

Service or employer	Rank	Participants in tests				Controls			
		On national service	Regular servicemen	Total No	%	On national service	Regular servicemen	Total No	%
Royal Navy*	{ Officer	54	434	488		22	559	581	
	{ Other ranks	340	5 476	5 816		261	6 502	6 763	
	{ Total	394	5 910	6 304	29.5	283	7 061	7 344	32.9
Army	{ Officer	24	537	561		174	488	662	
	{ Other ranks	1 563	3 670	5 233		1 727	3 093	4 820	
	{ Total	1 587	4 207	5 794	27.1	1 901	3 581	5 482	24.5
Royal Air Force	{ Officer	17	1 594	1 611		43	1 755	1 798	
	{ Other ranks	404	6 429	6 833		765	6 139	6 904	
	{ Total	421	8 023	8 444	39.5	808	7 894	8 702	39.0
Atomic Weapons Establishment†	{ Social class 1	0	380	380		0	361	361	
	{ Other social classes	0	436	436		0	444	444	
	{ Total	0	816	816	3.8	0	805	805	3.6
All services and employers	{ Total officers or social class 1	95	2 945	3 040	14.2	239	3 163	3 402	15.2
	{ Total other ranks or social classes	2 307	16 011	18 318	85.8	2 753	16 178	18 931	84.8
	{ Total	2 402	18 956	21 358	100.0	2 992	19 341	22 333	100.0

*Includes members of the Royal Marines; Royal Naval Volunteer Reserve; and Navy, Army and Air Force Institute.
 †Atomic Weapons Establishment includes a few employees of the Atomic Energy Research Establishment Harwell.

1983) and 0.87 and 0.88 in the extended period (1984-90); there were no grounds to doubt its reliability. Any control group, however well chosen, is of necessity subject to the vagaries of chance, which are likely to be substantial when many diseases are studied. As the remarkably low standardised mortality ratio of 0.32 for leukaemia (based on six deaths) in the control group in the period to the end of 1983 was followed by a value of 0.98 (based on 11 deaths) for 1984-90 the most likely explanation for the low value in the early period seems to have been chance despite its extreme significance level ($2P < 0.001$); we can think of no special feature of the control group that could have otherwise accounted for it.

As regards the measurements of radiation exposure, and as stated in our detailed report,¹ we were informed by the Ministry of Defence that the measurements made available included those from every personal film badge dose meter issued at the tests that had registered a dose greater than the minimum level; some records indicating that a man had worn a film badge that recorded a zero dose had been destroyed. We have no independent means of checking this statement, but our investigations elicited no evidence to make us doubt its truth.

J M Bland questions our use of one sided tests in the direction of the observed difference and 90% confidence intervals to compare the test participants with the controls. We did this because in radiation epidemiology, and in particular in analyses of the Japanese survivors of the atomic bombs,³ one sided tests and 90% confidence intervals are usually used. It seemed unreasonable to insist on a more stringent criterion in a search for increases that might be related to radiation in our subjects than had been used for the survivors of the atomic bombs.

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2 Darby SC, Kendall GM, Fell TP, O'Hagan JA, Muirhead CR, Ennis JR, et al. *Mortality and incidence of cancer in UK*

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Explaining variation in GP referrals

No automatic right to referral

EDITOR.—In his editorial on explaining variations in rates of referral to hospital Allen Hutchinson makes a statement about the role of general practitioners regarding referral that is incorrect.¹ He states that "a person's right to hospital referral is enshrined in the general practice contract." But paragraph 12(2)(d) schedule 2 of the NHS (GMS) Regulations is quite clear about what services general practitioners should provide to patients: they should arrange for referral "as appropriate, for the provision of any other services under the Act." The words "as appropriate" clearly mean there is no automatic right to referral and that the referral must be subject to the agreement and discretion of both the doctor and the patient.

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Be honest about referrals

EDITOR.—I support Allen Hutchinson's statement that key elements in the variation in rates of referral to hospital are "the behaviour of individual doctors, and the factors underlying this."¹ Some years ago I suggested that there were four main reasons for referral to a psychiatric clinic.² I have found from experience since that these reasons also apply, in varying degrees, to other specialties, particularly gastroenterology. (1) The general practitioner wants the specialist to provide or arrange treatment that he or she is unable to undertake. (2) The general practitioner wants the specialist to assess and clarify the situation and provide expert advice so that he or she can continue to look after the patient. (3) The general practitioner wants to share with the specialist the burden and responsibility of caring for a patient for whom little can be done but who insists, against all clinical judgment, on more and more investigations. (4) The general practitioner wants to be relieved of the patient for a while (it may be significant that, according to the *Oxford English*

Dictionary, "hand over" is one of the meanings of "referral").

The first two reasons for referral are primarily to meet the needs of the patient and are clear. The last two can be considered to be primarily in the interests of the doctor, and it is these that are rarely made clear in the letter of referral. If the specialist does not respond to them the general practitioner may be left feeling as frustrated by the specialist as the patient feels frustrated by the general practitioner. If the letter makes the reason for the referral clear, however, the specialist can respond to the general practitioner's difficulties. Being helped and supported enables the general practitioner, in turn, to feel better equipped to help and support the patient. This is in the best interests of the patient, the doctors concerned, and cost effectiveness. What might otherwise have been considered to be an inappropriate referral can become an appropriate one—another element in the "referral conundrum."

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1 Hutchinson A. Explaining referral variation. *BMJ* 1993;307:1439. (4 December.)

2 Brook A. An aspect of community mental health: consultative work with general practice teams. *Health Trends* 1978;10:37-9.

Minimally invasive surgery

Increases the cost of treatment

EDITOR.—H David Banta's assertion that the shorter stay in hospital of patients undergoing laparoscopy reduces the cost of their treatment is probably unfounded.¹ Hospital costs based on an average price per patient day fail to account adequately for the resources used by individual patients. I performed a cost survey of a urology unit and devised a method of costing specific to patients that takes theatre time, investigations, and outpatient visits into account as well as length of stay.² The average cost of patients in the urology unit in Addenbrooke's Hospital at this time was £190 a day and £45 per outpatient visit. Ward costs were £78.97 a day, theatre time £488.19 an hour, and outpatient visits £29.16 a visit, and investigations were individually priced. One of the patient episodes costed was a simple nephrectomy for benign disease in a woman similar to the patients subjected to laparoscopic nephrectomy by Kurt Kerbl and colleagues.³ Assuming that outpatient attendances and investigations are similar for these patients, it is possible to compare the theoretical costs of laparoscopic nephrectomy and conventional treatment.

Costing episodes according to length of stay alone yields costs of £1275 (six days) for open

nephrectomy versus £660 (three days) for laparoscopic nephrectomy. More specific, itemised analysis shows a different picture. Open nephrectomy cost £1665.64 while laparoscopic nephrectomy cost £3446.58. This is due to the increased use of theatre time reported for the laparoscopic technique—355 minutes compared with 107 minutes for the open technique. In addition, the capital costs of the laparoscopic equipment and disposable items (which can be up to £450 for a laparoscopic operation for hernia) need to be considered.

Theatre time is a costly and limited resource whose availability often determines surgical throughput and the length of a waiting list. Patients' satisfaction and recovery remain subjective and difficult to assess. Unless unequivocal clinical benefit can be shown, on the basis of hospital costs and throughput, many laparoscopic procedures seem hard to justify in today's NHS.

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Decreasing hospital stay is nothing new

EDITOR,—H David Banta warns of the lack of proper evaluation of minimally invasive surgery and the need for this to be properly funded.¹ He seems to imply, however, that earlier discharge from hospital is largely due to changes in surgical technique. Far more important is the change in the attitudes of staff and patients that has taken place gradually over the past 25 years. The inpatient stay after repair of a hernia has been reduced from 10 days to 24 hours, or less, without the surgical technique changing at all. Incisions for cholecystectomy had already been getting smaller before laparoscopic operations were introduced,² and controlled trials show little difference in the stay in hospital between procedures requiring a small incision and laparoscopic procedures,^{3,4} partly because both require general anaesthesia.

The other important factors affecting early discharge are the age, general medical state, and social conditions of the patient. An elderly person living alone in a high rise flat presents very different problems from a young adult who is taken to a family home in a comfortable car. For elderly patients, staying in hospital for an extra day or two may be both safer and, ultimately, more cost effective.

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- 1 Banta HD. Implications for hospitals, health workers, and patients. *BMJ* 1993;307:1546-9. (11 December.)
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Day surgery developing rapidly

EDITOR,—H David Banta describes his vision of the impact of minimally invasive surgery on hospitals, health workers, and patients in the near future and states that it "brings many more possibilities for short stay surgery or day surgery,

although this has not been recognised by doctors or policy makers in Europe."¹ This is not true.

Day surgery has been developing rapidly in Britain, and a recent report offered a "reasonable target" of half of all elective surgery being performed as day surgery by 2000.² The importance of day surgery and minimally invasive surgery was noted at a series of international scientific meetings last year. These meetings included the second European congress on ambulatory surgery (Brussels, 19-20 March), the founding congress of the European Society of Anaesthesiologists (Brussels, 11-16 May), and the third European congress of surgery (London, 14-17 September). New day surgery units are being constructed throughout Europe and are able to cope with a rapid turnover of patients as well as the implementation of minimally invasive surgery. The need for extensive community audit of minimally invasive surgery and day surgery has been emphasised by the Audit Commission.³

Banta refers to the importance of minimally invasive surgery and day surgery on economic grounds. Those who perform day surgery would argue that this is of secondary importance: the most important advantage of both it and minimally invasive surgery is the quality care that can be provided.

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Genetic markers in alcoholic liver disease

EDITOR,—D I N Sherman and colleagues suggest that variation in the alcohol dehydrogenase 2 gene may contribute to alcoholic liver disease.¹ Their study, however, has several shortcomings and their conclusions may be unjustified.

The initial hypothesis is unclear. The authors confuse genetic susceptibility to misuse of alcohol and genetic susceptibility to alcoholic liver disease; it is unlikely that the same genes contribute to these different disorders. If the authors intend to search for a marker for alcoholic liver disease the control group should be a population that has not developed liver disease (cirrhosis) despite prolonged and excessive alcohol intake. The control group causes particular concern because the only matching seems to have been on the basis of skin colour. This is unsatisfactory because large differences in frequencies of restriction fragment length polymorphism alleles may occur even among white populations. We have also observed different frequencies of restriction fragment length polymorphism alleles in white subjects collected from different social groups in London. Research and laboratory staff at King's College School of Medicine and Dentistry are of a higher socio-economic class than alcohol misusers.

The authors do not discuss the problems of population association studies (better termed case-control studies), which are fraught with pitfalls and commonly result in false positive associations.² In this study the number of both patients and controls is small. Significance hinges on the genotypes of fewer than 10 subjects. In diabetes, studies of under 150 subjects are now rarely published. One group initially reported a positive association between a glucose transporter restriction fragment length polymorphism and non-insulin dependent diabetes,³ but this proved

erroneous once study numbers were increased.⁴ Similarly, comparison of subgroups, as occurs in table III, is considered to be unacceptable.

Alcoholic fatty liver occurs in almost all long term misusers of alcohol, but cirrhosis occurs in only a minority. This suggests that genes encoding proteins involved in the regulation of hepatic fibrosis are far better candidates for conferring an inherited susceptibility to cirrhosis than is alcohol dehydrogenase, which is responsible only for the initial metabolism of alcohol.

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Covert video surveillance in Munchausen's syndrome by proxy

EDITOR,—The measures proposed by D M Foreman and C Farsides to promote the interests of all concerned in the use of covert video surveillance to detect Munchausen's syndrome by proxy are to be applauded.¹ It is therefore worrying that those interests have not been better protected when a surveillance programme has been implemented. The fact that the services of the local research ethics committees have not been used highlights loopholes in the process of ethical review. The doctors concerned have chosen to regard their procedures as clinical practice, thus avoiding the scrutiny of the committee.²

Such surveillance does not constitute clinical practice. No treatment is offered to the child, save in the event of the expected physical assault. The investigation is entirely forensic in character, which stretches the notion of medical diagnosis beyond normal parameters. No underlying pathophysiological condition or disease process in the child is sought, simply the incidence of violent assault on him or her. Increasing the likelihood of such assault to obtain forensic evidence exposes the child to harm—and this not in the course of treatment.³ Though forensic investigation is important, it ought always to be separated from the provision of medical care to the patient.

Covert surveillance is largely a research exercise on human subjects in the NHS. The hypothesis that there is a significant correlation between multichannel tape recordings of physiological variables during episodes of asphyxia and those observed in other apnoeic episodes and that this makes certain patterns of data pathognomonic of imposed apnoea has been tested against the results of attempts at suffocation observed covertly by video.³ This is a research activity. Many uncertainties surround Munchausen's syndrome by proxy. Any investigation of the syndrome therefore carries important overtones of research. To proceed as though the categories were clear and to assume that there is only one patient is to risk ignoring the clinical needs of one of the parties concerned.

These observations are intended to raise the question of the proper role of the doctor. While doctors have the responsibility to protect the health of their patients, they do not have a monopoly of such responsibility. Their duty is