Health and efficiency

By any standards the National Health Service offers investors a superb return on their money. An annual investment of about £370 each yields access to primary health care and treatment in some of the world's most advanced hospitals. Nowhere else offers such a good deal. Yet a rumour has been circulating (for about as long as a reduction in public spending has been in vogue) that the system is grossly inefficient: millions of pounds are supposedly being squandered each year. But are millions being squandered? How can we measure efficiency? And what responsibility do doctors have for public spending? These were some of the questions faced recently at a conference at the Royal College of Physicians. The main conclusion was that we cannot yet relate expenditure to patient care. To commercial managers unaware of the complexity of the NHS and its "products" this may seem extraordinary.

It was what commercial manager, Sir Roy Griffiths, regarded as an astonishing lack of management in the NHS that prompted his recommendation that general managers be appointed to every level of the NHS. Although his inquiry in 1983 was not much concerned with cutting costs, he suggested that more effective management would lead to cost improvement.

Three and half years later the transition from an administered to a managed NHS, the Griffiths *perestroika* (restructuring), is now complete, and 800 general managers are in post. The message from the college meeting was that they are still far from their goal of efficient budgeting because they lack a way of measuring efficiency within the health service. Performance indicators and data collected according to the Körner recommendations can be used to assess costs of treatment, but so far no way has been found to link these costs with "patient activity data" (managerspeak for a range of variables including outcome, technical adequacy, and consumer satisfaction).

The NHS Management Board is conducting pilot studies on management in five districts, and a detailed case study of one of them was presented at the conference. Lewisham and North Southwark Health Authority through the formula of the Resource Allocation Working Party is due to shed £9m of its £120m budget by 1993. The authority has appointed managers from among doctors, nurses, and administrators: people are now clear about who is in charge, communication is better, and ancient animosities have lessened. As a strategy for "managed decline" it seems preferable to the administrator bashing that usually goes on in these circumstances. These are not negligible achievements, and the district is saving money, although it's by cutting services rather than by rooting out "waste." Certainly managers in this district were not finding the wasted millions that legend has lying buried somewhere in the NHS. (Nor, it seems, were managers from other districts represented at the conference).

Both supporters and critics of Griffiths have pointed out the beneficial effects to doctors of this crash course in financial accountability. If a way of relating funding to standards of patient care can be found then doctors will be better equipped to argue their case for better resources. Perhaps, too, it will be possible to measure the effects of underfunding on the performance of the NHS and on its efficiency.

In the brave new world of an NHS run according to market forces "efficiency" will assume paramount importance and power will reside with those who define its meaning. At present doctors seem to be ceding control of this key concept to those who have adopted purely economic criteria. Doctors seem as reluctant as the new managers to examine output, shrieking about threats to clinical freedom. But clinical freedom also depends on adequate resources, and if the limited resources of the NHS are going to be divided up then purely economic considerations form an insufficient basis for doing so. No one is better placed to assess output than doctors, and they must argue that measures of output are included in any assessment of efficiency. Not only is it in their own interests it is in the interests of the consumers of the NHS, in whose name this revolution is supposedly being fought.

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Congenital cytomegalovirus infection

About 1800 (0·3%) of the 600 000 children born alive each year in England and Wales are congenitally infected with cytomegalovirus.[1,2] About 5% of the 1800 will be born with cytomegalic inclusion disease and another 5% will develop severe handicaps later.[3] Thus about 180 children annually are likely to develop severe permanent handicaps induced by cytomegalovirus, such as bilateral sensorineural deafness and neurological defects.[4] Another 90 will have minor handicaps, such as unilateral deafness.

At the time of the last *BMJ* leading article on this subject[5] about 400 children were believed to be born each year in the United Kingdom with severe handicaps caused by congenital cytomegalovirus; congenital cytomegalovirus was therefore thought to be as big a problem as congenital rubella before rubella vaccination.[1] In the past two years more reassuring information has come from several large prospective studies that have used new techniques to identify women who experienced primary or recurrent cytomegalovirus infection during pregnancy; and the infants born to these mothers have been followed up for about three years.[2,4,6-8] Previous results had been confusing since serological techniques used to identify infected newborn infants were unreliable; the new radioimmunoassay used to detect cytomegalovirus specific IgM is much better.[9] Earlier studies of newborn infants with symptoms suggested that as many as a quarter would die and that more than three quarters of the survivors would be handicapped,[10-12] but identifying congenitally infected children by screening for virus excretion soon after birth shows that only 10% will be severely handicapped.[13,14] The late developmental sequelae reported in children who were asymptomatic at birth[15,16] have not been confirmed; the behavioural problems observed were probably caused by the home environment and the young age, low social class, unmarried state, and poor education of the children's mothers.[13,14] Women who give birth to congenitally infected babies in London are likely to be young (under 20), black, and unmarried.[17]

It is not clear whether severe handicaps are more likely to result from maternal infection in early or late pregnancy. A recent study of 16 218 pregnancies by Stagno and colleagues in Birmingham, Alabama, suggests that, although congenital infection may occur throughout pregnancy, permanent damage is more likely to result if the mother is infected in the

first half of pregnancy.[18] Severe handicaps were reported in five of 23 of the congenitally infected infants born to women infected in the first 27 weeks of pregnancy, whereas only one of the 12 infants born after maternal infection at 28 to 40 weeks developed a complication—and this was minor (hypoplastic dental enamel).[18] Unfortunately the numbers were too small for this difference to be statistically significant. Other studies have shown that serious defects may result from infection in both early and late pregnancy.[6-8]

Congenital infection may result from either primary or recurrent (due to reactivation of reinfection) infection in the mother. Although serious handicaps are more likely after primary rather than recurrent infection,[2 19] neurological damage and bilateral hearing loss have occasionally been reported in children whose mothers undoubtedly had recurrent infection.[2 7 20] More data are required from large prospective studies before the risk associated with recurrent infection can be determined.

There is no easy way to prevent the birth of babies damaged by cytomegalovirus. In contrast, congenital rubella can be prevented by vaccination of susceptible women, and women infected by rubella during pregnancy can often be identified and the pregnancy terminated, since congenital defects result only from infection in the first 16 weeks of pregnancy.[21] Although techniques may now be available to identify fetuses infected by cytomegalovirus,[22-25] only those infected in the first 16 weeks of pregnancy would be identified in time for termination. Furthermore, only 10% of the infected infants would be severely handicapped and many pregnancies might therefore be terminated unnecessarily.[2 8 18] Nor is an acceptable vaccine available. Attenuated vaccines have been used in patients who have had renal transplants[26] but are unlikely to be widely used since cytomegalovirus, a herpes virus, can remain latent and is potentially oncogenic. Genetically engineered vaccines, free of viral DNA, would overcome these problems.[27] Before such vaccines can be developed, however, we must identify the viral epitopes that induce protective antibodies and the cell mediated immune responses required to limit infection and prevent transmission of virus to the fetus.[28]

Perhaps women who transmit the virus to the fetus have defective immunological responses and are unable to limit replication of cytomegalovirus. Stern and colleagues have shown that lymphocytes from the mothers of infected babies failed to respond to cytomegalovirus antigen in lymphocyte transformation tests, whereas lymphocytes from mothers who did not transmit virus did respond.[25] Women whose lymphocytes did not respond were also shown to shed more virus. We must wait to see whether genetically engineered vaccines will be able to stimulate the necessary immune responses in such women.

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The psychological side of tinnitus

The common and often distressing symptom of tinnitus is generally accepted not to have a psychogenic cause. But psychological factors determine how people react to the complaint, and doctors must therefore consider them carefully.

About 20-40% of the population have experienced tinnitus at some time.[1 2] Once established for several weeks it is likely to become chronic, which together with its common association with conditions such as presbycusis means that its prevalence increases with age. The sexes are roughly equally affected. In most instances tinnitus is associated with a hearing loss of known cause (usually noise, presbycusis, or middle ear disease), but about 13% of patients referred to specialists have either no hearing loss or minimal loss of unknown cause.[3]

How much patients are troubled by tinnitus varies widely. No study has yet considered what features of the tinnitus or the patient's behaviour determine if and when general practitioners refer patients for specialist opinions. The degree of distress may be important. One survey suggested that 5% of the adult British population have their sleep regularly disturbed by tinnitus.[2] A questionnaire inquiry of a tinnitus self help group unsurprisingly found that many respondents had problems with sleep, and 70% mentioned some emotional difficulties.[4]

Stress in hospital based samples has been measured using different instruments—for example, the Minnesota