H. pylori is common,⁶ this is not yet well established, and the article by Bytzer *et al* cannot be considered a serious evaluation of the cost effectiveness of such a policy. Studies to address this important question will also have to take into consideration some of the less tangible benefits of a "negative" result on endoscopy.¹

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Treating myopia

Incisional keratotomy has a safer track record than photorefractive keratectomy

EDITOR,—David S Garty's review restores some balance to the debate about photorefractive keratectomy, emphasising that such surgery must be predictable, effective, and safe with a low incidence of complications.¹ The excimer laser was introduced to treat myopia in the expectation that photoreactive keratectomy would surpass incisional keratotomy (microsurgery: the safer American development of Russian radial keratotomy) in predictability. This has not happened since a greater degree of remodelling is required after photoreactive keratectomy.

It cannot be overemphasised that the fact that "15% of patients lose one or two lines of Snellen acuity, a significant loss," is unacceptable for surgery on the healthy cornea. Furthermore, a recent study found that a tenth of patients treated with an excimer laser declined treatment of the other eye because of disturbances of night vision in the treated eye.²

Of greater concern are the possible long term complications. Garty lists decompensation of the cornea "as unlikely though not impossible." This could occur from the shock waves in photoreactive keratectomy striking the corneal endothelium. Refractive surgeons remember that Sato's incisions in the posterior cornea eventually caused 85% of eyes to lose their vision, but only after 18 years, from decompensation (waterlogging) of the cornea.³ Photoreactive keratectomy may also reduce corneal tensile strength by altering the corneal structure.⁴ Complications in refractive surgery historically have been unexpected and emerged only after many years.

Meanwhile, incisional keratotomy causes far less loss of visual acuity (1-3%), has a long term safety record, and allows almost immediate return of vision. Initial fears that eyes would be more susceptible to traumatic rupture after incisional keratotomy were discounted by Robin's study of 750 000 eyes.⁵ Refractive surgeons have learnt to be conservative to avoid secondary hypermetropia. Currently, the predictability of the result of fourth incision keratotomy is higher than that of any results reported in the same refractive groups after treatment with an excimer laser.⁶

Garty reminds us that photoreactive keratectomy is an experimental, investigative procedure.

It is astonishing that in a sophisticated country such as Britain there are minimal controls. It would seem reasonable to limit the numbers undergoing photorefractive keratectomy at approved research centres where independent assessment is done until results improve and more is known of possible long term complications. Whether it is ethical to charge for such experimental procedures for commercial gain is debatable.

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Elective procedures for normal conditions need high standards

EDITOR,—In his review of the treatment of myopia David S Garty refers to the "inconvenience" of this condition.¹ Refractive myopia is a normal state resulting from the biological variation of several factors in what in most cases are normal tissues. It can convey many benefits, particularly in respect of the effects of presbyopia. Its "treatment" by methods that destroy normal tissues is akin to the approach of Procrustes, the legendary Greek brigand, whose bed was offered to weary travellers but always proved to be either too long or too short, reflecting the similarly normal variation in height of ancient Greek travellers. Sir Frederick Treves, Edward VII's surgeon, enunciated the dictum that "all surgery is amputatory." The aphorism remains as relevant as ever.

An elective procedure on normal structures that results in 15% of subjects being dissatisfied with the outcome and a smaller percentage incurring important and even disabling consequences is not a procedure that one would advocate for oneself, one's family, or, least of all, one's best friends. If, in the terms of another item in the same issue of the *BMJ*,² this is rhetoric then so be it.

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Genetic testing for familial hypertrophic cardiomyopathy in newborn infants

Hypertrophic cardiomyopathy can be treated but not cured

EDITOR,—In the ethical debate on genetic testing for familial hypertrophic cardiomyopathy in newborn infants I agree in general with the views of Professor Celia M Oakley's group.¹

I consider that the case for testing has been made, both for the welfare of the subject and the family and for the great need for further research. It is unfortunate that the myth of the untreatability of hypertrophic cardiomyopathy is being perpetuated. The disorder is certainly treatable:

symptoms can be alleviated and the risk of sudden death reduced.² Neither is it true that prognosis cannot be altered. It is true that hypertrophic cardiomyopathy is not curable now, which makes continuing research essential. Diagnosis is vital because sudden death can strike without warning.

Counselling of sufferers and relatives is essential, as is greater awareness about the disease on the part of the public and of all who are concerned with the welfare of young people. The Hypertrophic Cardiomyopathy Association has been set up precisely to counsel sufferers and their relatives.

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A positive screening test for an untreatable condition provides psychological relief from uncertainty

EDITOR,—The recent ethical debate on the genetic testing of newborn infants for familial hypertrophic cardiomyopathy among parents, a cardiologist, a paediatrician, and two medical geneticists¹ shows the need for research based evidence in this area.

Their views differ in what defines benefit and how this might be achieved. Peter S Harper and Angus Clarke argue that parents' requests to test their children should be met only when there is clear medical benefit to the child. This, however, excludes the benefit of providing psychological relief from uncertainty. Yet the parents in the debate considered that reducing uncertainty was helpful in their care of their child, stating "knowledge can be a kind of cure." We found the same in a case study that formed part of an ongoing multicentred prospective study of young people undergoing DNA predictive testing for familial adenomatous polyposis.² The parents' request to test their two children was reluctantly agreed to by the clinician, given that they were aged under 5. One of the children received a positive result and the other a negative result. The parents firmly believed that the knowledge would benefit them as parents and increase their children's ability to adjust to information that they could gain gradually over the years. The mother in our study reported being less rather than more protective, in that she was anxious about insisting on early bowel screening for her children after receiving the results. Evidence from studies of adults undergoing genetic testing for Huntington's disease and breast cancer attest to the psychological relief that those requesting such tests experience when receiving test results, whether positive or negative.^{3,4} The alternative to genetic testing suggested by Harper and Clarke is regular clinical monitoring of the child for signs of disease, and this may cause more anxiety and problems with self image than one off genetic testing and a preventive lifestyle in the 50% of children found to have the mutation.

We do not argue for clinicians to encourage parents to undergo predictive testing in their children. Rather we argue for respecting parents' wishes in the absence of evidence of harm and when there is potential for benefit. As with all new technology, it behoves all those offering unevaluated techniques to collect data on their outcomes—clinical, psychological, and social. One

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

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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}

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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.

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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.

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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