1989: 140.
- Consultants urged to take part in resource management. British Medical Journal 1989; 296: 511.
- Nightingale F. Notes on hospitals. Third edition. London: Longman, Green, Longman, Roberts and Green. 1863.
- Charny H. Death data: do they work? Health Service Journal 1988;
   December 18: 1450-1451.
- Dubois RW, Rogers WH, Moxley JH, DraperD, Brook RH. Hospital in-patient mortality: is it a predictor of quality? New England Journal of Medicine 1987; 317: 1674-80.
- Johnson MA, Hacfarlane AJ. Neonatal intensive care: trends in morbidity. Lancet 1988; ii: 168.
- Kind P. Hospital deaths- the missing link: measuring outcome in hospital activity data. York: Centre for Health Economics, 1988.
- Orchard T. The Hospital Episode System. OPCS letter to the NHS No 20. January 1989.
- Self governing hospitals. NHS Review Working Paper 1. London: HMSO, 1989.
- Resource management initiative. British Medical Journal 1986; 293: 1320.
- 30. Written reply. Hansard. February 22 1989, col 670-671.
- Funding contracts for hospital services. NHS Working Paper 2. London: HMSO. 1989.
- 32. DHSS. Neighbourhood nursing a focus for care. London: HMSO, 1986.
- Nightingale F. Notes on hospitals. First edition. London: John Parker and Son. 1859.