general gynaecological practice is usually 5-10%. Finally, women attending a menopause clinic as controls may not represent a reasonable sample of the normal population and this may have biased the results for comparison, as these women are known to experience symptoms that are a consequence of vasomotor instability.

With these facts in mind I believe that it is inappropriate to consider such variables as detection rates, predictive values, and odds ratios. I await with interest, however, the results of the definitive, well controlled study to evaluate the role of transvaginal ultrasonography and colour flow imaging in the detection of endometrial carcinoma.

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1 Bourne TH, Campbell S, Whitehead MI, Royston P, Steer CV, Collins WP. Detection of endometrial cancer in postmenopausal women by transvaginal ultrasonography and colour flow imaging. *BMJ* 1990;**301**:369. (18-25 August.)

SIR,—We would like to comment on the statement by Dr Thomas H Bourne and colleagues that their, admittedly preliminary, data show great potential.[1] Changes in Doppler values may occur early in gynaecological malignancy, but this is not shown by their results. A number of questions must be answered before the potential of this technique can begin to be determined.

Seventy one per cent of the women with postmenopausal bleeding had already undergone curettage. It seems reasonable to assume that this must have an important effect on Doppler values, though this question was not addressed. How many of the 10 women who did not have curettage before Doppler ultrasonography had cancer? When and how were the endometrial biopsy specimens obtained in the controls? At first sight the controls do not seem to be matched for age. Might age or time since the menopause influence Doppler values? An incidence of endometrial cancer of 50% in women with postmenopausal bleeding is unusually high. This population must have been preselected, but how?

Regardless of how promising new techniques are, the enthusiasm of the authors in speculating on sensitivities and specificities from these data is misleading and raises the alarming prospect of curettage being forgone because of a satisfactory result on Doppler scanning. The authors' continuing innovative approach should be welcomed, but premature publication of these data may lead to the introduction of yet another technique without adequate evaluation.

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1 Bourne TH, Campbell S, Whitehead MI, Royston P, Steer CV, Collins WP. Detection of endometrial cancer in postmenopausal women by transvaginal ultrasonography and colour flow imaging. *BMJ* 1990;**301**:369. (18-25 August.)

AUTHORS' REPLY,—Most of the comments made about our work reflect the fact that the data were published as a short report. The answers to many of the questions raised will be found in our full publication.[1]

We should like to re-emphasise, however, that the patients with postmenopausal bleeding were selected on the basis of medical histories that strongly suggested the presence of endometrial cancer (hence the prevalence of 50%). The predictive value of the screening procedure (but not the detection rate) is affected by the prevalence of the disease. Consequently, the calculation for the odds of finding endometrial cancer at surgery in patients with a positive result on ultrasonography was based on a prevalence of 10%.

We agree that more information is required about the effect of curettage on indices of uterine blood flow—particularly within the tumour in patients with endometrial cancer. Our results to date suggest that the effect of curettage on indices of uterine arterial flow is minimal. Furthermore, about equal numbers of patients with and without cancer were scanned after curettage, and the ultrasonographer was unaware of the exact histological diagnosis at the time of each scan. Consequently, we do not believe that these factors affected the validity of the findings.

The effects of age, years since the menopause, and hormone replacement therapy have been studied in detail.[1,2] Our study aimed to detect early endometrial cancer by a less invasive procedure, and we accept that premalignant conditions might be missed. We disagree, however, that there is no need for a screening procedure for early endometrial cancer.

About 1000 women die from this disease in Britain every year, possibly because postmenopausal bleeding often presents at a late stage. We agree that the precise role of transvaginal colour flow imaging in routine clinical practice can be assessed only from the results of prospective, randomised clinical trials. Nevertheless, we are confident that the advent of this new technique will facilitate screening for endometrial and ovarian cancers at the same examination.

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1 Bourne TH, Campbell S, Steer CV, Royston P, Whitehead MI, Collins WP. The detection of endometrial cancer by transvaginal ultrasonography with color flow imaging and blood flow analysis. *Gynecol Oncol* (in press).
2 Bourne T, Hillard TC, Whitehead MI, Crook D, Campbell S. Oestrogens, arterial status, and postmenopausal women. *Lancet* 1990;**335**:1470-1.

Cell implantation in Parkinson's disease

SIR,—Though we share many of Professor Adrian Williams's concerns regarding human brain transplantations in Parkinson's disease[1] our outlook for the future is more optimistic.

In the past four years it has been shown that brain transplantations performed by trained people in high level medical centres generally produce no permanent adverse effects and can effectively ameliorate parkinsonian signs in some patients.[2-10] This is one of the most remarkable achievements in the recent history of neurobiology and has given new impetus to the study of the central nervous system in health and disease. Granted, the operations have not always been successful, and we are still a long way from a brain transplantation treatment for Parkinson's disease. But the fact that roughly 25-30% of those who have received transplants have benefited from them justifies further experimental clinical transplantations. Of the 41 patients to whom we have given autotransplants or fetal homotransplants, 30% have not responded and 10% have been "harmed," after a follow up of two or more years; 60% have shown appreciable signs of functional recovery and improved quality of life over two to four years. In addition, in those patients who did not respond the rate of progression of the disease may have been slowed.

We regret that this procedure, as has happened with other innovative techniques, has been used inadequately. As we enter the second phase of the development of human brain transplantation many of us have undertaken to define the optimum conditions for the procedure. We are trying to identify the characteristics of the patients who are most likely to benefit from brain transplantation and to determine the best surgical approach, the best tissue for grafting, and the most effective site or sites for implantation. We are developing strategies to enable better evaluation of the patient's neurological condition before and after the transplantation and to evaluate the requirement for immunosuppression after fetal homotransplantation. These issues will be solved only through human trials, although progress will also depend on the parallel development of brain transplantation studies in animals.

Lastly, we would like to correct a mistake in Professor Williams's editorial. The first two fetal homotransplantations used fetal substantia nigra and fetal adrenal tissue separately in two patients and not combined as he stated.[3]

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3 Madrazo I, Leon V, Torres C, *et al.* Transplantation of fetal substantia nigra and adrenal medulla to the caudate nucleus in two patients with Parkinson's disease. *N Engl J Med* 1988;**318**:51.
4 Allen GS, Burns RS, Tulipan NB, Parker RA. Adrenal medullary transplantation to the caudate nucleus in Parkinson's disease. Initial clinical results in 18 patients. *Arch Neurol* 1989;**48**:487-91.
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7 Goetz CG, Tanner CM, Penn RD, *et al.* Adrenal medullary transplant to the striatum of patients with advanced Parkinson's disease: 1-year motor and psychomotor data. *Neurology* 1990;**40**:273-6.
8 Lindvall O, Brundin P, Widner H, *et al.* Grafts of fetal dopamine neurons survive and improve motor function in Parkinson's disease. *Science* 1990;**247**:574-7.
9 Madrazo I, Franco-Bourland R, Ostrosky-Solis F, *et al.* Neural transplantation (auto-adrenal, fetal nigral, and fetal adrenal) in Parkinson's disease—the Mexican experience. *Prog Brain Res* (in press).
10 Madrazo I, Franco-Bourland R, Ostrosky-Solis F, *et al.* Fetal homotransplants (ventral mesencephalon and adrenal tissue) to the striatum of parkinsonians. *Arch Neurol* (in press).

Lessons from preliminary evaluation of a year's medical audit

SIR,—Dr John Gabbay and colleagues report that audit led to improvements in aspects of care.[1] We have not found similar benefits from audit.

The department of geriatric medicine has been actively participating in medical audit since January 1989. To set standards to compare existing practices the three consultants met to prepare a checklist containing items of information considered important for good geriatric practice. The checklist was used to audit medical case notes.

Each month two sets of case notes of patients treated under the care of each consultant were selected randomly (as recommended by the Royal College of Physicians[2]) by the secretary and reviewed by one of his or her colleagues. For an objective analysis we developed a scoring system.

Analysis of figures over eight months showed no significant improvement in recording information despite regular monthly meetings being held. In fact, the recording of some of the items such as social history, assessment of mental state, and rectal examination deteriorated with time.

Appreciable improvements were achieved only after we had developed and introduced a standardised admissions form. Full results of our 12 months' experience will appear elsewhere.[3]

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1 Gabbay J, McNicol MC, Spiby J, Davies SC, Layton AJ. What did audit achieve? Lessons from preliminary evaluation of a year's medical audit. *BMJ* 1990;**301**:526-9. (15 September.)
2 Royal College of Physicians. *Medical audit—a first report: what, why and how?* London: RCP, 1989.
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"Will the white paper slay the dragon?"

SIR,—Dr Graham M Hunter rightly stresses the importance of training for receptionists,[1] but, as Ms Ann Stewart states, many receptionists are given little or no training.[2]

In 1984 less than 10% of receptionists had received formal training, although the Association of Medical Secretaries, Practice Administrators, and Receptionists has been training administrative staff for 25 years. Most training has been on a full time basis and courses lead to certificates in medical reception, a diploma in medical secretarial studies, and a diploma in practice management. Approximately 3000 students take these courses each year, and members of the association are sought for key positions in medical administrative work. Local short courses are now being provided by Radcliffe Medical Press in cooperation with the association. The secretary of state has stated that "from April 1st 1990 employees are to be suitably qualified and competent and given training." The Joint Committee for the Continuing Education of Practice Administrative Staff oversees all short courses registered with it and issues certificates of attendance for those who complete an approved course. The committee has arranged a national symposium in Birmingham University Postgraduate Centre on 10 November 1990, with the theme "The pace of change." Colleagues who would like further information about the symposium may contact Doris Gilhespy, secretary to the joint committee, at Tavistock House North, London WC1H 9LN, telephone 071 387 6005.

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1 Hunter GM. Will the white paper slay the dragon? *BMJ* 1990;**301**:443. (1 September.)
2 Stewart A. Will the white paper slay the dragon? *BMJ* 1990;**301**: 443-4. (1 September.)

Sleep disorders in children

SIR,—The adage if you don't get your sleep you won't grow quoted by Drs M Z Shaheen and W J Windebank[1] may not hold for the population in general.

In a survey of 9913 children aged 5 to 11 undertaken as part of the national study of health and growth the amount of time spent sleeping was assessed by a questionnaire completed by parents.[2] Measurements of height and completed questionnaires were obtained for 5145 children. After adjusting for other variables known to be associated with height there was a weak negative association between the amount of sleep and height. Growth does not seem to be related to total duration of sleep, even though it may be related to quality of sleep.

Parents who use this adage as a means of encouraging their children into bed may have to develop new tactics in future or risk losing credibility.

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1 Shaheen MZ, Windebank WJ. Sleep disorders in children. *BMJ* 1990;**301**:607. (22 September.)
2 Gulliford MC, Price CE, Rona RJ, Chinn S. Sleep habits and height at ages 5 to 11. *Arch Dis Child* 1990;**65**:119-22.

Drug Points

Pseudopolymyalgia rheumatica with dipyridamole

Drs PHILIPPE CHASSAGNE, OTHMANE MEJJAD, CATHERINE NOBLET, OLIVIER GOURMELEN, and NICHOLAS MOORE and Professors XAVIER LE LOËT and PIERRE DESHAYES (Hôpital de Boisguillaume, BP 100, 76233 Boisguillaume Cedex, France) write: Dipyridamole is widely prescribed as an antiplatelet drug. Its side effects are usually mild and related to its vasodilator properties; the only severe side effect recorded to our knowledge is ischaemia related to vascular steal.

A 59 year old man had been treated with fluindione since 1981, when he had had a myocardial infarction. No other treatment was given. On 31 May 1989, after minor accidental foot trauma, his treatment was reviewed and the anticoagulant was stopped. Dipyridamole (225 mg daily) was introduced on 19 June. Three days later he started complaining of severe muscular pain in all four limbs, especially in the shoulders and the pelvic girdle. These aches were permanent, causing insomnia, and were accompanied by morning stiffness lasting three hours. He reported later that the muscle pain increased sharply 20 minutes after each ingestion of the drug and thereafter slowly decreased, without totally disappearing, until the next dose. The initial brand of dipyridamole (Persantin) was changed for another brand (Cleridium) with different excipients two days after the pain started, without any influence on the symptoms. Aspirin (1·5 g daily) had no effect on the pain.

The pain steadily worsened, and he was admitted to the hospital on 28 June. He had no dyspnoea, fever, or eye or skin manifestations but complained of mild headache. The muscles seemed normal and were not painful on palpation, but active mobilisation of his arms and legs caused intense pain. The results of neurological and physical examinations were normal, as were the results of laboratory tests, including blood cell counts; serum creatinine concentration; creatine phosphokinase, aldolase, and lactate dehydrogenase activities; and triiodothyronine and thyroxine concentrations. His erythrocyte sedimentation rate was 34 mm in the first hour. Electromyograms of all his limbs appeared normal.

This patient had a condition closely resembling acute pseudopolymyalgia rheumatica. Though the doctors had not initially related the disorder to dipyridamole, the patient suspected this and stopped the drug on the day of the admission: the pain completely disappeared within 48 hours, and subsequently he had no more pain. Retrospectively his symptoms seem clearly related to dipyridamole: they had never occurred before and did not recur after he stopped the drug. Though we did not try a reintroduction, the patient had noted a worsening of the symptoms each time he took the drug and had established a relation between the drug and the symptoms. He took no other drug, and there was no other obvious cause for his condition, but the search for causes was stopped when the symptoms receded. Another cause seems unlikely given the completely trouble free follow up. No other case has been reported to the manufacturer or to the French national system, though a few cases seem to have been reported to the Committee on Safety of Medicines. The mechanism by which the drug caused the effect is unclear: a steal effect could not explain such diffuse pain.

Diabetes mellitus in a patient with AIDS after treatment with pentamidine aerosol

Drs A FISCH, T PRAZUCK, J E MALKIN, O PATEY, and C LAFAIX (University Hospital, Villeneuve St George, 94190 France) and Dr H LEBLANC (St Louis University Hospital, Paris) write: Systemic administration of pentamidine is known to cause glycoregulation disorders. Such disorders have not been reported in patients treated with inhaled pentamidine, although one patient with hypoglycaemia that could not be attributed to other causes[1] and two possible cases of pancreatitis[2] have been reported.

A 56 year old man became infected with HIV in 1984 after multiple transfusions for a coronary graft bypass. Four years later antibodies to HIV were detected.

He was admitted to hospital with *Pneumocystis carinii* pneumonia and was treated with cotrimoxazole for three months and then by one aerosol inhalation a month of 300 mg of pentamidine isethionate. Eight days after the third inhalation he presented with asthenia, polyuria, and polydipsia. Fifteen days later examinations showed that he had lost 3 kg in a month and had a fasting glycaemia of 25·3 mmol/l. No prior sign of hypoglycaemia was noted. This episode of diabetes was brought under control after three days with 35 units of regular insulin. Ten days later it was possible to stop treatment with insulin. Three months later normal fasting glycaemia was maintained by diet alone.

No complications related to HIV infection or causes or factors conducive to diabetes were found. He had no family history of diabetes, his weight had been normal (69 kg, height 179 cm) and stable throughout life, he did not overindulge in alcohol, and he did not take any drug known to cause diabetes; antibodies to islets of Langerhans were not detected. When diabetes developed pentamidine aerosol was replaced with dapsone. On the day that his diabetes was detected (25 days after the last aerosol inhalation) no pentamidine was detected in the blood.

The pancreatic toxicity of pentamidine is generally considered to be dose dependent direct toxicity. If this was the case in our patient he must have been particularly sensitive to pentamidine. Other explanations are that the pulmonary absorption of pentamidine might be abnormally high in some patients, contrary to that indicated by pharmacokinetic studies,[3] or that a toxic mechanism that is not dose dependent may exist.

1 Karboski JA, Godley PJ. Inhaled pentamidine and hypoglycemia. *Ann Intern Med* 1988;**108**:490.
2 Herer B, Chinet T, Labrune S, Collignon MA, Chretien J, Huchon G. Pancreatitis associated with pentamidine by aerosol. *BMJ* 1989;**298**:605.
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Correction

Bedding and sleeping position in the sudden infant death syndrome

An authors' error occurred in this letter by Drs Adèle C Engleberts and Guus A de Jonge (8 September, p 493). References 2 and 3 are in the reverse order. Thus the study of arterial oxygen concentration should be attributed to Levine and McKenzie and not to the authors of the letter.