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.

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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.

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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).

"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.

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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