Not owning a home, not having had further education, and having been unemployed recently all significantly predicted distress on one of the dimensions of the Nottingham health profile after age and presence of a known long term physical health problem had been controlled for. There were differences in the ability of these measures to predict distress on the different subscales—for example, not having a home was the best predictor of distress across all the dimensions whereas recent unemployment was the best predictor of emotional distress. All three measures predicted scores on the Nottingham health profile better than did the Jarman scores.

Our findings seem to show that different aspects of disadvantage indicate different health needs and consequently different priorities for health and social policy. If information was to be practice based it would give new flexibility to select the most powerful and relevant measures of deprivation and provide a better basis than at present for allocating resources to and within practices. This would be a step forward from what Drs Main and Main refer to as "hanging in there" towards actively improving quality of care and would obviate the need to rely on limited and often inappropriately aggregated data for making allocations between practices.

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Beclomethasone and osteocalcin

SIR,—The report by Dr Ellen M Pouw and colleagues highlights the recent interest of respiratory physicians in the systemic effects of high dose inhaled corticosteroids and in particular their effects on bone metabolism.[1] That inhaled corticosteroids may lead to loss of bone tissue was first suggested by Reid *et al*, who found an 8% reduction in the bone mass of asthmatic patients taking moderate doses of beclomethasone and betamethasone.[2] Most of their patients had received courses of prednisolone in addition to their inhaled corticosteroid, and as bone mass is lost rapidly in the first few weeks of prednisolone treatment[3] and may not completely recover, their data are difficult to interpret.

We studied the effects of 2 mg/day of inhaled beclomethasone in normal subjects and found a significant fall in serum alkaline phosphatase activity at two weeks (suggesting that bone formation had slowed); it had become more marked after four weeks' treatment and, like the changes in osteocalcin reported by Dr Pouw and colleagues, returned to baseline values one week after the drug was stopped. Had Dr Pouw and colleagues continued for longer they might have observed further decrements in osteocalcin concentration.

Under normal circumstances bone formation and resorption mirror each other such that an increase in resorption is followed by an increase in bone formation, and thus skeletal mass is maintained. If this relation were continued during beclomethasone treatment then there may not be any net effect on bone. In our study we therefore also estimated bone resorption by measuring the urinary hydroxyproline-creatinine ratio, which increased by 33% after four weeks.[4] Thus bone metabolism seemed to have been uncoupled such that resorption had increased and formation slowed; if maintained this would lead to progressive bone loss. The increase in the urinary hydroxyproline-creatinine ratio was approximately half the magnitude of that observed during treatment with prednisolone 20 mg/day,[5] suggesting that the effects that we and Dr Pouw and colleagues have reported are biologically as well as statistically significant.

It is a pity that Dr Pouw and colleagues did not also study the other widely available inhaled corticosteroid, budesonide, as there are differences in metabolism that may be important in the development of systemic effects. In particular, budesonide is degraded to inactive metabolites four times faster than beclomethasone.[6] We found no perturbation of bone metabolism during one month's treatment with 1·8 mg budesonide[4] in normal subjects, in contrast to the results obtained with beclomethasone.

Finally, we agree that prospective studies of bone mass or density in asthmatic patients taking inhaled corticosteroids are required to establish whether these acute metabolic effects translate into progressive bone loss. Several centres in the United Kingdom are undertaking such prospective studies.

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Staphylococcus aureus resistant to methicillin

SIR,—With the popularity of resorts in southern Spain and the Balearic islands for holidays throughout the year, we believe that hospitals in Britain should be aware of the possible importation of strains of *Staphylococcus aureus* resistant to methicillin.

Strains of methicillin resistant *S aureus* (MRSA) have been found in several countries.[1] Some strains, for example EMRSA-1, have epidemic potential and can cause considerable morbidity and mortality.[2,3] The provenance of EMRSA-1 is uncertain, but it is undoubtedly related to a recent Australian methicillin resistant *S aureus*[4] and has colonised or infected numerous patients and hospital staff in both Britain and Australia. The inadvertent importation of such a strain may lead to dissemination throughout the receiving hospital.[5-7]

From comments accompanying isolates of the bacterium referred to the Staphylococcus Reference Laboratory last year we were able to identify 27 importations from outside Britain. Twenty were from Europe or the Middle East. Four of these strains (three from Europe or the Middle East) spread in the receiving hospital.

Distinct strains of epidemic methicillin resistant *S aureus* have been reported from France[2] and Germany,[8] but until 1989 there were few isolations of the bacterium in Spain. Only three were recorded in a one day survey of 74 Spanish hospitals in 1986.[9] Late in 1989 we defined two related strains of methicillin resistant *S aureus*, one detected in Madrid, the other in Seville. During 1990 these strains spread into a further five hospitals in Madrid. Both have been isolated in Barcelona; one has persisted in Seville. Clinically important infections have resulted.

These strains have the phage type 29/77/84/932 at 100 times the routine test dilution with the international phages but are separable by the supplementary phages[1] and by the host range of the carried phage. Both are resistant to penicillin, tetracyclines, aminoglycosides, macrolides, and lincosamines. All isolates so far examined show reduced susceptibility to rifampicin and are resistant to ciprofloxacin. Both are very poor producers of protein A; both elaborate enterotoxin A. The spread of these strains is analogous to that shown by EMRSA-1 in the early 1980s.

If methicillin resistant *S aureus* does spread to Britain, the revised guidelines should be followed.[10]

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Computerised general practice data

SIR,—The importance of practice based research has been recognised widely, and investigations focused on the nature of the data from networks of practices are urgently needed. Thus the reports by Dr H Jick and colleagues and Dr Neil Johnson and colleagues comparing data from computerised networks with data from alternative sources[1,2] should be seen as important contributions to the continuing development of rigorous practice based investigation. Further work of this type is necessary to determine the strengths and weaknesses of

practice based research and to guide inferences and conclusions based on the data from these exciting, "new" laboratories.

The potential of practice networks in investigating a broad range of conditions is currently being explored in many settings.[3-5] Consequently, Dr Jick and colleagues may want to reconsider their statement[1]: "As most illnesses are treated with a drug the presence of the indication for drug use in itself provides for a list of illnesses that have been diagnosed. Illnesses that are not treated with a drug or occur in people who are not referred may not be recorded on computer. Such illnesses, however, are rarely of interest in epidemiological studies."

Many visits to family doctors and other providers of primary care do not lead to referral and prescription of a drug, and some of the conditions managed at such visits are in fact of epidemiological interest—for example, raised blood pressure without a diagnosis of hypertension, well child care, and depression. It is ironic that the adjacent article by Dr Johnson and colleagues suggested that one of the reasons for apparent underreporting of influenza in a commercial database could be that "patients who present with illness but do not receive a prescription may not get included. This may be the case for people with influenza." Surely influenza is of epidemiological interest.

It seems premature to declare what is and is not of interest to patients in primary care settings and the emerging cadre of researchers in family medicine and primary care. Perhaps Dr Jick and colleagues actually intended a more limited assertion?

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SIR,—The timely editorial of Drs Mike Pringle and Richard Hobbs raises many relevant points about exploiting computer databases in general practice.[1] Many of the obstacles they discuss have been apparent for some time, including the desirability of a minimum dataset.[2] We agree that "the potential of computer databases in general practice is too important to be left to the vagaries of the market place," and this is emphasised by the recently reported difficulties of VAMP and AAH Meditel. The authors do not mention that in Scotland the software for the general practice administration system Scotland (GPASS) has been freely available to general practitioners and sponsored by the Scottish Home and Health Department since 1983; hardware is purchased separately. Currently 680 practices in Scotland, accounting for more than two thirds of general practitioners and over 3·5 million patients, have installed the system. There is a continuing commitment to support and develop this software within the NHS.

We have been assessing the quantity and quality of data routinely recorded by users of the system in Scotland by means of an electronic questionnaire[3] and the "megapractice" concept.[4] Although the obvious way of validating computerised information on practice computers is to make comparison with manual records, as reported by Dr Hershel Jick and colleagues,[5] it may be possible in due course to estimate this by studying the dynamics of computerisation within practices[6] and by electronic linkage to other health service databases.

Drs Pringle and Hobbs are rightly concerned about the incentives required to persuade general practitioners to keep high quality records. When the data concerned are immediately relevant to the care of patients sufficient motivation probably already exists—and the potential will be realised when desktop computers become the rule in consulting rooms. When data are required for other purposes—for example, planning for provision of care in relation to local health needs—reimbursement of administrative expenses may be merited. In principle, this would be an extension of notification of diseases but with three major differences: the process would be voluntary; the disease(s) in question could be determined locally with oversight by the director of public health; and the surveillance data would be recorded on computer and transmitted electronically to a central database. It is appropriate to be cautious about the current limitations of computer databases in general practice. Nevertheless, we believe that they have considerable potential.

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SIR,—Dr Neil Johnson and colleagues have shown the great potential of amalgamating computerised general practice data for epidemiological studies.[1] Their suggestion, however, that one of the advantages of computer systems over manual ones is that computer systems require "no specific training of doctors in surveillance methods" is in my opinion erroneous. A computerised data collection system is just that, and it does not differ from an equivalent manual system before the data are entered at the keyboard. Participants in either system must have due regard to data capture, which includes clearly agreed protocols and definitions. Using a computer does not exonerate a doctor from using reliable surveillance methods. Relying on the sheer size of a database to even out large fluctuations in the pattern of recording is dangerous.

Dr Johnson and colleagues have correctly identified motivation of general practitioners as one of the prime considerations in achieving good standards of recording. In my view the usefulness and direct relevance to patient care are prime motivators rather than any contractual arrangements as in the "no cost" computer schemes.

In Northern Ireland we are currently engaged in a pilot project amalgamating computerised morbidity data, initially from 12 general practices (70 000 patients). In so doing we have addressed the points raised above. All the practices are using the general practice administration system for Scotland (GPASS) and are volunteers. Meetings were arranged between the participating doctors, and a minimum dataset was established, consisting of some 35 items of morbidity that the doctors themselves thought important. Practices were visited, and their methods of getting this information to the computer from surgery consultations, house calls, and hospital letters were carefully analysed. A facilitator has been employed to maintain regular contact with the practices and thus foster good standards of recording. Continuing interest in the project is further stimulated by providing the doctors with regular feedback, in graphic form, about the morbidity in both their and the other participating practices.

Drs Mike Pringle and Richard Hobbs urge that the potential for computerised databases is not left to the "vagaries of the market place" and argue that such activity should be supported by the NHS.[2] There are no short cuts to establishing the structures I have outlined. Only well conceived, designed, and supported projects will hold the interest and cooperation of general practitioners in the long term—essential if the holy grail of the large general practice database is to be attained.

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Effects of electromagnetic radiation

SIR,—Dr Stella Lowry's comment on the article on the risks to health of electromagnetic radiation by Dr Mark Payne in *Hospital Doctor* was timely.[1] Dr Payne recently obtained front page coverage in a local newspaper in Solihull, claiming, among other things, that electric blankets increase the risk of miscarriage and also cause testicular cancer in men. Although I am of the opinion that potential environmental factors should be investigated fully, I share Dr Lowry's belief that articles such as the one in *Hospital Doctor* and the coverage in my local newspaper serve only to worry patients unduly, especially when they are based on theories that have not been borne out by scientific investigation. Matters such as health under power lines and the effect of other environmental factors on allergic conditions such as asthma should be pursued clearly and fully rather than ignored. Only when properly conducted studies have been performed will we be in a position to inform the public.

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Cardiopulmonary resuscitation skills

SIR,—Mr F Morris and colleagues reviewed preregistration house officers' skills in cardiopulmonary resuscitation after the institution of a training scheme by City and Hackney Health Authority.[1] They found that, compared with results of a previous study,[2] theoretical knowledge had improved considerably but there had been little improvement in practical skills.

I recently assessed both the knowledge and practical skills of 50 junior doctors (22 house officers and 28 senior house officers) in this hospital. Twenty (40%) passed both theoretical and practical tests (25 multiple choice questions and practical assessment as recommended by Safar and Bircher,[3] compared with 8% in a study from this hospital in 1984.[4] Since then, updates on cardiopulmonary resuscitation have been arranged every six months for junior doctors. I found that those who had attended regular updates (both in