Thirty people were injured by falling off the castle (17 male, 13 female; five aged 0-4, 12 aged 5-9, 12 aged 10-14, and one aged 22). Parts of the body commonly injured were the foot, ankle, or toe (10 cases) and the arm, elbow, wrist, or hand (eight cases). Most injuries were minor bruising, cuts, or swelling (20 cases), but there were six fractures and three sprains or strains. Two children required admission for fractures to the arm or elbow. The locations of the bouncy castles varied: six were at fairgrounds and five at indoor sports centres.

Seventy five people were injured on the castle itself (31 male, 44 female; eight aged 0-4, 33 aged 5-9, 27 aged 10-14, and seven adults). Thirty two fell over and 14 were struck by another child, usually after the patient had fallen over. The arm, elbow, wrist, or hand (27 cases), the face and neck (nine cases), and the ankle or foot (15 cases) were commonly injured. Fifty injuries were minor, with nine fractures, 10 sprains and strains, and two dislocations. Fairgrounds (10 cases) were the most common site for the castle.

The youngest child injured was 2 and the oldest adult 41. Only one adult was not actually playing on the castle at the time of injury.

The severity of injuries resulting from people falling off bouncy castles could be reduced by surrounding the castles with impact absorbing matting. The frequency of other injuries could be reduced by controlling the number of children playing on the castle at any time. Adults were injured by doing somersaults, diving over the castles, and throwing one another around; they should contain their exuberance when playing on these castles.

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1 Singer G, Freedman LS. Injuries sustained on "bouncy castles." *BMJ* 1992;304:912. (4 April.)

Is the child father of the man?

SIR,—Roger J Robinson's editorial draws attention to the work done by David Barker and his team in relating coronary risk factors and cardiovascular risk in middle age to factors operating in the uterus and in infancy.¹ The inability of known risk factors measured in middle age to explain all that they might has been widely recognised. It has led, over the years, to many extravagant claims by research lobbies that, given funds, they would close the gap and supply the missing links, whether they are lipid subfractions, psychosocial factors, or DNA sequencing.

The Southampton group has rendered a service in opening up another dimension for environmental determination of cardiovascular risk and, by implication, for prevention. The editorial suggests that these findings have changed the paradigm for explaining regional variation in disease. Whether or not this is true, they cannot explain the other contemporary conundrum: the dramatic declines in mortality from coronary heart disease that are occurring in many countries. These support the role of environmental influences now.

The figure shows trends in mortality from coronary heart disease in men in the United States and in England and Wales, using a logarithmic scale to permit simultaneous comparison of eight different age groups. If the declining trends were caused by beneficial changes in exposures in early life they should occur in the youngest age group first and take three decades to work through from the 35 to the 65 year olds. In the United States the curves all began to turn over and plunge almost in unison in the middle to late 1960s (the blip in 1979 was due to a change in rules on coding disease). In England and Wales there is indeed a vague suspicion that older age groups are changing later,

Mortality from coronary heart disease (100 000 men in United States and England and Wales (from data of World Health Organisation analysed by cardiovascular epidemiology unit, Dundee University)).

but not enough to fit the birth cohort model described above. In general, within each age group, rates in England and Wales oscillated on a plateau between 1965 and 1975 before declining in the 1980s.

Despite the importance of the work done in Southampton cardiovascular risk can still be modified quite profoundly, even after subjects have graduated from the uterus and are out of nappies.

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1 Robinson RJ. Is the child father of the man? *BMJ* 1992;304:789-90. (28 March.)

Patent foramen ovale and subaqua diving

SIR,—Would the *BMJ* publish a study which suggested that hypertension is not a risk factor for stroke because the authors had found 26 hypertensive patients who had not had a stroke? Probably not. Yet Stephen J Cross and colleagues' report on the safety of subaqua diving for people with a patent foramen ovale is based purely on their observation that 26 divers with intracardiac right to left shunts on contrast echocardiography had not had decompression sickness.¹

Although such a shunt will usually correspond with a patent foramen ovale, not all people with a patent foramen ovale will have shunting and some shunts will be due to other mechanisms. Any comparison between the incidence of shunts during life and the incidence of patent foramen ovale in a necropsy study must be approximate.²

We know from larger studies that a significant proportion of divers who have never had decompression sickness have shunts.³ This is only to be expected. Shunts occur in a quarter to a third of the population, and there is no obvious reason why the presence of a shunt would affect recruitment of divers. Thus about 15 000 of the 50 000 divers in the United Kingdom might be expected to have shunts. Even if each of the 100 cases of decompression sickness annually in the United Kingdom occurred in divers with shunts there must be many divers with shunts who do not get decompression sickness, and other factors must also operate. Clearly, to show that shunts are a risk factor for decompression sickness by showing a reduced

incidence of shunts in unaffected subjects a study would need to be exceedingly large. It is far better to examine the incidence of shunts in affected people.^{4,5}

Cross and colleagues question "whether these shunts are relevant in subjects who have not had decompression sickness." Is hypertension a risk factor for stroke in someone who does not have a stroke?

The authors conclude that "the presence of a shunt in a diver without a history of decompression sickness may be irrelevant" and that "there is probably not a case for routine screening of divers for shunts" (my emphasis). If their data do not give a definite answer it is equally valid to conclude that the presence of a shunt may be relevant to divers who will one day get decompression sickness and that there is possibly a case for screening.

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AUTHORS' REPLY.—About half of divers with decompression sickness are found to have right to left shunts.^{1,2} As Peter Wilmshurst states, roughly 15 000 of the 50 000 divers in the United Kingdom would be expected to have a shunt, yet there are only 100 cases of decompression sickness each year. Although a right to left shunt may increase the risk of a diver developing decompression sickness, this additional risk should not be exaggerated.

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- 1 Wilmshurst PT, Byrne JC, Webb-Peploe MM. Relation between interatrial shunts and decompression sickness in divers. *Lancet* 1989;ii:1302-6.
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Site distribution of colorectal cancer

SIR,—It is often stated that about 70% of colorectal tumours are within reach of a flexible sigmoidoscope. This has been reiterated in the ABC of Colorectal Diseases¹ but may be an overestimate. Widespread evidence suggests that the site distribution of colorectal cancer is altered in countries in which there is a high incidence of colorectal cancer.^{2,3}

We have examined the site distribution of the 487 histologically proved colorectal cancers newly diagnosed in Northern Ireland in 1990. This information was available from the database of the Northern Ireland colorectal cancer register. A total of 231 cancers (47.4%) occurred in the proximal colon and beyond the 60 cm range of the flexible sigmoidoscope.

Northern Ireland has one of the highest inci-

dences of colorectal cancer in the world.⁴ We suspect that this altered site distribution may also occur in other areas of the British Isles where there is a high rate of colorectal cancer in the population.

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Immunisation, not vaccination

SIR,—“Immunisation” is now the word of choice to refer to the stimulation of immunity by deliberate intervention without causing the disease in question. “Vaccination” means the stimulation of immunity to smallpox by inoculation of live vaccinia virus. Vaccination is no longer carried out because smallpox has been eradicated. It is now commonly used loosely to refer to any immunisation. The terms immunisation and vaccination are often used together (presumably for emphasis) or interchangeably. They can even be found in the same sentence in respectable journals.¹

The Health Education Authority uses the terms immune, immunise, immunity, and immunisation and completely avoids using vaccination and vaccinate. The only instance in which the authority has found itself unable to avoid using a word derived from “vaccinia” is the term vaccine because no other suitable short word seems to exist. This policy avoids potentially confusing messages being received by people who have no reason to know that these days immunisation and vaccination are likely to mean the same thing. Please would everybody else do the same?

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- 1 White JM, Gillam SJ, Begg NT, Farrington CP. Vaccine coverage: recent trends and future prospects. *BMJ* 1992;304:682-4. (14 March.)

Electrical stimulation of the spinal cord in peripheral vascular disease

SIR,—For several good reasons there is currently considerable interest in debating and determining the place of surgery—particularly major amputation—in the treatment of peripheral arterial disease. Jack Collin, interestingly, dissects the question of critical limb ischaemia and amputation from that of claudication, failure to treat claudication being said to result only in persistence of the symptoms.¹ I wonder how valid pathophysiologically this division is. Might not the pain of claudication be seen as the first indication of critical tissue ischaemia? If this was so and there was an adequate treatment at that early stage to improve the peripheral circulation then it might not simply relieve pain but also protect from future deterioration.

Electrical stimulation of the spinal cord has been

known to relieve the symptoms of peripheral vascular disease for more than 20 years² and to affect the peripheral circulation in the legs for more than 10 years.³ It has been associated with a reduction in the amputation rates from 90% to 38% in comparable groups⁴ and of proved value in clinical series on the continent.⁵ It presumably gets no mention in Collin's editorial as it has evolved from neuroscientific and pain relieving specialties. It is available in several neurosurgical units and being used to treat symptoms of peripheral vascular disease. Although the equipment costs £4500, the technique is essentially non-destructive and its overall price is comparable with that of the alternative of amputation or vascular reconstruction. It certainly deserves mention.

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Home based and hospital care for severe mental illness

SIR,—Clinicians and their managers will be eager to see how applicable M Muijen and colleagues' study of home based care for patients with severe mental illness will be to their own districts.¹

The main determinants of admission to hospital apart from the severity of the disturbance are the contribution of family or friends to care, the sort of home that the patient has, and the capacity of community services. It would be of great value to have some of these items of information for the experimental and control groups both to check further their comparability and so that we can know how they compare with those for other populations. The number and type of sections is a good crude index of all these factors, and it would help to have this information as well. Can I assume that the social services were consulted before patients were taken off a section, and did they object at all in individual cases? Are the day centres that are mentioned comparable to day hospitals?

I made a point survey of the acute services at my own hospital on 25 March. Of the 31 patients, 25 had been admitted on a section, only five had been living with family or friends, 11 lived in their own home but alone, three lived in hostels, four lived in bed and breakfast accommodation, and eight had been sleeping rough. Are these the sort of patients who were seen in Muijen and colleagues' study? Although clinicians would see maintaining patients in the community as good in itself, managers would want to know whether the overall figures for the occupancy of district beds fell during the study.

My district and many other districts in North East Thames region are desperately short of beds. Our managers will no doubt quote this study and suggest that we could manage with fewer beds. It is vital to have fuller information before we can say that they are right or wrong.

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- 1 Muijen M, Marks I, Connolly J, Audini B. Home based care and standard hospital care for patients with severe mental illness: a randomised controlled trial. *BMJ* 1992;304:749-54. (21 March.)

SIR,—M Muijen and colleagues' report, by showing that home based care offers some advantages over hospital based care for patients with severe mental illness, has the potential to influence the deployment of health resources away from inpatient psychiatric care.¹ However, the case for psychiatric admission for patients with psychotic illness, whether or not under the provisions of the Mental Health Act, often relates to the possibility of violence—that is, to suicidal attempts and harm to others. One would expect the assessment of this (which relatively rarely leads to loss of life) to form an important part of the assessment of the case for or against hospital based care.

Muijen and colleagues state that no suicides occurred during the follow up period of their study, but they give no information on suicide attempts and note that one patient cared for at home was charged with homicide. Although it is reassuring to read that “A hospital inquiry cleared the daily living programme from any blame,” I must ask whether in this case the homicidal act was related to psychotic phenomena and whether, had the patient not been allocated to the home care group, he would have been admitted to hospital. If the answer to either of these questions is yes then this outcome (a rare event) ought to form part of Muijen and colleagues' conclusions.

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AUTHORS' REPLY,—O W Hill and T J Crow raise valid points. Community services in our deprived inner London catchment area were minimal. Comparison of the severity of our and Hill's patients requires more direct measures of psychopathology and daily function than are available. His figures of 80% of patients having been admitted on a section and a quarter living rough are high. Of our 187 patients, 27% began the study subject to a section, many had been expelled from their families, and some were sleeping rough. Our community (daily living programme) team's availability sometimes obviated the need for a section. Our team's social worker and her colleagues were consulted when patients were taken off their section, and there were no objections. The decreased length of stay in district beds would have allowed closure of 10 beds for as long as community care similar to the daily living programme continued.

Most patients having home based care had a brief inpatient spell, usually at the outset, and some repeatedly. We did not strive to prevent admissions at all costs but rather to keep them as brief as possible and to maintain continuity of care by making the daily living programme team responsible for the inpatient phase too. That responsibility was a key factor, as later papers will show. Out of 92 patients randomised to the daily living programme, two could not be managed even with inpatient phases and had to be transferred to long term inpatient care.

In the 18 months after entry to the trial three deaths from self harm occurred in the group receiving home based care and two in the control group (details to appear in our final report). Many studies have noted a high death rate in psychotic patients, and there is no easy way to reduce this. The risk remains high despite intensive inpatient or community care, or both. Suicides occur surprisingly commonly even among patients on a section and under 24 hour special observation by nurses.

The homicide by a patient cared for at home