because an increasing proportion of patients with Dukes's type C disease are likely to have been offered chemotherapy and not entered into a control arm of no treatment. Follow up also needs to be adequate to allow for a sufficient number of events to occur.

To my knowledge all randomised trials of fluorouracil and levamisole or fluorouracil and folinic acid for which full results are available have shown a significant survival advantage for Dukes's type C colon cancer. This must be unusual in any tumour. I focused specifically on Dukes's type C cancer and pointed out that the role of adjuvant chemotherapy in patients with type B disease remains uncertain because trials have been too small to answer the question as the number of events is much lower. Limitation of space precluded detailed discussion of the data in patients with type B cancer.

It is difficult to know how Gray and Northover have arrived at their cautious estimates of the numbers needed to treat to achieve a cure. The available data on Dukes's type C colon cancer suggest an effect similar to that achieved in breast cancer, in which adjuvant chemotherapy is now standard practice.

The benefits obtained from adjuvant chemotherapy cannot be compared to the benefits obtained from surgery in Dukes's type C colon cancer, but adjuvant chemotherapy is an addition to surgery rather than an alternative. The recent improvements in treatment, however modest, are a welcome departure from the many years of the therapeutic desert that previously characterised this disease.

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Getting urgent information to doctors

EDITOR,—Using electronic mail and the Internet to ensure rapid and systematic communication of urgent material from the Department of Health to general practitioners, as Rank Sullivan reports,¹ seems an obvious and long overdue move. An efficient "electronic cascade" could link many parts and functions of the health service, including departments of public health, hospitals, and colleagues in other countries. It could even make sound business sense for the NHS to form its own Internet access company, thus reducing the estimated commercial monthly access costs of £100. However, constructing and supporting an electronic cascade is a more complex issue than Sullivan suggests.

Firstly, additional costs would be borne not only by the 5-8% of practices without computers but by others who would require hardware upgrades to support email and Internet access.

Secondly, training costs are likely to be higher than the £50 estimated. Both administrative and professional staff would require additional skills, particularly where networked computer systems are in use. Training needs are likely to be continuous, rather than one off, to cover staff turnover and expanding technology and to ensure enough trained staff for coverage.

Thirdly, a major shift in the management culture of most practices would be required to move from a mail and paper driven system to an electronic system. In the interim, urgent messages could be screened by an operator, such as the practice manager, and then circulated in paper format.

Finally, anyone who uses email or works in a networked environment knows how time consuming it can be to scan through endless, often "junk," messages or to access web sites. Managing our paper-filled in trays was quicker, as paper conveyed more complex visual signals, allowing for rapid handling (toss, act, read, or file)²—it takes longer to evaluate the relevance of an item on the screen. A secure and properly monitored hotline system would need to be devised, otherwise urgent messages will be delivered but still unavailable, buried in a mounting pile of information overload.

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Health link between countries should be global

EDITOR,—I am on the editorial board of the South African edition of the *BMJ*. In reviewing the issue of 25 November last year I rated the article on Creutzfeldt-Jakob disease and bovine spongiform encephalopathy¹ as 2 on a scale of 4 for its relevance to medical problems in South Africa. My error of judgment was due to the fact that I was not aware that South Africa imported British beef for local consumption. With this knowledge, and because of the present debate,² I would now rate the article as 4.

Disease knows no boundaries; business knows no boundaries; and a combination of both makes the so called global village (the world) a small village indeed. This emphasises the urgency of inviting developing countries to participate in the recently formed health link between the European Union and the United States.³ It is in developing countries that some of the diseases make their first appearance (for example, infection with Ebola virus), but facilities are usually inadequate to detect them early and contain them. Early inclusion of these countries in the link would improve the effectiveness of the system and make it truly global.

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One stop shopping for global health information

EDITOR,—Home pages on the Internet are a primary means to locate information. Currently there are over 70 000, and the number is increasing rapidly. These pages are like electronic catalogues—for example, the home page of the British Medical Journal (<http://www.bmj.com/bmj/>) houses the electronic version of the journal.

With help from people from the National Aeronautics and Space Administration (NASA), the Pan-American Health Organisation, the World Bank, and AT&T, we have created a

Global Health Network home page which identifies the epidemiological and public health information and data that are on the Internet. A multilingual version will soon be available with translations in Japanese, Spanish, and Portuguese. Included in the home page are specialty pages for laboratories, minority health, molecular epidemiology, reproduction and contraception, etc. Subpages continue to be added as there is considerable interest to have one's home page where people see it, and the Global Health Network's home page is being visited regularly by people around the world. It is becoming a leader in health on the Internet: almost 800 people a day come to visit. We invite people to come, visit, and potentially contribute to the development and expansion of Global Health Network home page. Global health can be improved if health workers have access to the Internet and can go to a place such as the Global Health Network home page (<http://www.pitt.edu/HOME/GHNet/GHNet.html>) to find information readily.

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Monitoring the frequency of side effects of drugs

Reasons for stopping drugs could be recorded in general practice

EDITOR,—R Bracchi highlights the need for general practitioners to have more information on the frequency of adverse drug events.¹ Premarketing trials, which are limited by their small size, short duration, narrow set of indications, and exclusion criteria, provide some data but may not accurately reflect clinical practice.² Spontaneous reporting after marketing (the yellow card scheme) is an essential early warning system, but many adverse drug events remain unreported, one of the reasons being lack of confidence in diagnosing an adverse reaction.³ We describe here an alternative source of information on adverse drug events experienced in general practice.

We have studied a large, continuing survey of reported reasons for stopping drug treatment among a panel of British general practitioners (the new and changed therapy enquiry). Every quarter, a representative sample of 250 doctors records all drugs that are prescribed for a patient for the first time, all drugs that are withdrawn from a patient, and the reasons for withdrawal over a four week period. This provides 4000 doctor weeks of prescribing annually. There are several advantages to obtaining information on all adverse events sufficient to result in withdrawal of drug treatment by general practitioners: the doctors are not required to decide when such an event requires reporting; the event does not have to be causally linked to the drug; the frequency of events necessitating withdrawal of a drug in clinical practice can be calculated to provide an adverse event profile; and clusters of unexpected events can be tested for causality in conventional incidence studies.

Table 1 reports the commonest reasons given by general practitioners in the sample for stopping four non-steroidal anti-inflammatory drugs. We intend to pilot the instrument on a general practice computerised database which already collects routine prescribing, demographic, and morbidity data.⁴ This will provide more accurate information on the numbers of patients taking each drug, permit confounding factors to be considered, and allow prospective follow up of patients.

The safer use of medicines requires improved education⁵ and more information.¹ In addition, novel methods of postmarketing surveillance are required that work in conjunction with existing

Table 1—Commonest reasons for stopping selected non-steroidal anti-inflammatory drugs in general practice database of 4000 prescribing weeks per year (new and changed therapy enquiry) between November 1990 and October 1995. Figures in parentheses are percentages of total withdrawals

	Ibuprofen	Diclofenac	Naproxen	Indomethacin
Total No of newly started courses	15286	9880	5839	1795
Side effects resulting in drug being stopped*:				
Anaemia	9 (0.6)	14 (1.0)	9 (1.4)	2 (0.5)
Rash	63 (4.2)	64 (4.8)	23 (3.6)	6 (1.5)
Dyspepsia	1103 (74.0)	950 (70.8)	488 (76.0)	247 (63.7)
Constipation	14 (0.9)	11 (0.8)	9 (1.4)	1 (0.3)
Diarrhoea	49 (3.3)	91 (6.8)	14 (2.2)	13 (3.4)
Urgency of micturition	3 (0.2)	4 (0.3)	1 (0.2)	2 (0.5)
Cardiac	25 (1.7)	27 (2.0)	13 (2.0)	2 (0.5)
Respiratory	19 (1.3)	24 (1.8)	1 (0.2)	8 (2.1)
Vertigo	15 (1.0)	36 (2.7)	7 (1.1)	29 (75)
Headache	15 (1.0)	20 (1.5)	7 (1.1)	46 (11.9)
Anxiety	6 (0.4)	7 (0.5)	2 (0.3)	2 (0.5)
Total stopped	1490	1341	642	388
Ratio of stopping to starting	0.10	0.14	0.11	0.22

*Numbers do not add up to total in each column as only commonest side effects are listed.

national systems for monitoring the safety of drugs. We are testing the feasibility of incorporating reasons for withdrawal into routine data collection, on an automated general practice database, as a new method of monitoring drugs.

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Data from several sources are needed to show numbers taking drugs

EDITOR,—R Bracchi raises the point of how many patients are taking a drug.¹ Pharmaceutical companies would very much like accurate data on this to help with calculations of the reported incidence of adverse drug reactions and with commercial monitoring. Several practical difficulties arise. The data cannot be obtained from the point at which prescriptions are measured since not all prescriptions written are dispensed and not all drugs prescribed are consumed.

For a product whose patent is protected—that is, no generic can be dispensed—the frequency of use can be estimated by calculating the shipped out British volume and dividing this by a recommended dose. This can be confounded by parallel imports from suppliers in the European Union which are not routed through the British company. Customs and Excise data for imports do not clarify this. A defined daily dosage can be used to convert these data into notional prescriptions and patients, but this may be misleading if the dose and duration of treatment vary. Use of the prescribed daily dosage is more realistic.

A possible solution would be to use the Prescription Pricing Authority's data on prescriptions dispensed. However, more medicines are moving from being available on prescription only to being available in pharmacies and even on the general sales list while remaining prescribable. The self medication element of these drugs is missing from the Prescription Pricing Authority's data. Also potentially missing are prescriptions costing less than £5.50 for patients who have to pay for their prescriptions (currently about half), which represent about 15% of prescriptions. These proportions vary according to the therapeutic class.

For a drug whose patent is no longer protected there may be many suppliers of generic drugs, and, unless the prescribing data are pooled, a true figure for use is unlikely to be obtained. Most safety reports for generic drugs still go to the companies that originated the branded drug.

The best ideas at present are probably to use a mixture of data on shipments from manufacturers; market research audits of purchasing, prescriptions, and conditions; the Prescription Pricing Authority's data for the United Kingdom, not just England; and judgment. It would be helpful if the Prescription Pricing Authority's data included both NHS and private prescriptions and if data could be made more accessible for non-NHS and non-academic researchers. Finally, a process for recording, or at least estimating, numbers of patients from prescription data would be helpful.

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Teenage sex

Trend towards earlier menarche stopped 30 years ago

EDITOR,—In her editorial on teenage sex Sue Stuart-Smith gives the impression that there is still a trend towards earlier menarche.¹ Roberts and I have long shown that that trend has stopped (it stopped in 1965) and that there now seems to be a reverse trend.²⁻⁴ Thus the trend towards earlier menarche, when it existed, is unlikely to have been an important factor in the decrease in the age at first sexual intercourse in girls, since it amounted to only three to four months per decade; thus even if it had continued

over the past 30 years it would have amounted to at most one year. This would hardly account for Stuart-Smith's quoted change in the incidence of first sexual intercourse below the age of 16 from 1% in women over 55 in 1994 to the present 20% or so in teenage girls.

It is disheartening to find the trend towards earlier menarche still being quoted in various papers and articles over 20 years after it was shown to have stopped.

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Image of various providers of sexual health care varies

EDITOR,—Sue Stuart-Smith's editorial on teenage sex¹ offers a sobering challenge to those who provide sexual health care for young people.² Stigma can be a powerful barrier to attendance at a service; conversely, however, image can be harnessed to focus marketing strategy. We present data from a large group of young students that show considerable differences in the market appeal of NHS providers of sexual health care with different names: genitourinary medicine clinics, sexual health clinics, family planning clinics, and general practitioners.

Students passing an unnamed stall at a 'freshers' fair at University College London in 1993 were asked to complete a questionnaire. Altogether 1000 of the 1018 questionnaires collected were completed: 466 were from men and 539 from women. The students' mean age was 20.9 (range 17-72) years; 86% were aged under 24.

The students were asked to imagine themselves in different scenarios covering a range of sexual health needs—for example, "You are worried about discharge from your genitals." For each of these needs they were asked to choose which of the providers listed they would go to first for medical help or advice (table 1). A polarity in the appeal of different providers was evident. The appeal of family planning clinics was polarised towards preventive needs and that of general practitioners and genitourinary medicine clinics towards symptomatic needs. Only sexual health clinics showed an even spread of appeal across both groups of needs.

For each of the providers the students were also asked: "Do you know what this clinic does?" The proportion of students who thought they knew was: family planning clinics, 533 (94%) of 566; general practitioners, 541 (95%) of 568; sexual health clinics, 354 (63%) of 566; and genitourinary medicine clinics, 241 (43%) of 562.

This study shows large differences in image between sexual health clinics and genitourinary medicine clinics, services that are mostly comparable except in name. Such terms are not mutually exclusive and can be used in a complementary way.^{3,4} Overall, family planning clinics and general practitioners were the most popular choices of providers. Liaison and training across these four providers form a bedrock for a coordinated strategy for providing services for young people.

As this study was opportunistic and the subjects were self selected its conclusions cannot be extrapolated to young people in general. More market research is needed to help those providing sexual health care for young people to