patients. Initially working with four main conditions—hypertension, arthritis, gastrointestinal disorders, and myocardial infarction—the study devised a generic health status questionnaire providing a yardstick for comparing different conditions. Its short general survey comprised six health concepts: three (physical, social, and role functioning) collected information on dysfunction caused by ill health, and three (mental health, perceptions of overall health, and intensity of pain) measured more subjective components of health and general wellbeing. All measures were rated on scales of 0-100, with higher scores indicating better health. Regression coefficients estimated the effect of single and combined chronic conditions on function and wellbeing, controlling for factors such as sex, age, income, education, and other coexisting illness. The impact of each chronic condition on each health status measure was estimated as the mean deviation from a standard score for patients without chronic conditions. Results were presented graphically for average patients with each condition across each health measure.

Does this help our understanding? Reassuringly, the profiles so derived showed a startling ability to discriminate between chronically ill patients and patients with no chronic disease as well as a general population. Given the measures, the findings contribute to an understanding of the importance of chronic disease from the patient's perspective. For example, a nine point difference in physical functioning is equivalent to the effect of having arthritis or back problems. A 13 point difference in perception of health is equivalent to the effect of diabetes or congestive heart failure. Perceptions of health were poorest for patients with congestive heart failure and gastrointestinal disorders and best for patients with hypertension or back problems. Physical function was best for hypertensive patients and poorest for those with myocardial infarction or congestive heart failure. The worst role function was found in patients with myocardial infarction or congestive heart failure and the best in patients with hypertension. Pain also varied among patients, with those with arthritis scoring most pain and those with hypertension least pain. Distinct patterns emerged from the consistency of differences in health status shown by each condition. Such information increases our understanding of the needs of chronically ill patients and what should be done to meet them.

This work is a beginning. The new centres for information on outcomes and clinical effectiveness funded by the Department of Health will help to disseminate the results of these and similar efforts and stimulate further developments and refinements. Additionally, however, two important tasks need tackling by doctors and managers within the NHS before the use of outcome measures can become widespread. The first is a programme of research and development to guide the introduction of outcome measurement in the NHS, beginning perhaps by applying American results to the British experience. The second is to foster an environment in which the interests of the public are paramount. This means finding ways of improving the provision of information to patients to enable their involvement in decisions concerning their own care. The collection and use of information on health outcomes will challenge the potentially destructive competitive instincts of some health managers and the overweening preoccupation of some doctors to restrict the flow of information under the guise of protecting their clinical freedom.

To realise these objectives fully, however, requires the establishment of effective working relationships between general practitioners and hospital consultants, doctors and provider managers, and purchasers and providers. The NHS and its patients would be the winners if outcomes become central to health service management.

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Extensible bandages

Should be dispensed with more information on performance

For many years doctors and nurses have selected their bandages without any clear knowledge of how the material will perform or what effect it will have on the limb. This happy state of ignorance was disturbed when high compression bandaging was shown to promote rapid healing of venous ulcers in most patients.[1] District nurses are now asking why they cannot have access to these bandages.

Meanwhile, the Department of Health has recognised that no truly elastic bandages appropriate for sustained compression of the lower limb are available on prescription. This was the case for elastic stockings until a few years ago when a British standard classification was introduced for graduated compression hosiery, which became prescribable. It therefore seemed appropriate to follow a similar procedure, and the Surgical Material Testing Laboratory set about formulating a procedure for classifying bandages.[2]

For lightweight conforming stretch bandages (type 1), suitable for retaining dressings, and light support bandages (type 2) such as crepe, suitable for supporting joints and preventing oedema, the classification usefully describes the function of these bandages. It is when we come to compression bandages (type 3) that doctors start to get anxious. Why will clinically effective bandage regimens that have stood the test of time no longer be acceptable whereas new and virtually untried bandages are being swiftly recognised? It seems that to qualify a bandage must fit neatly into arbitrary bands of compression as defined in the testing procedure. This makes sense for elastic stockings, which are manufactured specifically to fit different sizes of leg, but with bandages we must also consider Laplace's law, which tells us that the pressure exerted by a bandage is inversely related to the diameter of the limb. A moderate compression bandage giving 18-24 mm Hg compression to an average ankle (type 3b) might easily apply compression of twice this to the chicken like ankles of a fragile elderly woman while applying virtually no useful pressure to an ankle affected by the massive chronic oedema of untreated venous or lymphatic insufficiency. Classifying bandages into type 3a (light compression), 3b (moderate compression), 3c (high compression), and 3d (extra high performance compression) is therefore misleading. Doctors and nurses could find themselves answering charges of negligence if pressure necrosis followed the application of a bandage that

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they thought would be delivering only average compression at the ankle.

A need clearly exists to ensure that prescribable bandages meet acceptable standards of manufacture and specified performance in terms of elasticity, elastic range, elastic modulus, and durability. Would it not be simpler to lay down these criteria and classify bandages according to some measure of elasticity and elastic modulus? The manufacturer could mark the bandage to ensure consistent application and could supply a chart with each bandage indicating the compression that would be achieved with a two layer or three layer overlap for different sizes of ankle. This would allow the doctor to build up a multilayer bandage to meet the needs of each patient. Such a bandage would be safer than a single layer of high compression, as errors in the application of a weaker bandage would average out in multiple layers—thereby reducing the risk of pressure necrosis. Simpler prescribing would be possible as a doctor need prescribe only a bandage capable of applying a given pressure to a measured ankle, and the pharmacist could dispense the most economical product meeting that specification.

Many surgical appliances, dressings, and bandages have been recognised in the drug tariff and have achieved a lucrative place in the market without having been subjected to adequate clinical trials.[3] This would be unacceptable in the pharmaceutical industry, where drug regulators insist on clinical efficacy. Surely this must be the goal for dressings and bandages and might be achieved if an advisory committee similar to the Committee on Safety of Medicines was set up.

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The fast of Ramadan

No problems for the well: the sick should avoid fasting

Healthy adult Muslims are required to abstain from food and drink from dawn to sunset daily during the month of Ramadan, which this year runs from 5 March to 3 April. Dispensation from fasting is allowed during sickness, menstruation, pregnancy, breast feeding, and travel. Recently, medical studies have focused on the effect of fasting on healthy people and its risks to patients with systemic disease.

In people who are well normal homoeostatic mechanisms seem to cope: urinary volume, electrolytes, pH, and nitrogen excretion remain within physiological limits.[1] Some studies have reported substantial weight loss and increased plasma concentrations of urea and uric acid[2] consistent with catabolism of body mass, but these findings have not been confirmed.[3] Some of the variations may be attributable to local traditions and food quality.

A trial of high carbohydrate intake (consumed after sunset) during the first fortnight of Ramadan was associated with a fall in blood urea concentration; a change to a high fat diet over the next fortnight was associated with a fall in glucose concentration, which the authors believed was due to impaired glucose homoeostasis.[4] With a normal diet hypoglycaemia does not occur. Those who consume high energy foods after sunset, unsurprisingly, gain weight.[5] Some studies of blood lipids have reported raised concentrations of cholesterol and triglycerides with changes in plasma apolipoproteins,[6] although this is not a universal finding.[7] Platelet function (assessed by aggregation), blood coagulation, and the fibrinolytic systems seem unaffected by fasting.[8] Although thyroid function does not alter, the diurnal rhythm of cortisol secretion is lost because of the change in sleeping habit. According to Ali and Amir, fasting is likely to reduce cognitive function because of the physical fatigue it induces in some people.[9] Dehydration and fasting should be avoided by people with renal colic and peptic ulcer disease.

The metabolic consequences of fasting during pregnancy have been studied in 11 women, who experienced a significant fall in concentrations of glucose, insulin, lactate, and carnitine and a rise in concentrations of triglycerides and hydroxybutyrate at the end of the fasting day.[10] This pattern of accelerated starvation was noticed by others only among women who fasted in late pregnancy.[11] A study of birth weights of more than 13 000 babies showed no effect of maternal fasting at any stage of pregnancy.[12] In another study lactating women lost 7·6% of their total body water during the hours of fasting, and their plasma osmolality and concentrations of sodium and uric acid rose more than in control subjects. Fasting changed the osmolality and concentrations of lactose, sodium, and potassium in breast milk.[13]

Patients who need to take drugs regularly throughout the day should seek their doctors' advice. One study found that more than half of patients could not keep to their prescribed drugs during Ramadan. Patients in need of frequent doses of drugs during the day should therefore avoid fasting. Hospital inpatients are not allowed to fast during Ramadan.

Insulin dependent diabetic patients are usually excused from fasting as their management becomes very difficult otherwise. In practice, non-insulin dependent diabetic patients run into very little trouble.[15,16] Asthmatic patients whose disease is stable may use inhalers, slow release drugs, and suppositories without breaking their fast. For patients with epilepsy, hypertension, endocrinal disorders, and psychiatric problems and those treated with long term oral anticoagulants a single night time dose of drugs may suffice. Patients receiving long term haemodialysis who insist on fasting may experience rises in potassium concentrations and body weight and fluid overload between dialysis sessions because of the tendency for increased food consumption at night. Renal transplant recipients with normal allograft function and intact renal concentrating ability should experience no harmful effects from fasting.[17]

Little is known with any certainty about the clinical problems during the fast of Ramadan. As perhaps 400 million people will be fasting this year during Ramadan the topic deserves more thorough scientific attention.

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