born infants. In comparison, the crude prevalence in the total population born in 1981-91, according to the medical birth registry, was 0.43/10000 newborn infants (26 cases, population 602 301).

In all four cases the infants had been singletons born alive at full term with birth weights over 3500 g. One had additional birth defects. The four families lived at farms in different parts of Norway, with no temporal clustering of the pregnancies (conceptions between 1971 and 1988). None of the families had a greenhouse or an orchard. Of the 21 843 infants potentially exposed to benomyl, one was diagnosed as having microphthalmia (0.46/10000). This child came from a farm that grew field vegetables.

Our data do not indicate that parental agricultural activity is a specific risk for anophthalmia in children. Even with this large cohort, comprising roughly a seventh of all births in Norway during the period studied, no firm conclusions concerning this rare birth defect can be drawn. The use of proxies as exposure variables adds to the uncertainty. Nevertheless, our data do not support the suggestion that benomyl is a risk factor.

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1 Gilbert R. "Clusters" of anophthalmia in Britain. *BMJ* 1993; 307:340-1. (7 August.)

No further clues from global investigation

EDITOR,—Newspaper reports of geographic clusters of anophthalmia and microphthalmia in England and Wales possibly related to maternal exposure to a benzimidazole pesticide (benomyl) prompted a news article¹ and an editorial.² The International Clearinghouse for Birth Defects Monitoring Systems³ reacted by conducting a global investigation.

Data were requested on cases of anophthalmia and microphthalmia in their isolated and associated (syndromic) forms, excluding confounding defects (blepharophimosis, microcornea, coloboma, cryptophthalmus, and "small eyes") and cases of chromosome trisomies. Reporting programmes also provided information on the availability of benzimidazoles and on any unusual frequency distribution of anophthalmia and microphthalmia. Further information on the 13 programmes contributing data has been published.⁴

Reported prevalences of anophthalmia and microphthalmia at birth varied widely among the programmes, with extreme values in England and Wales (93/4 149 283=0.22/10 000) and Atlanta (178/696 057=2.56/10 000). The rates for the 11 other programmes varied around 1/10 000 (1102/10 666 512=1.03). One quarter of the cases were reported as anophthalmia in every programme except that in England and Wales, where more than half of the cases were reported as anophthalmia. Multiple malformations occurred in 80% of the cases of anophthalmia and microphthalmia except in England and Wales, where the proportion was only 66%. A low prevalence of anophthalmia and microphthalmia in England and Wales compared with the other programmes was found previously by the clearinghouse and attributed to underascertainment.⁴

The present investigation failed to provide clues to either support or refute the hypothesis of an association between exposure to benzimidazole and anophthalmia and microphthalmia. Secular trends were stable, and no rumours or alarms were reported from any of the participating

programmes. We do not, however, know the proportion of pregnant women exposed to benzimidazole; it is likely to be low. Thus changes in rates of anophthalmia and microphthalmia over time would not be expected to be seen, even if benzimidazole was teratogenic.

The large variations in the prevalences of the condition and in the proportions of morphological subtypes between the programmes suggest a non-uniform definition of anophthalmia and microphthalmia despite the specificity given in the protocol. Since England and Wales are at the extreme of this broad variation, this must be taken into consideration in further investigations, including case-control studies.

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1 Handsides S. Reports of anophthalmia under scrutiny. *BMJ* 1993;306:416.

2 Gilbert R. "Clusters" of anophthalmia in Britain. *BMJ* 1993;307:340-1.

3 International Clearinghouse for Birth Defects Monitoring Systems. *Congenital malformations world-wide*. Amsterdam: Elsevier, 1991.

4 International Clearinghouse for Birth Defects Monitoring Systems. *1984 annual report*. Copenhagen: ICBMS, 1986.

Making the internal market work

EDITOR,—I agree with one of Lucy Moore and Maureen Dalziel's conclusions with regard to making the internal market work—namely, that there is a need to create incentives in the market.¹

Many providers have risen to the challenges of the market and collectively effected great improvements in the delivery of health care, but there are, as the market is currently constituted, no incentives for maintaining success. This is an important flaw. For many clinicians and managers whose service or hospital has enjoyed success since the introduction of the market there are no rewards. If trusts were commercial organisations (and I am not suggesting that they should be) those that achieved success, measured in broad terms by treating more patients and achieving financial stability, would have little difficulty in attracting further investment to develop new services or expand existing ones.

What is preventing successful trusts from building on their success is not only continuing tension over the question of whether the market should be managed or whether competition should be allowed to dominate but also a lack of acknowledgment that the principles underlining the introduction of the market have been only half developed. Until there are incentives and rewards for doing better and succeeding, I predict increasing resentment, cynicism, and lack of support for the original objectives associated with the introduction of the market.

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1 Moore L, Dalziel M. Making the internal market work: a case for managed change. *BMJ* 1993;307:1270-2. (13 November.)

Working hours in the career grades

EDITOR,—Linda Beecham notes that the NHS Management Executive does not believe that career grade doctors will be bound by the European Union's directive on the organisation of working time.¹ The management executive believes that consultants determine their own working patterns and would therefore be covered by one of the derogations written into the directive. We suggest that consultants' intensity of work is

determined by purchasers and the health of the local population. Also, for many consultants a large proportion of the hours worked is out of hours work on call; the frequency of on call work is set by the number of consultants participating in the rota. Therefore the working pattern is determined not by consultants but by their employers' trusts or directly managed units.

The fact that the management executive considers that associate specialists determine their own working patterns shows a complete lack of understanding of how these doctors are required to work. We seriously doubt that the executive's statement would stand up to legal scrutiny.

Article 17 derogation 2.1(c)(i) concerns "services relating to the reception, treatment and/or care provided by hospitals or similar establishments." It allows derogation from the sections concerning daily rest, breaks, weekly rest periods, and length of night work. It does not allow derogation from a maximum working week of 48 hours. It also states that derogation can be given only "provided that the workers concerned are afforded equivalent periods of compensatory rest or that, in exceptional cases . . . workers concerned are afforded appropriate protection."

The NHS Management Executive is correct to state that, under the final provisions of the directive (article 18 para 1(b)), any member state may allow any worker to exceed 48 hours (subject to health and safety considerations) so long as there has been prior agreement by the employee. This derogation applies only to the rule concerning the maximum weekly average of hours worked; sections concerning rest periods will still have to be adhered to. The directive also states that no employee can be "subjected to any detriment by his employer because he is not willing to . . . perform such work."

In conclusion, this directive must affect career grade doctors. No doctor can be forced to work more than 48 hours a week against his or her wishes, and a doctor's willingness to do so could not legally be used to affect the decision to appoint him or her at interview. Also, due consideration must be given to rest periods during the working week.

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1 Beecham L. Working time directive will not affect career grades. *BMJ* 1993;307:1362. (20 November.)

Prescribing costs

Fundholders had a head start

EDITOR,—Jean Bradlow and Angela Coulter's findings on the effect of fundholding on general practitioners' prescribing costs¹ need to be interpreted with caution. Firstly, as the authors describe in their discussion, the indicative prescribing amounts of fundholding and non-fundholding practices were not derived in the same way. Fundholders had, and used, the opportunity to negotiate their indicative prescribing amounts upwards to "take full account of the needs and circumstances of each practice." This included additional allowances made for historically low prescribing costs. This opportunity was not available to non-fundholding practices. We need to know the extent of this upward revision before we can interpret the performance of practices relative to their indicative prescribing amount. Fundholding practice 4 and non-fundholding practice 10 (in tables V and VI) both showed 11% increases after inflation in net ingredient costs. The fundholding practice made a 10% saving on its prescribing amount while the non-fundholding practice overspent its prescribing amount by 10%.

It is no great achievement to make savings on a specially increased budget.

Secondly, the existence of the fundholding system and the way in which fundholders' budgets have been allocated on a historical rather than a capitation basis might constitute a positive incentive for non-fundholding practices to increase their prescribing (and referral) rates in case they decided in future to opt for fundholding. In this study the non-fundholding practices as a group had, at the outset, the lowest net ingredient costs, the lowest number of items prescribed, and the highest proportion of generic prescribing. In the authors' earlier study of referral rates the non-fundholding practices started out with significantly lower referral rates than the fundholding practices but increased their referral rate by 18% in one year to match the referral rate of fundholders (which also increased).²

I gather from the regional health authority that most of the non-fundholding practices included in Bradlow and Coulter's study are now either fundholding or preparing for fundholding. One hypothesis to explain the findings of the study with respect both to prescribing and referral is that the fundholding system has acted as an incentive to practices to increase their use of these resources. If the government wishes to curb the rise in prescribing costs, it must extend to non-fundholding practices the opportunity to vire all savings made on their indicative prescribing amount.

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1 Bradlow J, Coulter A. Effect of fundholding and indicative prescribing schemes on general practitioners' prescribing costs. *BMJ* 1993;307:1186-9. (6 November.)

2 Coulter A, Bradlow J. Effect of NHS reforms on general practitioners' referral patterns. *BMJ* 1993;306:433-7.

Consider national standards for daily dosages

EDITOR,—Measuring drug volume by the number of items prescribed is unsatisfactory because of the variation in the amount per item that can and does occur; we were therefore pleased to see that M Maxwell and colleagues used the defined daily dosages set by a World Health Organisation working party as their units of volume.^{1,2} Some countries use their own dosages—convertible to those of the WHO when necessary—to reflect national habits. We investigated whether it would be worth while to do so in England too.

We report a pilot study that compared 1993 defined daily dosages³ with the average daily dosages prescribed by English general practitioners. It was conducted with a group of community pharmacists who worked mainly in the midlands and southern England and used MEDIPHASE software. Eleven pharmacists recorded the details required from the items they dispensed over four weeks in March and April 1993. They included every item that bore instructions from which total daily dosage could be calculated and indicated whether the patients were under 15 years old. Each pharmacist was visited by a senior pharmacy student from Bradford University, who checked a sample of the entries against the corresponding prescriptions. The data were sent to us on disk for consolidation and analysis.

We received details of 10 489 items, 1139 of which were validated with a detected error rate of 1.9%. Using only the drugs for which at least 50 items had been prescribed to adults, we derived average daily dosages for 43 plain substance preparations (table). For many drugs the defined and prescribed daily dosages were close. The large disparities for the phenothiazines reflect differences between specialist and general practitioner usage; differences in the penicillins are

Comparison of derived prescribed daily dosages with defined daily dosages (1993) for 43 plain substance preparations

Drug	Daily dosage	
	Prescribed	Defined
<i>Gastrointestinal system</i>		
Cimetidine	678 mg	800 mg
Ranitidine	283 mg	300 mg
Omeprazole	21 mg	20 mg
<i>Cardiovascular system</i>		
Nifedipine	35 mg	30 mg
Diltiazem	190 mg	240 mg
Verapamil	248 mg	240 mg
Atenolol	67 mg	100 mg
Propranolol	120 mg	160 mg
Captopril	48 mg	50 mg
Enalapril	10 mg	20 mg
Bendroflumazide	3.7 mg	2.5 mg
Fruzemide	53 mg	40 mg
Bumetanide	1 mg	1 mg
Isosorbide mononitrate	46 mg	40 mg
Digoxin	158 µg	250 µg
<i>Respiratory system</i>		
Terfenadine	119 mg	120 mg
<i>Central nervous system</i>		
Dothiepin	71 mg	75 mg
Amitriptyline	52 mg	75 mg
Paracetamol	2.9 g	3 g
Prochlorperazine	14 mg	100 mg
Thioridazine	100 mg	300 mg
Diazepam	10.4 mg	10 mg
Temazepam	15.5 mg	20 mg
Nitrazepam	6.2 mg	5 mg
<i>Infections</i>		
Phenoxymethylpenicillin	1.2 g	2 g
Amoxycillin	0.99 g	1 g
Flucloxacillin	1.2 g	2 g
Cephalexin	1.4 g	2 g
Erythromycin	1.3 g	1 g
Oxytetracycline	0.98 g	1 g
Doxycycline	102 mg	100 mg
Metronidazole	827 mg	500 mg
Quinine sulphate	306 mg	200 mg
<i>Endocrine system</i>		
Metformin	1555 mg	200 mg
Glibenclamide	9.2 mg	10 mg
Gliclazide	143 mg	160 mg
Thyroxine	98 µg	150 µg
Prednisolone	11.6 mg	10 mg
<i>Malignant disease</i>		
Tamoxifen	26 mg	Not set
<i>Nutrition and blood</i>		
Ferrous sulphate	434 mg	200 mg
<i>Musculoskeletal and joint diseases</i>		
Ibuprofen	1221 mg	1200 mg
Diclofenac	112 mg	100 mg
Naproxen	829 mg	500 mg

probably related to national traditions; and other differences may be related to the comparatively small size of our sample. Sometimes one daily dosage was by far the most common—for example, for ibuprofen 120 of the 184 items were for 1200 mg. In other cases several daily dosages were often used—for propranolol the mode was 80 mg and was given in only 26 of the 75 items recorded.

Work on a much larger scale will be necessary for adequate coverage of the drugs that general practitioners prescribe to assess what need there may be for English standard daily dosages.

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1 Maxwell M, Heaney D, Howie JGR, Noble S. General practice fundholding: observations on prescribing patterns and costs using the defined daily dose method. *BMJ* 1993;307:1190-4. (6 November.)

2 WHO Collaborating Centre for Drug Statistics Methodology. *Anatomical therapeutic chemical (ATC) classification index including defined daily dosages (DDDs) for plain substances*. Oslo: WHO, 1993.

Work experience in hospital

EDITOR,—I read with alarm the account by Jenny Rushton, a 17 year old schoolgirl, of her work experience shadowing a medical houseman in his duties.¹ A careers adviser had told her that it was pointless applying to consultants because "they didn't like work experience," but the one she met "could not have been kinder." During the course of her attachment she witnessed three cardiac arrests.

Consultants who do not like work experience might be unkind, but with good reason. One complaint from a relative of the patients who had an arrest would have been an indefensible disciplinary matter, especially as the patients' permission could not have been obtained. The fact that Rushton was given the name of the houseman she was to shadow on a "scrap of paper" does not suggest that her kind, but surely unwise, consultant had realised the implications of arrangements made.

If there is a role for embryonic medical students to have such attachments how should we protect patients and ourselves?

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1 Rushton J. To be a doctor? *BMJ* 1993;307:1334. (20 November.)

Home visits in Italy

EDITOR,—Home visits by general practitioners are not "a British tradition virtually unknown in other European countries": they are an important issue in the changing Italian health service too. In Italy there is a dual system, visits being made by general practitioners or—at night, weekends, and holidays—by an on call service (Guardia Medica). When a patient asks, before 9 am, for a home visit the general practitioner must visit that day; otherwise the general practitioner can visit the next day. The Guardia Medica service provides home visits from 8 pm to 8 am on weekdays and from 2 pm on Saturday to 8 am on Monday.

Some people think that this is a good service, particularly in rural areas. Others think that it is not cost effective, particularly when alternative private visits are offered. As far as we know, no objective data have been reported.

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1 Beecham L. Home visits will fall with new GP scheme. *BMJ* 1993;307:1375. (27 November.)

Capitation funding may overfund practices in better off areas

EDITOR,—Hart misquotes part of my talk at the Public Health and Primary Care Group's conference on fundholding.¹ I did not suggest that practices in the Oxford region are currently overfunded as a result of a failure to collect information about private patients' use of hospitals. On the contrary, one of the few benefits of the current method of funding based on historical activity is that private procedures can be excluded from the budget. Instead I was pointing to a problem that is likely to arise when the planned shift to capitation funding occurs.

Some practices in the Oxford region and elsewhere have high proportions of patients who have private health insurance cover. Up to half of