Statistical information about the NHS - an update

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The statistics deployed by the government in support of its claims that the changes it has made in the health service are a huge success bear a depressing similarity to those it has used in previous years. For example, Virginia Bottomley's New Year message to NHS staff opened with the statement that 'The number of patients treated rose to record levels; waiting times fell substantially again; the Patient's Charter extended further and deeper into the Service; GPs immunised more and more children against the major childhood diseases.'[1]

Data about the hospital and community health services.

Recent developments, particularly the introduction of the internal market, have decreased the availability of statistical information about the NHS. In particular, financial information is much less detailed than in the past, in order to protect the commercial interests of trusts.

Changes made earlier in response to the recommendations of the Korner Committee have made data in some systems less relevant than previously. For example, data published about the work of community midwives used to include the numbers of women they delivered at home and in hospital and the numbers they cared for at home after giving birth in hospital. Now only the numbers of face to face contacts are published.[2]

In other cases, new systems were implemented without adequate resources and the data they contain are consequentially of poor quality. For example, the diagnostic data in the Hospital Episode System, which records care given during episodes of in-patient care, tend to be inaccurate. In the case of data about episodes of care in maternity units, many records and individual data items are missing from the Maternity Hospital

Episode System, with whole regions and districts failing to submit data.

NHS activity statistics

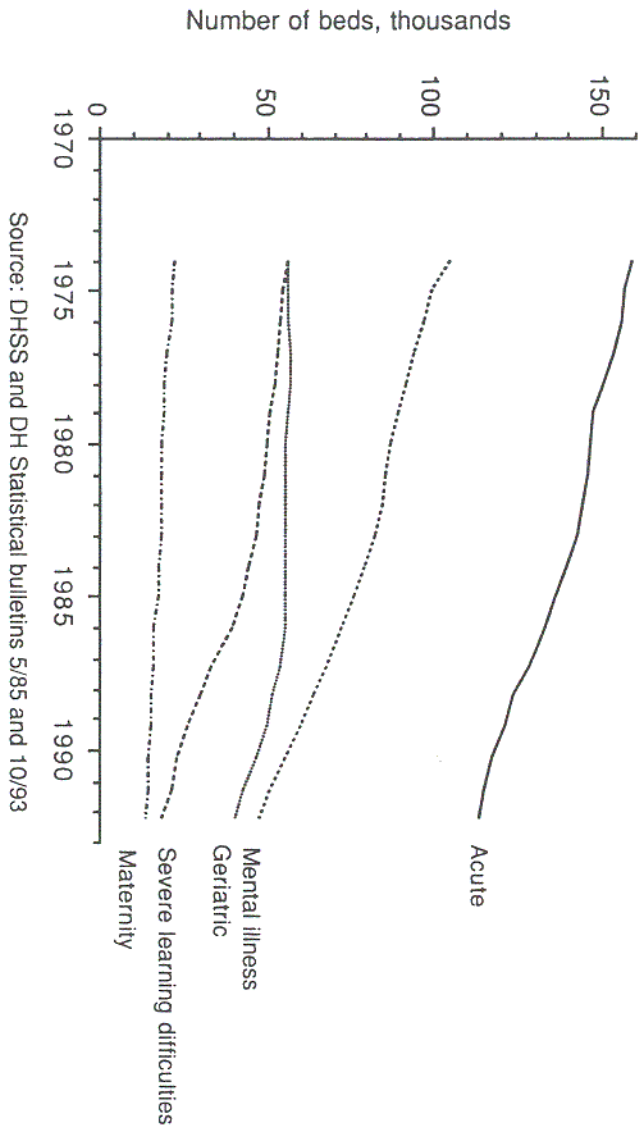
Ministers' speeches frequently quote figures about the activity in NHS hospitals. Most of these are based on numbers of attendances at out-patient and accident and emergency departments and numbers of 'finished consultant episodes' for in-patients. Up to 1987-88, people were counted each time they were discharged from hospital. From 1988-89 onwards, they have been counted each time they change consultant within a hospital stay.[3] Although modern computer systems are capable of linking successive episodes of care for the same person, statistics are not presented in terms of numbers of people treated nor is any indication given of their outcome.

Activity measured in this way has been increasing for many years. A number of different changes have undoubtedly contributed to this, but the relative contribution of each is not identified in routinely published statistics. There has been an increase in the numbers of elderly people who make the most use of hospital services, and an increased tendency to operate on elderly people. Shorter lengths of hospital stay may well have increased readmission rates although published statistics do not reveal the extent of this. Most recently, there is evidence that the introduction of the internal market has increased the extent to which changes in consultant are recorded. Thus although more patient episodes are being counted, there is no measure of the extent to which the needs of the population are being met.

Waiting lists and waiting times

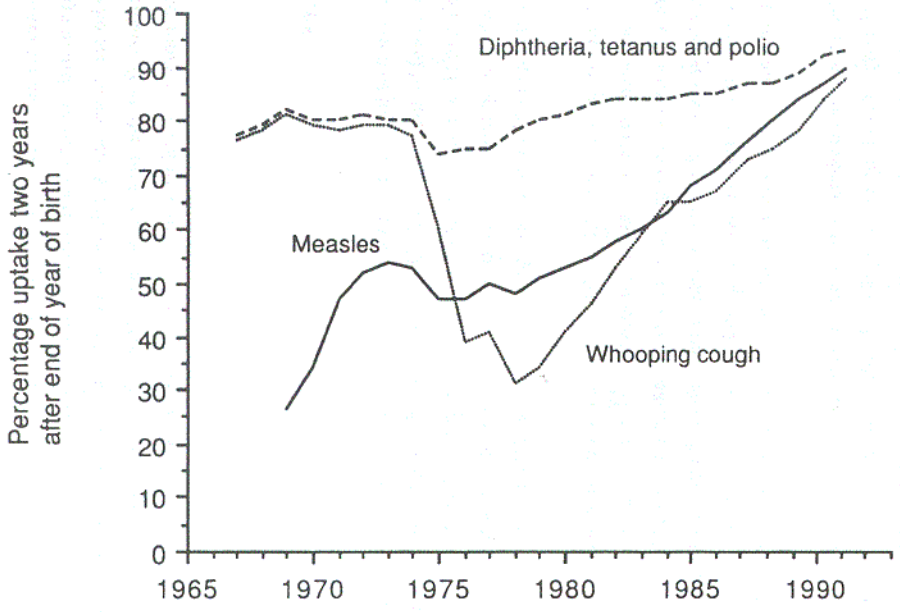
With increasing numbers of people on waiting lists, the government has shifted the emphasis to waiting times, without considering the severity of the conditions for which people are awaiting treatment. Thus before the general election, it focused on removing people who had been waiting more than two years, probably at the expense of people with severe conditions who had been waiting for shorter lengths of time.

Average number of beds available daily, England 1974-1992/93



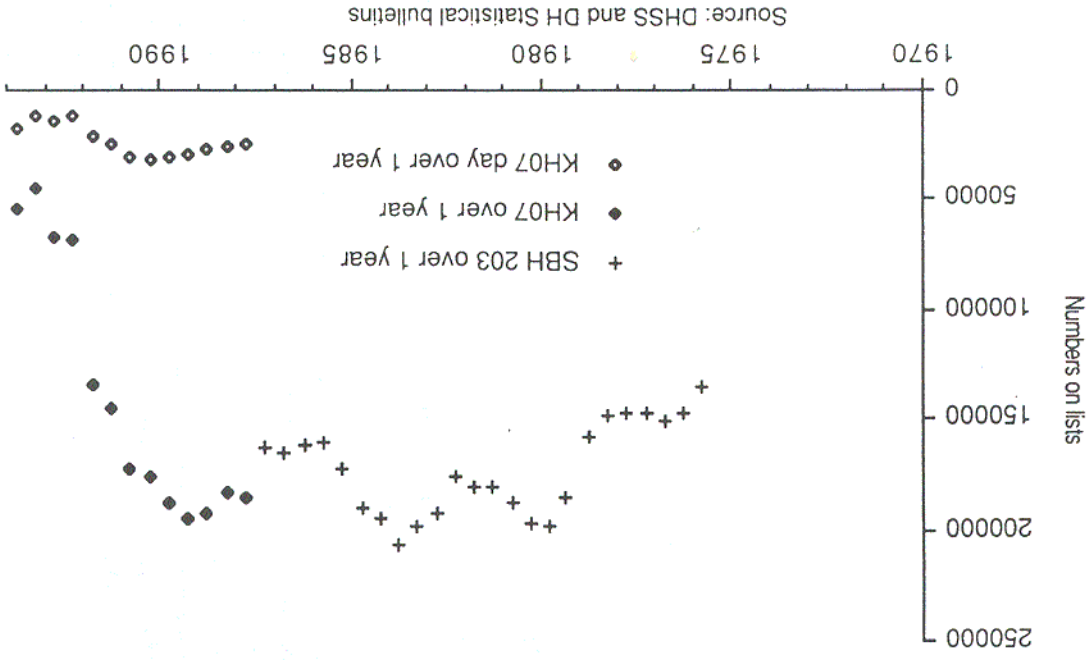
Source: DHSS and DH Statistical bulletins 5/85 and 10/93

Vaccination and immunisation rates, England 1967-92



Source: Health and Personal Social Services Statistics for England 1978, 1982, 1986, 1991 and 1993

Numbers of people on waiting lists for over one year, England 1975-1993



Waiting times are measured from the date the clinician decides to admit the patient. Thus delays in making such decisions can make recorded waiting times appear shorter. Patients who are subsequently offered a date but unable to attend have their waiting times calculated from the most recent date offered. These are known as self deferred cases. The numbers of self deferred cases are no longer published by the Department of Health.

Facilities

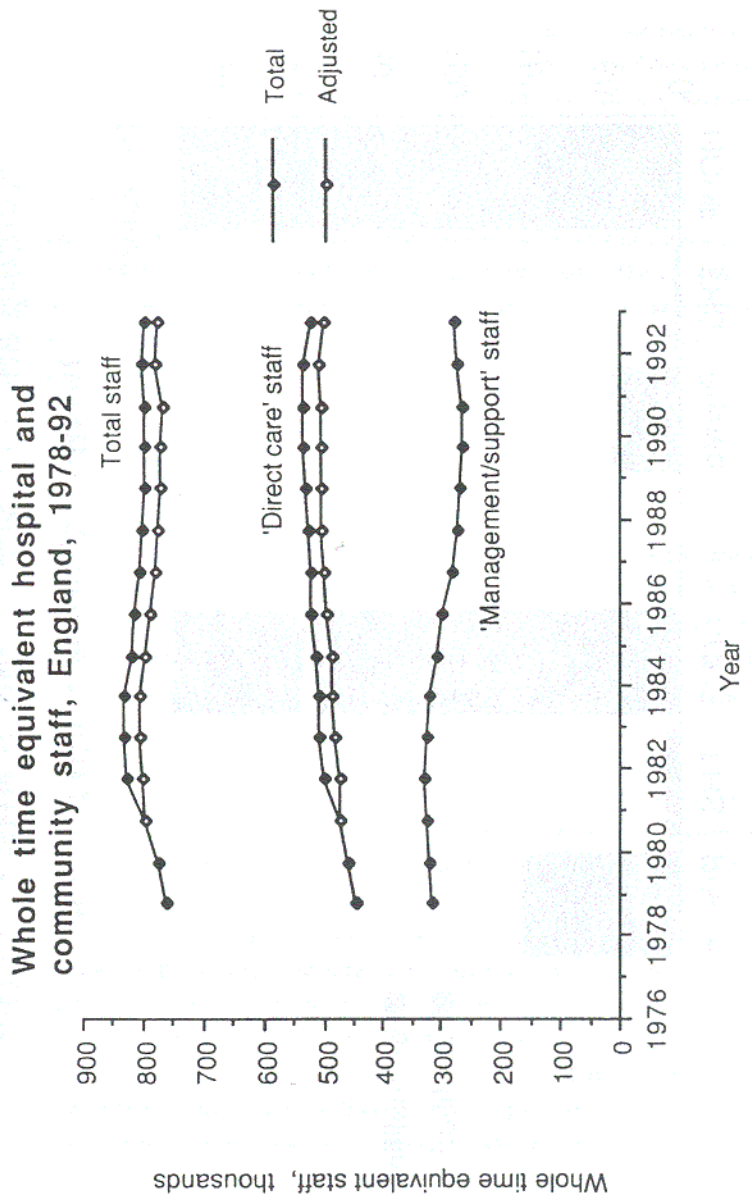
The introduction of the internal market has led to a reduction in the amount of information held by the Department of Health about NHS facilities in England, as recent replies to House of Commons written questions show. The Department does not know which hospitals and health authorities have ceased non-urgent surgery[4] or the date of closure of NHS hospitals closed since 1986 and their current use.[5]

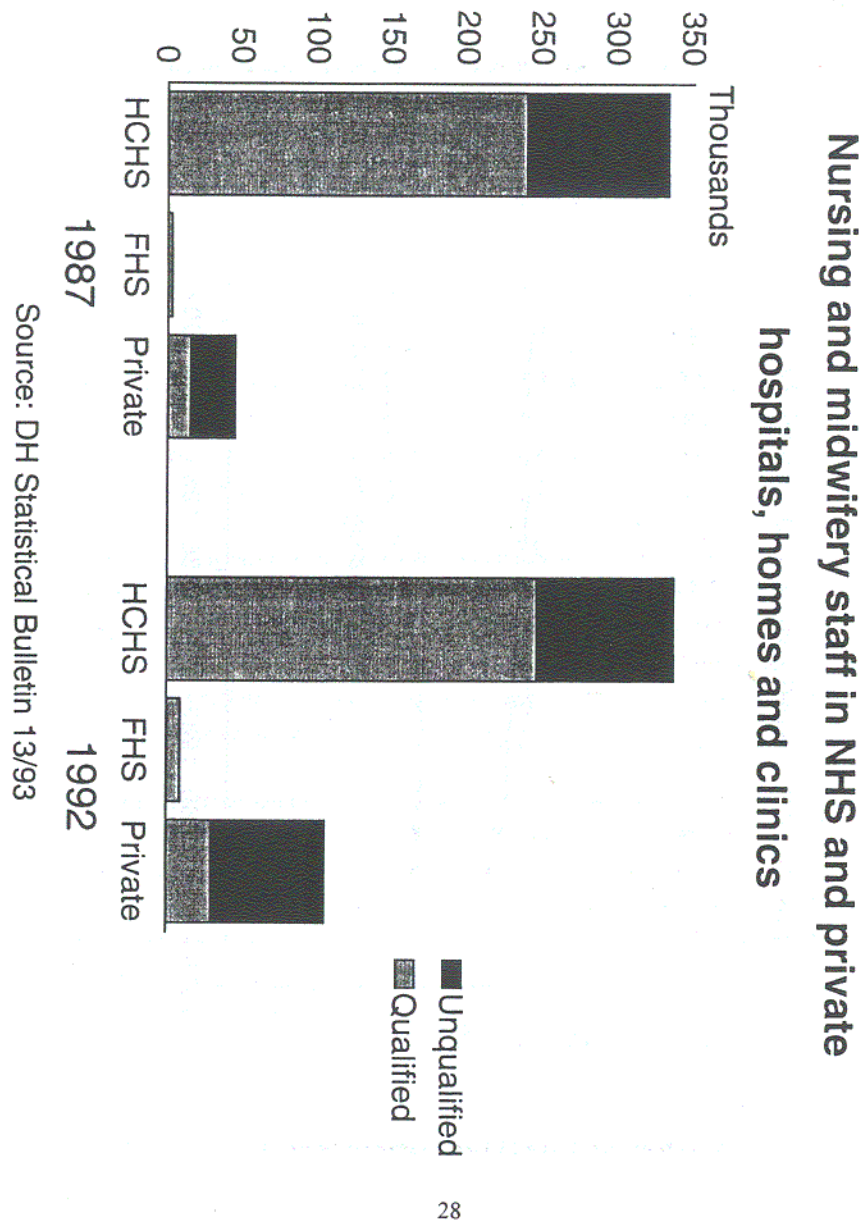
In the past, the Department held lists of NHS hospitals and the numbers of beds in them, but it no longer does so, making it impossible to asses the geographical distribution of facilities. In response to a question asking for a list of hospitals with consultant obstetric and GP maternity beds, it replied that 'Numbers of beds are now collated in terms of directly managed units and national health service trusts. Beds within one unit may be on more than one site or in more than one hospital'.[6]

When asked about the numbers of accident and emergency departments contained within NHS hospitals in England, it replied 'The information is not collected in the form requested. Data are collected for national health service trusts and directly managed units with accident and emergency departments. An NHS trust comprising two or more hospitals, each with its own accident and emergency service, is recorded as having one accident and emergency department.'[7]

Staff

The numbers of NHS non-medical staff decreased by 6 per cent between 1982 and





1992. Many of these were ancillary staff who were replaced by staff employed by private contractors, but there are no data about the number of staff these firms employ in the NHS, nor about the extent to which nursing and other staff may have had to take on some of the duties of ancillary staff in addition to their own.

The most marked feature since the introduction of general management and particularly the introduction of the internal market has been the increase in the numbers of managers and of administrative and clerical staff. This came at a time when numbers of nurses were decreasing. Although some of the managers were formerly employed in senior nursing grades, there are no data about the number of nurses who transferred and became managers.

'League tables'

The designation of a small set of statistical data about the NHS to be published under the Patients' Charter has been cited as evidence that more data are available about the NHS.[9] This limited set of data relates largely to waiting times rather than to the quality of care for which people were waiting. It also emphasises admissions for elective surgery rather than emergency admissions or admissions for investigation or other forms of care.

It has been suggested that league tables of hospital mortality rates should be published. The fallacies of such data have been pointed out by innumerable statisticians from Florence Nightingale onwards, and publishing them without background information is likely to lead to misunderstanding. Hospitals which are 'centres of excellence' and thus admit a higher proportion of high risk cases may well have higher mortality rates. Hospitals with facilities for terminal care are likely to have higher mortality rates than those whose patients go to other facilities for terminal care. In addition, as with schools and their examination results, the socio-economic composition of population from which people are admitted to a hospital is likely to influence its mortality rates. The possibility that preventable deaths occur in hospital cannot be ignored, however, but it is much more constructive to investigate these through the focused approach used in the Confidential Enquiry into Perioperative Deaths.

NHS hospital activity, all specialties, England 1974-1992/93

Source: DHSS and DH Statistical bulletins 5/85 and 10/93

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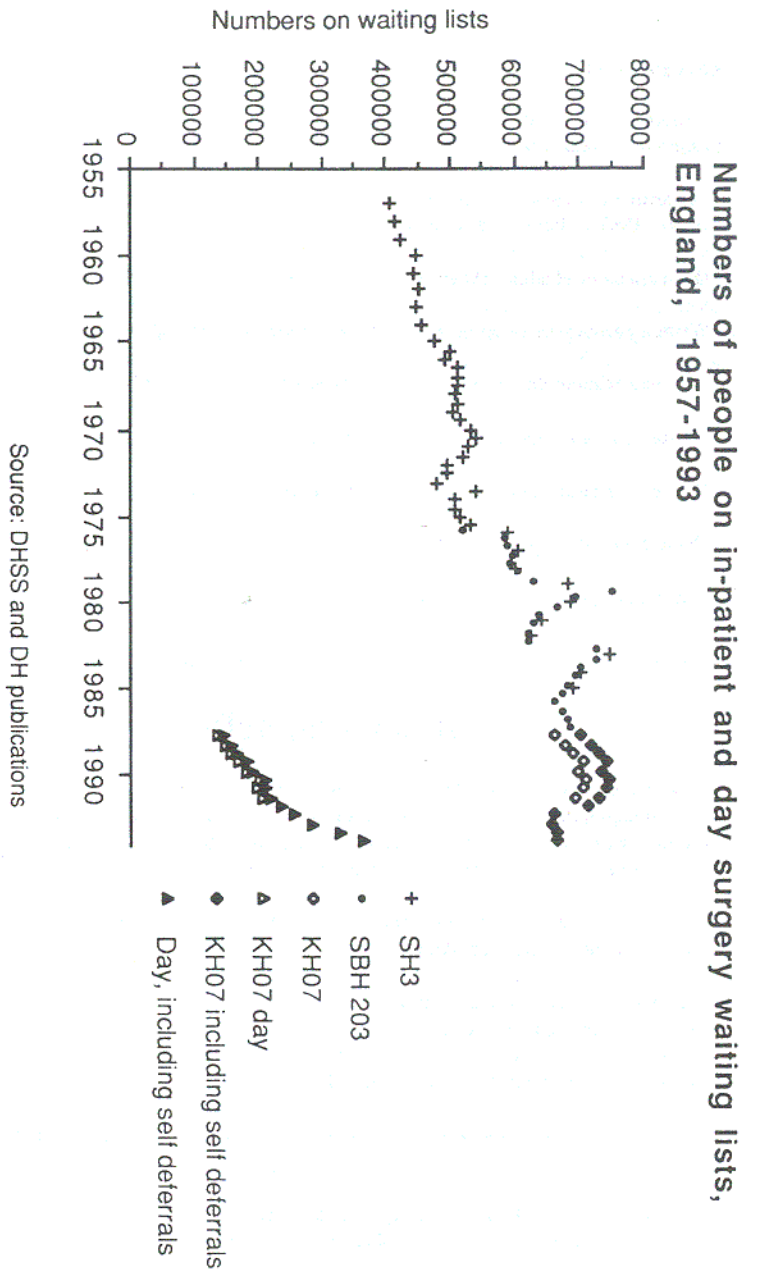
Data in the health service indicator package have been used informally for league tables for a number of years. These data are drawn from a variety of NHS information systems and are of variable quality. Furthermore, some of the indicators are based on very small numbers of events. To interpret them, it is necessary to have the numbers on which they are based, and this also allows the calculation of 'confidence intervals' to asses whether differences are greater than would be expected by chance, but raw data for the most recent set of data were not published. In addition, as a result of increased secrecy in the NHS, the number of data items in the set of health service indicators is decreasing markedly.

General practice

Relatively few data are routinely collected from general practice and published on a national level. This is probably a reflection of General practitioners' status as independent contractors. Vaccination rates are among the few items of data collected, so it is not surprising that these are frequently quoted by politicians. Government statements usually highlight increase in vaccination rates since the changes it introduced into general practice in 1990. In fact these changes are part of a longer term trend. Vaccination rates have been rising steadily since the mid 1970s when concern about possible side effects of whooping cough vaccine led to a major fall in vaccination against whooping cough and a minor fall in other vaccination rates.[2]

Conclusions

The set of statistics quoted repeatedly by government politicians is far too limited to enable a proper assessment of the impact of the changes in the NHS. The statistics themselves do not even support the interpretations government politicians place on them.



References

1. Department of Health. Virginia Bottomley's New Year message to NHS staff. Press release 94/6. January 9 1994.

2. Department of Health. Health and Personal Social Services Statistics for England. London: HMSO. Published annually.

3. Department of Health. Statistical Bulletin 10/93.

4. Written parliamentary reply. Hansard, December 14 1993, col 551.

5. Written parliamentary reply. Hansard December 16 1993, col 813.

6. Written parliamentary reply. Hansard May 17 1993, col 26.

7. Written parliamentary reply. Hansard December 1 1993, col 578.

8. Department of Health. Statistical Bulletin 13/93.

9. Written parliamentary reply. Hansard December 9, col 333.

Can anyone help?

Are there any books or other document of the following sort?
(1) A compendium of statistical fallacies and 'paradoxes'. For example, 'The Ecological Fallacy' and 'Simpson's Paradox'. It would be good if it contained a number of small datasets, ideally 'real' ones to show the problems.

Such a book would be helpful for impressing that the subject of statistics is important and gross misinterpretation of data may take place if you are not careful.

(2) Something on the subject of missing values and the problems that may arise. (I've been involved in producing a note for students which addresses the problems of unanswered Yes-No questions. Specifically that different interpretations may arise if such are treated as either 'Missing' or 'Don't Know' or 'No' (i.e. absence of Yes).

I wonder if there is something which could alert people to such problems in a more general way.

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