- 2 Hannah M, Hannah W. Caesarean section of vaginal birth for breech presentation at term. *BMJ* 1996;312:1433-4. (8 June.)
- 3 Collea JV, Chein C, Quilligan EJ. The randomised management of term frank breech presentation: a study of 208 cases. *Am J Obstet Gynecol* 1980;137:235-44.
- 4 Gimovsky ML, Wallace RL, Schiffrin BS, Paul RH. Randomized management of the nonfrank breech presentation at term: a preliminary report. *Am J Obstet Gynecol* 1983;146:34-40.
- 5 Barrett G, Victor CR. Postnatal sexual health. *BMJ* 1994;309:1584-5.

Authors' reply

EDITOR,—We think that Jonathan West's cost calculations are speculative; one would have to take into account the cost of the extra (roughly 600) caesarean sections required to prevent the one possibly avoidable case of severe disability, plus the cost of the resulting increased number of caesarean sections in future pregnancies. Best practice should not be determined by the risk and cost of litigation but should aim to achieve the best outcome for the mother and baby.

We agree with P S Bhal and colleagues that it would be interesting to look at the outcome of cases after external cephalic version, but this is not relevant to the problem of how a fetus presenting by the breech at term should be delivered. External cephalic version in women at term was not used during study.

We also agree with Sarah Vause that a similar study for undiagnosed breech presentations would be of interest. There were no undiagnosed breech presentations in the group with severe disability in our study; we could not ascertain the number in the group with no disability at all, but it is likely to have been too small for separate analysis.

Geraldine Barrett and Christina R Victor are correct to point out that the long term morbidity of the mother should be considered. We think, however, that the data that they quote refer mainly to cephalic presentations (ventouse deliveries are rare in breech presentations); in breech presentations, forceps are most often used to prevent rapid delivery of the head rather than just to provide traction when there is an element of dystocia, as is the case in cephalic presentations. Trauma to the mother may therefore be less severe. Clearly, such trauma will occur in some cases of vaginal breech delivery, but what the long term effects of this are and how they compare with those after cephalic deliveries or caesarean sections is unknown. Hopefully, these questions will be addressed by a prospective randomised trial, as proposed in the editorial by M Hannah and W Hannah.¹

PETER DANIELIAN
Senior registrar
MARION HALL
Consultant

Department of Obstetrics and Gynaecology,
Aberdeen Maternity Hospital,
Aberdeen AB9 2ZA

- 1 Hannah M, Hannah W. Caesarean section of vaginal birth for breech presentation at term. *BMJ* 1996;312:1433-4. (8 June.)

French regulatory medical references are criteria, not clinical guidelines

EDITOR,—Karen Bloor and Nick Freemantle misuse the word "guidelines" when they introduce the subject of the French national contract in their article on international experience in controlling pharmaceutical expenditure.¹ In France doctors must prescribe in keeping with "regulatory medical references" and not extensive guidelines. The regulatory medical references were defined in 1993. They consist of one to three sentences, beginning with the words "*Il n'y a pas lieu de ...*" ("It is inappropriate to ..."). They have been defined as "recognised scientific criteria that make it possible to define inappropriate care and prescriptions, and the frequency at which such care or prescriptions are used by the patient."²

Writing that "147 guidelines are in force" in France may mislead readers. The Agence Nationale pour le Développement de l'Évaluation Médicale (ANDEM) has defined "guidelines" (as have other institutions): "Clinical practice guidelines are systematically-developed statements which aim to assist practitioner and patient decisions about the appropriate health care for specific clinical circumstances. This method of evaluation is generally entrusted to a small group of experts which analyses both the literature and the opinions of health professionals." A guideline is an extensive document containing the positions of a group of experts derived by use of an explicit method. ANDEM has published 48 guidelines, from which 74 regulatory medical references have been extracted.³

Other points need to be emphasised. Firstly, regulatory medical references do not apply to hospital practice; they apply only to the private outpatient sector. This means that the regulatory policy could have a higher impact than the figures given by Bloor and Freemantle suggest. Secondly, ANDEM has published a guideline on drugs prescribed to patients aged over 70, but doctors are not bound by regulatory medical references on this topic. This means that the other ways of providing information to prescribing doctors will bias the results attributed to the implementation of the regulatory medical references. Thirdly, the prescribing practice of 1278 private doctors was inspected over two months before 30 November 1995. A total of 186 had contravened the binding criteria, of whom 75 were fined up to Fr 15 000 (£2000) (these doctors were overprescribers who had already been identified by the local insurance fund).

Finally, it is wrong to say that "as an incentive for following these guidelines, doctors were awarded a 5% increase in their fees." This increase was awarded after negotiations between doctors' unions, social security, and the health ministry. It was a trade off that was related more to the budgetary constraints placed on the rate of increase in outpatient expenditure than to the regulatory medical references.

HERVÉ MAISONNEUVE
Medical references manager
CYRILLE COLIN
Editor in chief, *Journal d'Economie Médicale*
YVES MATILLON
Director

Agence Nationale pour le Développement de l'Évaluation Médicale,
159 rue Nationale,
75640 PARIS Cedex 131,
France

- 1 Bloor K, Freemantle N. Lessons from international experience in controlling pharmaceutical expenditure. II. Influencing doctors. *BMJ* 1996;312:1525-7. (15 June.)
- 2 Arrêté du 25 novembre 1993 portant approbation de la convention nationale des médecins. *Journal Officiel de la République Française* 1993;26 Nov:16297-311.
- 3 Agence Nationale pour le Développement de l'Évaluation Médicale. *Recommandations et références médicales*. Vols 1 and 2. Paris: ANDEM, 1995.
- 4 Lalardrie S. Rôle des caisses d'assurance maladie dans l'élaboration et l'application des références médicales opposables. *Arch Pediatr* 1996;3(suppl 1):261-2s.

Monitoring oral anticoagulation in primary care

GPs in Wales send blood samples to clinic, get results in post, and decide dose

EDITOR,—D A Fitzmaurice and colleagues' editorial on monitoring oral anticoagulant treatment in primary care exposes a debate that has

been simmering for some time.¹ Our hospital, in a rural area in north east Wales, has never had an anticoagulant clinic. In addition, there is no near patient testing for the control of anticoagulation at present. In our system, blood samples are sent from general practice to the hospital laboratory, where the international normalised ratio is measured. Results are sent by return of post (no specific dose is recommended), and on the basis of these results the general practitioner decides the dose for the patient. Any results outside the range 2.0-4.5 are telephoned to the general practitioner the same day, and any result dramatically outside this range is discussed with the general practitioner immediately.

This system relieves the haematologist of what many of our colleagues are finding to be an arduous clinical commitment. The patient does not have to come to hospital or wait in an anticoagulant clinic, and the general practitioner has the full clinical details of the patient's treatment readily available when he or she decides the dose. Audit of the system has shown that the general practitioners involved show skill in deciding the dose. The down side is the number of tests performed: we have seen a steady increase in requests for measurement of the international normalised ratio from general practice over the past few years. We suspect that much of this may be due to the interval between tests being too short. One solution would be for the anticoagulant laboratory to have a (non-human) expert system to provide advice on the dose and interval between tests. We and our clinical colleagues are extremely satisfied with our present system and would highly recommend it.

D I GOZZARD
Consultant haematologist
ALISON CRAIG
Staff haematologist

Glan Clwyd District General Hospital,
Rhyll,
Clwyd LL18 5UJ

- 1 Fitzmaurice DA, Hobbs FDR, Murray JA. Monitoring oral anticoagulation in primary care. *BMJ* 1996;312:1431-2. (8 June.)

Integrated, proactive laboratory based approach is effective

EDITOR,—We recognise many of the problems outlined by D A Fitzmaurice and colleagues in their editorial on monitoring oral anticoagulant treatment in primary care but think that they are unlikely to be resolved in primary care.¹ Lack of consistency is not limited to outpatient anticoagulant treatment; it extends to hospital inpatients and the interface between hospitals and the community. Problems include variation in practice between clinical teams, a dangerously long interval between inpatient induction and the first outpatient appointment for measurement of the international normalised ratio, and changes being made to the dose of warfarin or concurrent interacting drugs without the anticoagulant clinic being told.

These problems have contributed to a fragmented and in many instances inefficient service. Our approach has been to devise a laboratory based anticoagulant management system that ensures full integration of care—that is, from inpatient induction to oral anticoagulation to outpatient monitoring as well as anticoagulant treatment during any subsequent readmissions to hospital.

The system is based on a computerised decision support system (4S Business Technology) for drug doses and for recalling patients. The target therapeutic ranges used are those recommended by the British Committee for Standards in Haematology. There are nine clinic sessions a week and a home phlebotomy service for infirm patients, which provides flexibility of

access, and a telephone helpline is provided during office hours. A team of dedicated scientific staff, who have the time and resources to concentrate on all aspects of anticoagulant treatment and are supervised by the consultant clinical haematologist, provide advice within the hospital and to general medical and dental practitioners, pharmacies, and social services to promote optimal control. The centralised setting facilitates audit and ensures technical and scientific back up, with easy access to a consultant haematologist when needed.

The adoption of this approach has led to a considerable improvement in control of anticoagulation. Several studies have shown that, with conventional management of anticoagulant treatment, patients' international normalised ratio is within the recommended therapeutic range for half or less of the time.^{2,3} The figure is worse in patients when they are first treated: in 47 such patients the target range was achieved only 40% (range 17-62%) of the time.³ A direct comparison of 34 of our patients taking anticoagulants long term showed that the proportion of the time for which the ratio was in the therapeutic range increased from 50.3% (0-100%) to 77.3% (60-100%) after the introduction of our integrated, proactive approach. In 38 patients the ratio was in the desired target range for 66.2% (41-93%) of the time during their first year of treatment.

R WILMOT

Senior clinical scientist in haematology

J BANKS

Biomedical scientist in haematology

M C GALVIN

Consultant clinical haematologist

Pinderfields General Hospital,
Wakefield WF1 4DG

1 Fitzmaurice DA, Hobbs FDR, Murray JA. Monitoring oral anticoagulation in primary care. *BMJ* 1996;312:1431-2. (8 June.)

2 Lip GYH, Beevers GD, Coope JR. Atrial fibrillation in general and hospital practice. *BMJ* 1996;312:175-8. (20 January.)

3 Taylor FC, Ramsay ME, Renton A, Cohen H. Methods for managing the increased workload in anticoagulant clinics. *BMJ* 1996;312:286. (3 February.)

Shared care can work

EDITOR,—We welcome D A Fitzmaurice and colleagues' reference to quality assurance in their editorial on monitoring anticoagulation in primary care.¹ In 1993 we have introduced a formal shared care policy for monitoring oral anticoagulant treatment in a district where few general practitioners are prepared to manage their own patients.² This policy clearly defines areas of responsibility for the hospital, general practitioners, and community nurses.

A "yellow anticoagulant book" is used as the principal means of communication. Patients are initially seen in the clinic and are subsequently transferred to a community sampling system.

Blood samples are taken either by the district nurse or at the patient's local surgery on a date notified to the patient in his or her yellow book and to the community nurse by a computer generated letter. The samples are processed at the laboratory, results passing direct to a computer system that recommends doses and maintains the clerical aspects of the clinic, including follow up appointments and letters. It also facilitates access to a large database. All patients who are required to change their dose of warfarin urgently are telephoned, and if the international normalised ratio is >10 they are asked to attend the hospital for full assessment and administration of vitamin K. The remaining patients receive their yellow book by first class post, with a printed label stating the dose and date of the next test. General practitioners remain responsible for prescribing the warfarin tablets and ensuring that the clinic is made aware of important changes in drug treatments as well as checking the patient's yellow book for recent results and doses.

Our findings do not suggest that the lack of direct contact with a doctor is detrimental to patients in terms of serious bleeding problems or control, especially when these findings are compared with published data (table 1).^{3,5} The approximate cost per measurement of the international normalised ratio and recommended dose is less than £7.

A remote dosing system is an effective means of accommodating the recent large increase in workload, provided that all participants understand their responsibilities. The system benefits patients, who do not need to attend hospital, and general practitioners, who do not have responsibility for deciding the dose of anticoagulant or maintaining a clinic system but who do have a defined responsibility for the continuing care of the patients. The centralisation of the system allows for good quality assurance, ready availability to a database for audit, and the cost benefits of processing large numbers of blood samples.

We thank the participants in the North Nottinghamshire shared care scheme for their support and acknowledge the contribution of the Nottinghamshire Anticoagulant Working Group, especially Dr P A E Jones.

ELISABETH C M LOGAN

Consultant haematologist

MARTIN J AUGER

Consultant haematologist

PETER COTTON

Chief biomedical scientist

PETER I OTTER

Pathology systems manager

King's Mill Centre for Health Care Services,
Sutton in Ashfield NG17 4JL

1 Fitzmaurice DA, Hobbs FDR, Murray JA. Monitoring oral anticoagulation in primary care. *BMJ* 1996;312:1431-2. (8 June.)

2 Taylor F, Ramsay M, Voke J, Cohen H. GPs are not prepared for monitoring anticoagulation. *BMJ* 1993;307:1493.

Table 1—Comparison of manual audit of serious bleeding problems over seven months in 1991 with 12 month computerised audits in 1994-6

	1991	1994-5	1995-6
No of patients registered	577	1235	1621
No of measurements of INR requested	4635	11 010	15 426
No (%) of samples obtained in community	1390 (30)	7870 (71)	11 813 (77)
% (95% confidence interval) of INRs within therapeutic range*	NK	64 (62.9 to 65.1)	63 (61.7 to 63.7)
No (%) of INRs >10	14 (0.3)	17 (0.2)	14 (0.1)
No of serious bleeding episodes requiring fresh frozen plasma and vitamin K:			
INR >10	3	4	2
INR 6-10	NK	4	4
INR <6	NK	9	4
Total No (% of patients)	NK	17 (1.4)	10 (0.6)

INR = International normalised ratio. NK = Not known.

*Either 1.9-3.1 (target 2.5) or 2.7-4.6 (target 3.6).

3 Radley AS, Hall J, Farrow M, Carey PJ. Evaluation of anticoagulant control in a pharmacist operated anticoagulant clinic. *J Clin Pathol* 1995;48:545-7.

4 Galloway MJ, Foggin JJ, Dixon S. Introduction of computer assisted control of oral anticoagulation in general practice. *J Clin Pathol* 1995;48:1144-6.

5 Taylor FC, Ramsay ME, Renton A, Cohen H. Methods for managing the increased workload in anticoagulant clinics. *BMJ* 1996;312:286. (3 February.)

"Meteorobiology" may have a role in sudden infant death

EDITOR,—A S Douglas and colleagues conclude that seasonal variation in the sudden infant death syndrome is an unexplained epidemiological feature with the potential to be an important clue to the aetiology of the syndrome.¹ They addressed the possible role of exposure of the eyes to light. Sunlight has powerful biological effects—for example, on the metabolism of vitamin D, on the immune system, and in the aetiology of depression during the autumn and winter.

Given an epidemiological correlation between light and sudden infant death, it would be important to identify tissue changes in victims that might be influenced by exposure to light. There are some hints from earlier research. Firstly, in the older German literature there was a discussion on rickets and sudden death. But researchers into sudden infant death have found a widely varying incidence of rickets at necropsy, of 2-78%.² Secondly, Sparks and Hunsacker found altered aminergic-cholinergic synaptic markers in the hypothalamus of victims of sudden infant death, which may have led to critically disturbed sleep function in these infants.³ Thirdly, in his book on "human meteorobiology" De Rudder described the influences of weather and climate on tissues, organs, and the organism as a whole.⁴ Of special interest are the histological differences in the thyroid gland between rats exposed to light and rats living in darkness. Rats living in darkness characteristically showed an increased number of follicles with a high epithelial and low colloid content.⁴ An identical histological pattern was described by Weiler in 70% of victims of sudden infant death in his study.⁵

The hypothesis of an association between light and sudden infant death, derived from epidemiological findings, needs to be complemented by systematic histological and biochemical research. The concept of "meteorobiology" may well be fruitful.

BERNHARD SCHLÜTER

Paediatrician

Vestische Kinderklinik Datteln,
Universität Witten-Herdecke,
D-45711 Datteln,
Germany

1 Douglas AS, Allan TM, Helms PJ. Seasonality and the sudden infant death syndrome during 1987-9 and 1991-3 in Australia and Britain. *BMJ* 1996;312:1381-3. (1 June.)

2 Althoff H. *Sudden infant death syndrome (SIDS)*. 2nd ed. Stuttgart: Gustav Fischer, 1980:33-5.

3 Sparks LD, Hunsacker III JC. Sudden infant death syndrome: altered aminergic-cholinergic synaptic markers in hypothalamus. *J Child Neurol* 1991;6:335-9.

4 De Rudder B. *Grundriss einer Meteorobiologie des Menschen. Wetter und Jahreszeiteninflüsse*. 3rd ed. Berlin: Springer, 1952:197-205.

5 Weiler G. Rechtsmedizinische und diagnostische Aspekte des plötzlichen Kindstodes. In: Andler W, Schläpke ME, Troitzsch E, eds. *Der plötzliche Säuglingstod*. Berlin: Acron, 1989:63-72.

Prevalence of antibiotic resistance in pneumococci

Prevalence of resistance to penicillin is higher in east London ...

EDITOR,—Alan P Johnson and colleagues report that the prevalence of intermediate or full resistance to penicillin was 3.9% in England and Wales in 1995 and that the prevalence of resistance to erythromycin was 8.6%.¹ We have examined the