these first four patients, three had considerable arrhythmia; two developed heart failure, one of whom died.

Death from ischaemic heart disease has been linked to environmental temperature,^{1,3} and one Canadian study showed an excess of deaths from myocardial infarction on the day after heavy snowfall.⁴ These authors postulated a snow shovelling effect, based on the time delay between snowfall and increased death rate and its relation to local snow clearance bylaws. Residents in Toronto are required to clear sidewalks of snow within a certain number of hours, and studies there showed increased deaths from cardiac causes on the day of snowfall. In Montreal the responsibility for clearing rests with the local authority and the increased death rate occurred on the following day, when private drives, steps, and paths were more likely to be cleared.

In the United Kingdom snowfall is particularly ephemeral. We suggest that clearing snow from roads and pavements should be the local authority's responsibility and that people with cardiac risk factors should be advised to let nature clear the drive and to leave the shovel in the shed.

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Health in India

SIR,—Dr Patricia Day Bidinger presented a refreshing overview of the commendable work done by the Institute of Rural Health Studies in south India and once again showed that a committed voluntary agency can do useful applied research and develop model approaches to improve the health of rural people.¹ India has several such voluntary agencies and people, including Drs Arole from Jamkhed, Bang from Ghadchiroli, and Desai from Zagadia, to name just a few. Such voluntary agencies working in remote areas have time and again shown that it is possible with limited resources to improve the access to health services and health of people.

The Indian government has set up a fairly large and ever expanding network of health institutions throughout the country, with several levels of staff from the most peripheral village level workers to specialists. In spite of this, the performance of this huge government health system seems to be disappointing except in a few areas.² Access to and utilisation of the government system of health care remain unacceptably low.³ For example, still only 32% of births are attended by trained staff.⁴ Important lessons have been learnt from the voluntary sector, but the process of adapting them to the government system (or perhaps adapting the government system to them) seems to be lacking. The government of India tried to transplant some elements from these voluntary projects into the national health system—for example, the village level worker and the training of traditional birth attendants—but the overall results seem to be discouraging.

Given the size and population of India (about 800 million), it is clear that the government is the only agency that can provide health care to all. It may be useful to direct health systems research to identifying why government health services do not perform adequately and then try to improve them. Comparing voluntary projects with a government

Comparison of voluntary projects with government services in India

	Voluntary projects	Government services
Leadership	Strong	Weak
Commitment of staff	High	Low
Motivation	High	Low
Empathy toward the poor	Yes	No
Planning	At local level	Top down
Operational flexibility	High	Low
Training of staff	Continuous	Only once
Ability to hire and fire staff	High	Low
Supervision	Supportive/intensive	Punitive/weak
Financial resources	Moderate/flexible	Moderate/fixed
Administrative procedures	Flexible/fast	Rigid/slow
Political interference	Minimal	Moderate/high
Orientation towards	Results	Process
Extension or outreach	Strong	Weak/nominal
Demand generation	Strong	Weak
Follow up	Strong	Weak

system (like a case-control study) shows differences (table).

Given these differences it seems that the government system of health services will not be able to produce results equal to those of voluntary agencies. The challenge is to mobilise the government system to deliver an acceptable level of health care to the poor. Any change in the government system is very slow and difficult but has far reaching effects and is much more sustainable. Unfortunately, there seems to be very little effort systematically to study shortcomings of the government system and modify it, or at least such efforts do not receive as much attention as do voluntary efforts. Perhaps the strong political will and public pressure required to improve the government health system are lacking.

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SIR,—Dr Patricia Day Bidinger mentions that there is a decrease in the incidence of undernutrition among labourers in rural south India owing to higher wages and small loans from rich farmers.¹ This may be true in her area, but most of the landless poor are still undernourished and suffer from chronic nutritional disorders. The labourer has no collateral except his labour, and hence he is denied any kind of loan from the corporate banks. The cooperatives lend only to the rich farmers—the rich farmer in turn lends that same money to the poor labourer at higher interest and may also demand that the labourer work in his fields for low wages. We know that bonded labour is abolished in law in India, but this practice is still seen in many villages in Andhra.²

To my knowledge most of these rural poor are at the bottom of the caste ladder. Even though primary education is universal and free, most of these people are illiterate. And so the factors mentioned above must be considered in any plans to improve the health and wealth of the community.

Quacks and unscrupulous medical doctors further exploit these illiterate poor labourers, who can ill afford to spend any money on their health,

by charging them for useless treatments like a shot of penicillin or an injection of diluted B vitamins. Nothing is available at the so called primary health centres. Most of the medicine supplied is siphoned off into the black market or given to the rich farmers or to the relatives of the local political boss. These are some of the problems to be overcome while working to improve health in the rural communities in the developing countries.

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Accident and emergency services

SIR,—Mr Norman Kirby suggests in his letter an increase in the number of intermediate grade accident and emergency staff.¹ He will know that the Joint Planning Advisory Committee restricts such an increase and that high quality staff grade doctors or associate specialists are in extremely short supply. I reject absolutely the suggestion that consultants can discuss the needs of a patient with a myocardial infarction or major injuries over the phone. They need to be there. The provision of very junior staff out of hours within accident and emergency departments reflects the generally inadequate response of the British medical profession to emergency cases, as was indicated by the confidential inquiry into perioperative deaths,² but if the specialty of accident and emergency medicine put its own house in order it might encourage other specialties to do the same.

I do not agree that many of the difficulties highlighted by Professor Miles Irving's report³ could be solved simply by organising trauma teams which in many hospitals, particularly district general hospitals, would be headed out of hours by a surgeon of registrar grade or even by a senior house officer. The suggestion of clustering accident and emergency departments between teaching hospitals and district general hospitals implies that teaching hospitals are better able to manage emergency cases than district general hospitals. The Royal College of Surgeons' report does not agree, certainly as far as major injuries are concerned. Mr Kirby concludes his letter by agreeing that there is actually no more money available, which rather implies that an increase in any grade of accident and emergency doctor is unlikely in the present system.

Dr M W Beckett and colleagues are right that many seriously ill patients, particularly those with myocardial infarctions or asthma, make their own way to hospital rather than coming by ambulance.⁴ They would be disadvantaged if that particular hospital were not on call. Such important details must be catered for in any plan.

Professor David W Yates's response is interesting if confusing.⁵ Although we both recognise the differences between London and Manchester, I am not sure the pattern of clinical work is substantially different. Professor Yates quotes the work of Keller and Koenig⁶ and suggests that burnout and dissatisfaction may become prevalent in Britain, as Keller and Koenig suggest has become the case in the United States. If it were generally true in the United States I would be surprised, and in any event I am sure we are made of sterner stuff, certainly in London. Professor Yates may have registrars as well as senior house officers 24 hours a day, seven days a week, but this is certainly not the case in most accident departments, particularly in London.

Professor Yates misquotes my editorial,⁷ saying

that the North West Thames document suggests four accident departments for the whole of greater London. The document, of course, refers to North West Thames region. I was disappointed to learn that Professor Yates believes consultants should concentrate only on ensuring an increase of middle grade staff, improving training of senior house officers, and organising their departments better. I hope there are many in the specialty who would agree that a consultant also has a clinical role, as in all other specialties. I for one did not enter the specialty to become a manager.

The specialty of accident and emergency medicine has made great strides in the past decade. We need now to make practical plans for the next decade so that trained accident and emergency specialists will take specialised responsibility for patients 24 hours a day. We cannot devolve our responsibilities out of hours and it would seem sensible to put our own house in order rather than have regional health authorities—or even, in the brave new world, purchasers—do it for us.

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- 1 Kirby N. Accident and emergency services. *BMJ* 1991;302:110. (12 January.)
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Referrals to rheumatology

SIR,—Dr P S Helliwell and Professor V Wright conclude, in association with running a rheumatology referral unit, that better communication is required to prevent waste of resources.¹

In dealing with issues such as waste of resources a wide view must be taken. At a general practice level I may have a patient who finds it difficult to accept his diagnosis of osteoarthritis. After referral to a hospital rheumatologist the diagnosis is accepted. The patient no longer consumes regular medical time, demands regular physiotherapy or other allied professionals' time, or insists on consuming large amounts of expensive drugs in the search for a "cure." Clearly, in terms of resources, the referral is appropriate. In spite of this it is acknowledged that the hospital rheumatologist may well feel frustrated at seeing yet another patient to whom he has little to offer.

Communication, like education, is a two way process. If communication is to be successful it must be relevant. A hospital rheumatologist teaching hospital rheumatology to a general practitioner undertaking primary care rheumatology will never be well attended. But although hospital rheumatologists will readily give a lecture on rheumatoid arthritis, they have only lately become interested in the ubiquitous osteoarthritis—a fact acknowledged by Professor Wright earlier.²

This new interest is responding to a need. The need is apparent in the work by Billings and Mole, who found that the vast majority of patients referred for musculoskeletal conditions were suffering from non-inflammatory diseases.³ Does the problem lie with those referring or with those who offer a service that is ill matched to requirements?

These issues concerning the interface between

primary and secondary care rheumatology are currently being considered in Britain. Some five years ago the Primary Care Rheumatology Society was founded by general practitioners. Part of its aim is the improvement of communication with hospital rheumatologists. It is an active affiliated member of the British League Against Rheumatism.

With the enthusiastic support of many hospital rheumatologists the society holds two national conferences a year, is currently involved in research and educational initiatives (including the formulation of a distance learning package), and has a permanent central office and staff. The clearest indication of its drive to improve communication is the formulation of consensus meetings. These focus on a shared issue, such as the use of second line antirheumatoid agents in general practice, and lead to the formulation of protocols by equal numbers of general practitioners and hospital rheumatologists. These are then published and used as a basis for a series of regional and district meetings of the local rheumatology team and general practitioners.

So much of what is hoped for by Dr Helliwell and Professor Wright is already under way. The society acknowledges the support of the Arthritis Rehabilitation Centre, of which the professor is an active member.

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SIR,—It is good to see the *BMJ* taking arthritis, the major cause of physical disability in the United Kingdom, seriously.^{1,2} Arthritis Care receives thousands of letters and telephone calls from people seeking advice and reassurance; some are desperate to be referred for a consultant's opinion—and need to be.

A poll by NOP Market Research Ltd in September 1990 showed that a quarter of people over 40 with arthritis thought that their general practitioners were indifferent or unsympathetic. It is against this background that so many people turn to Arthritis Care for advice on their rights to a second opinion. More medical education in rheumatology, at undergraduate and postgraduate levels, would be an important step forward.

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- 1 Helliwell PS, Wright V. Referrals to rheumatology. *BMJ* 1991;302:304-5. (9 February.)
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SIR,—To audit our rheumatological health promotion clinic we conducted a telephone survey of patients suffering from rheumatological disease as recorded by our index of disease in our practice population (total 8300 patients) and identified 39 patients, 23 seropositive and 16 seronegative. Two patients did not respond, showing a 95% response rate.

Of 28 patients under the care of rheumatological specialists, 17 were satisfied with the care that they received from their specialists. Of the 11 who were not satisfied, all were dissatisfied at travelling (60 miles) to the specialist and all preferred not to see his junior colleague and were particularly critical of seeing a different junior at nearly every visit.

We would therefore like to expand on the statement of Dr P S Helliwell and Professor V Wright that patients who continue to be seen by the hospital are a drain on hospital resources.¹ In our situation, 60 miles from the rheumatology centre, continued inappropriate follow up may also be a source of patient dissatisfaction.

In the rural areas particularly but probably all over the country there is a case for a peripatetic rheumatologist working from and in general practitioners' surgeries. He or she would be able to do domiciliary visits with a general practitioner colleague, which would give educational help, and see the patients who find it most difficult to get to a hospital based clinic. Such a rheumatologist would be a true "consultant."

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Leptospirosis update

SIR,—We note with Dr Ian Ferguson that over 50% of cases of leptospirosis are of occupational origin and that warning cards containing simple advice can play a central part in alerting people to the risks.¹ Last year the Health and Safety Executive published such a card, "Leptospirosis—are you at risk?" Copies are available free of charge at any local office of the Health and Safety Executive.

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- 1 Ferguson I. Leptospirosis update. *BMJ* 1991;302:128-9. (19 January.)

SIR,—Our experience in Scotland during 1967-90 based on weekly returns from laboratories to the Communicable Diseases (Scotland) Unit shows similarities to that in England and Wales and also some differences.

Over the 24 year period there was a total of 179 cases of leptospirosis with a mean of 7.4 and a range of 1-15 infections per year. There were two deaths, one due to infection with *Leptospira icterohaemorrhagiae* and the other to infection with *Leptospira* spp. Three patients acquired the infection abroad; 140 were in the age group 15-65; the overall male to female ratio was 6.4:1. A seasonal pattern was noted, with the incidence of infections rising from June to a maximum in December. In addition, a cyclical pattern was evident over the 24 years, with a steady rise reaching a peak in the early 1970s followed by a fall in incidence over the next decade and then another rise to the present day.

Although in Scotland only 58% of isolates were serogrouped, in contrast to the 85% in England and Wales,¹ a different pattern of serogroup prevalence emerges. *L sejroe* serovar *hardjo* remains the most frequently reported (26%); *L canicola*, not seen in England and Wales, accounts for 16%; *L icterohaemorrhagiae* constitutes 13% of isolates; and other identified serogroups account for 3%.

Previous studies have also reported a higher incidence of infection due to *L canicola* in Scotland.^{2,3} The incidence of *L canicola* infections in Scotland, most of which were in farmers and their dog contacts, does seem to be declining in recent years—the last reported case was in 1988.

In Scotland the main occupational group at risk from leptospirosis is farmers and agricultural