that nicotinamide induces remissions in patients with newly diagnosed insulin dependent diabetes and delays the onset of diabetes in antibody positive non-diabetic children.[12 13] It is suggested that it works in the β cell by two mechanisms: increasing the nicotinamide adenine dinucleotide pool required for poly(ADP-ribosyl) action and inhibiting the action of the molecular enzyme poly(ADP-ribose) polymerase.[14] These processes are implicated in DNA repair, which may be important in early insulin dependent diabetes mellitus.[15] Nicotinamide may also increase the number of mutations, although only at a high dose.

A carefully designed multicentre trial has been set up with the well chosen acronym of ENDIT (European Nicotinamide Diabetes Intervention Trial) and coordinated by Edwin Gale at St Bartholomew's Hospital, London. About 22 000 first degree relatives of patients with insulin dependent diabetes mellitus will be screened, yielding about 500 people with islet cell antibodies who will be treated with nicotinamide or placebo for five years. Other promising avenues include the use of highly specific monoclonal antibodies, but these are still well removed from large scale intervention studies.

The prospects of intervention in "prediabetes" are thus exciting, but substantial problems exist. Firstly, nearly all studies to date have focused on first degree relatives. Familial insulin dependent diabetes mellitus, however, provides the minority of cases—85% to 90% of cases are sporadic. Population screening will be needed to detect all cases of "prediabetes" and this will be complex, expensive, and, certainly in Britain, unfavourably received by our parsimonious NHS. It will also be necessary to establish that sporadic cases, all ethnic groups, and patients with late onset insulin dependent diabetes mellitus, respond in the same way as first degree relatives.

Secondly, people with prediabetes are healthy except that they will develop diabetes at some indefinite time later. Any intervention will therefore have to be virtually harmless. This is not true for many of the strategies proposed to date. Even subcutaneous insulin in small doses is not totally harmless. Although nicotinamide is a "natural" substance, the amounts to be used are much greater than the recommended daily allowance for nutritional purposes. Careful studies to date, however, have not revealed any toxicity in humans.

The prospects of preventing diabetes are considerably more hopeful than a decade ago, but the problems remain formidable—and another decade may well pass before we have an acceptable preventive treatment and can reach all those who need it.

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Efficient purchasing

The current efficiency index needs changing or scrapping

With all the current talk about efficiency in the NHS it may surprise doctors that a measure called the efficiency index is being used to assess purchasers' performance. Health service managers and researchers are concerned about the index's construction and use.[1] Although the Department of Health is about to modify the way that the index is calculated, these changes may fail to address both the fundamental flaws in the way that efficiency is measured and how the pursuit of increases in the index is distorting the behaviour of purchasers and providers.

Currently, the index is calculated by dividing year on year changes in purchased health care activity by changes in districts' financial allocations. The measures of activity used are finished consultant episodes for ordinary admission and day cases; outpatient, accident and emergency, and day care attendances; community contracts; and ambulance journeys. These are weighted according to their share of health care spending so that, for example, a consultant episode is given more weight than an ambulance journey.[2] The main reason for introducing the index is to reassure the Treasury that the NHS is spending taxpayers' money efficiently. Every year, the NHS Management Executive requires health authorities to achieve increases in the index, and recent planning guidelines indicate that districts will be expected to achieve an increase of 2% next year.[3] This is on top of the 2% increase required this year.

Both the financial and the activity components of the index are, however, flawed. Comparison of the amount of money spent on direct patient care is complicated by differences in providers' capital charges and variations in districts' weighted capitation formulas.[1] Differences in the way that providers define episodes of care and variations in patterns of treatment —especially for patients with chronic, terminal, or psychiatric illnesses—make the use of episodes almost meaningless.[4-6] This problem is reduced but not eliminated for conditions treated by a single intervention, such as elective surgery, but these represent a small proportion of total health service activity.

But even if the difficulties of measuring finance and activity could be overcome, the most fundamental problem—the lack of a consistently meaningful relation between the two—would remain untouched. Using crude activity (the process of health

care) implicitly as a proxy for outcome confuses two separate and quite distinct dimensions of health care.[7 8]

The use of crude measures of activity implies that more care is synonymous with better health and ignores the fact that few health care interventions have been adequately evaluated—both from a medical and from an economic standpoint.[9] Undertaking more activity regardless of its medical or economic effectiveness can no longer be justified as an objective of the health service. The mechanistic application of a measure of efficiency that relates inputs (money) to process (crude measure of activity) seems at odds with such welcome recent innovations as the launch of the research and development strategy, the creation of the clearing house on outcomes, and departmental support for the *Effective Health Care Bulletins*.

Hard pressed districts are now forced to meet conflicting objectives. How can they continue to ensure that they purchase more activity, however inappropriate, while being asked to focus on health gain, outcomes, and the multiagency work needed to implement the *Health of the Nation*?

Although efficiency is difficult to define and measure in the public sector, recognising some key concepts could result in the development of a more reliable index. Firstly, efficiency should be considered only in a disaggregated form—for example, a service, department, or procedure—rather than at district level, where an average value is impossible to interpret. Secondly, output measures should take account of case mix (age, severity, and comorbidity of the patients), which directly affects costs. Lastly, measures of outcome should be incorporated into the index.

We urge the NHS Management Executive to make clear that it expects purchasers to focus on the purchase of effective health care, either abandoning its current efficiency index or revising it to incorporate an adjustment for quality. The goal should be the efficient production of effective health care. In turn this will require purchasers to examine the evidence for various interventions and purchase on the basis of medical and economic effectiveness.[9] Only when we have substantially improved our knowledge of these can we turn our attention to global measures of efficiency.

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Could hospitals do more to encourage breast feeding?

Becoming a "baby friendly hospital" would help

> It appears that women who rely most on the medical establishment for infant feeding information are the least likely to breastfeed successfully.[1]

There are many reasons for the current low rates of breast feeding in many developed countries. Compared with 20 years ago, more mothers return to work soon after birth, less support exists at home from parents or friends, advertising of formula and "modelling" of bottle feeding is ubiquitous, the breast is a sex object, and inappropriate hospital practices and staff attitudes are widespread.[2-4]

Poor staff attitudes should be rectified; doing so would probably improve the present low rate of breast feeding. Currently in Newcastle one in four mothers stop breast feeding within 10 days of birth. The national breast feeding survey in 1990 reported that 15% of mothers gave up in the first week after birth.[2]

What goes wrong in hospital? Ambivalent attitudes and management by staff, both nursing and medical, inhibit successful breast feeding.[3 4] Factors that have been identified as harmful to breast feeding are removing the baby from the mother immediately after birth or at night; over-rigid feeding schedules; offering milk, water, or pacifiers; advertising or promoting infant formula in the wards or clinics; and providing milk samples on discharge.[5]

Why do these practices occur? Babies are separated so that staff can complete their own routines, or to give the mother a rest. Feeds are given because the baby seems hungry or to prevent hypoglycaemia. Neither practice is justified. Manufacturers of formulas are forever peddling their products and will use every opportunity to promote them to new parents as well as hospital staff. Many health workers are still unaware or disbelieving of the influence, overt or covert, of the milk companies, whose methods may be extremely subtle. Health workers' ambivalence is often explained by a lack of personal and practical experience of breast feeding[3 4] and by the wish to avoid putting pressure on the mother.

Hospitals and community services can do much to encourage breast feeding, and the Department of Health's current initiative—its National Breastfeeding Working Group—should provide more publicity and even financial support for breast feeding. Such support would be justified: work by Baby Milk Action suggests that at least £12m would be saved in costs of hospital admissions for gastroenteritis if all bottle fed infants in Britain were breast fed during the first year of life.[6]

We suggest efforts on four fronts. The first relates to monitoring and the use of targets, which should be the responsibility of commissioning authorities. Data should be collected routinely on intention to breast feed and feeding method at discharge and at 10 days, 6 weeks, and 3 months. Currently, we are doing this in Newcastle through the returns