model that we in the United Kingdom would do well to adapt is the standard of care advocated last year by the National Advisory Council for Human Genome Research of offering genetic tests only as part of a research protocol.¹

THERESA MARTEAU
Director
SUSAN MICHIE
Research fellow

Psychology and Genetics Research Group,
United Medical and Dental Schools of
Guy's and St Thomas's Hospitals,
Old Medical School Building,
Guy's Campus,
London SE1 9RT

- 1 Ryan MP, French J, Al-Mahdawi S, Nihoyannopoulos P, Cleland JGF, Oakley CM, et al. Genetic testing for familial hypertrophic cardiomyopathy in newborn infants: an ethical debate. [Commentaries by P S Harper, A Clarke; J Davis; L Grigg.] *BMJ* 1995;310:856-9. (1 April.)
- 2 Michie S, McDonald V, Marteau TM. Understanding responses to predictive genetic testing: a grounded theory approach. *Psychology and Health* (in press).
- 3 Wiggins S, Whyte P, Huggins M, Adam S, Theilmann J, Sheps SB, et al. The psychological consequences of predictive testing for Huntington's disease. *N Engl J Med* 1992;327:1401-5.
- 4 Lynch HT. DNA screening for breast/ovarian cancer susceptibility based on linked markers—a family study. *Arch Intern Med* 1993;153:1979-87.
- 5 National Advisory Council for Human Genome Research. Statement on use of DNA testing to presymptomatic identification of cancer risk. *JAMA* 1994;271:785.

Dosage of angiotensin converting enzyme inhibitors

EDITOR,—A L Clark and A J S Coats highlight the common problem of suboptimal doses of angiotensin converting enzyme inhibitors being prescribed for patients with impaired left ventricular function.¹ Their paper, however, contains an important error, and when this is corrected the situation is seen to be even worse than they state.

Clark and Coats suggest that the optimum dose of captopril to reduce mortality is 25 mg twice daily. This is not the case. The study they cite in support of this dose did not show a significant reduction in mortality. The dose of captopril most clearly shown to reduce mortality is 50 mg three times daily, and most studies of heart failure showing an improvement in symptoms and exercise tolerance with captopril have used doses at least as large as this.^{2,3}

JOHN McMURRAY
Consultant cardiologist

Department of Cardiology,
Western General Hospital,
Edinburgh EH4 2XU

- 1 Clark AL, Coats AJS. Severity of heart failure and dosage of angiotensin converting enzyme inhibitors. *BMJ* 1995;310:973-4. (15 April.)

Consultants' workload in outpatient clinics

Not all specialist groups hold outpatient clinics

EDITOR,—David Armstrong and Mick Nicoll suggest that the number of outpatients seen per hospital doctor and whole time consultant equivalent declined steadily from the inception of the NHS in 1949 until 1991.¹ The implication seems to be that there are increasing inefficiencies in the hospital sector and that the present push for more consultants in service may be necessary. A few of the assumptions made in this study are (1) that the specialty mix of consultants has not altered since 1949, (2) that consultants see outpatients, and (3) that the practice of medicine has not changed.

During the 12 years of my career in medicine I have seen major changes in numbers of consultant

staff in anaesthesia (+359)² and accident and emergency (+73).³ When the NHS first developed, these specialties and radiology, pathology, and public health medicine were in their infancy. The published figures for December 1992 for England and Wales show that 30% (5499) of the practitioners eligible for distinction awards (that is, consultants (total 17662)) were in these "new" specialties. These specialists do not hold outpatient clinics and therefore do not seem to be working, according to this study.

The complexity of care now offered to patients has increased. In the 1940s the list of medical and surgical treatments available to doctors was limited. Many patients consulted and were advised rather than treated. Doctors now perform endoscopies, arterial catheterisations, operations, and other complex procedures on an outpatient as well as an inpatient basis. These interventions require skilled staff and do not appear in the data used for this study.

Given the growth in the complexity of medicine over the past 50 or so years, it is naive to suggest that by dividing the number of patients seen as outpatients by the number of consultants employed by the NHS one can derive a meaningful statistic that is a measure of inefficiency in the hospital service.

ANDREW P VOLANS

Senior registrar in accident and emergency medicine
Accident and Emergency Department,
Royal Hallamshire Hospital,
Sheffield S10 2JF

Consultants spend more time with each patient than in the past

EDITOR,—David Armstrong and Mick Nicoll's analysis of consultants' workload in outpatient clinics fails to address some important issues.¹ Clearly, the routinely collected English statistics do suggest a decrease in the number of new and old patients seen per consultant per year. This aspect of the consultants' workload cannot, however, be accurately summarised on the basis of a single performance indicator or considered in isolation from other hospital duties.

More obviously, medical technology has expanded exponentially since 1949. The number of effective drugs has increased from a few dozen in 1949 to almost 1000 in 1991² while the list of medical investigations and surgical treatments has mushroomed. What a hospital doctor had to offer a patient with heart failure in 1949 pales into insignificance when compared with what can be offered today.

Secondly, patients are, rightly, becoming more demanding and expecting more explanation. Today's doctors are increasingly offering to share knowledge and decision making, which is in keeping with changing medical education.³

Thirdly, health promotion is now part of most doctors' vocabulary, given that many of the government white papers call on all health care professionals to promote health as well as to treat illness.⁴

These three factors alone will ensure that more time will be spent per patient, a point the authors gloss over in their conclusion that "work with new outpatients has declined throughout the period under review." Surely, the former trend is a good thing. The patients' charter now requires that all new outpatients be seen by a consultant, which ensures that the consultants' workloads will expand still further.

The authors' analysis also overlooks the large

degree of specialisation that has occurred and the huge variation in the number of new and old patients seen per clinic by specialty (for example, three new patients per consultant in psychiatry versus 140 return patients in an anticoagulant clinic).

Finally, the authors criticise the proposal to expand the number of consultants despite the evidence that historically there has been a persistent underprovision of consultants per capita in Britain compared with most other Western countries.⁵

When trying to "locate health service problems" it may be more fruitful to examine fundamental causes of human behaviour across all professional scales from management through medical and nursing to clerical staff, both within and outside the hospital sector. This should focus on the structure and organisation of health services and the underlying structures of professional education and remuneration.

HELENE IRVINE

Registrar in public health medicine

Department of Public Health Medicine,
Greater Glasgow Health Board,
Glasgow G2 4JT

PETER SCOTT

Consultant geriatrician

Department of Medicine for the Elderly,
Stobhill Hospital,
Glasgow G21 3UW

- 1 Armstrong D, Nicoll M. Consultants' workload in outpatient clinics. *BMJ* 1995;310:581-2. (4 March.)
- 2 BMA and Royal Pharmaceutical Society of Great Britain. *British National Formulary* (no 22). London: BMA and RPSGB, 1991.
- 3 Morgan M. The doctor-patient relationship. In: Patrick DL, Scambler G, eds. *Sociology—as applied to medicine*. London: Baillière Tindall, 1988:56-70.
- 4 Department of Health. *The health of the nation: a strategy for health in England*. London: DoH, 1992.
- 5 World Health Organisation. *World health statistics*. Geneva: WHO, 1988.

Quality of care has improved

EDITOR,—We wish to suggest an alternative interpretation of the data presented by David Armstrong and Mick Nicoll.¹ During the 20 years 1971-91 the rate of increase in the numbers of general practitioners and consultants was similar (their figure 1). During the same period the rate of new referrals to outpatient clinics rose more slowly. Hence new referrals of outpatients per general practitioner and per consultant fell. This reflects the fact that general practitioners do more for their patients without referring them to hospital (for example, they do minor operations and hold asthma and diabetes clinics) and that consultants do more for their patients at each outpatient consultation (for example, they hold one stop diagnostic clinics and manage patients with asthma, diabetes, and heart failure, who would have required admission, often for several weeks, 25 years ago).

This means that it is inappropriate to equate a fall in numbers of new outpatients per consultant with a "progressive reduction in clinical workload" or "declining productivity." On the contrary, contemporary developments spring from a determination among doctors to provide high quality care as expeditiously and conveniently as possible; this is reflected by the increase in activity in general practitioners' surgeries and hospital clinics. The development of guidelines and protocols for primary and secondary care exemplifies a concern that care should be uniformly of a high quality. The concept of ambulatory care centres extends the role of the hospital towards the community. These centres are likely to prove more equitable and cost effective in providing expert care than the outreach clinics mentioned by Armstrong and Nicoll, particularly when the current inequalities in purchasing are resolved.

Many general practitioners and consultants have become increasingly involved in teaching and