To validate the index the authors correlate it with the level of prescribing of certain drugs, hormone replacement therapy, and tamoxifen, which they regard as indicators of the social class composition of the practice population. This procedure involves unsupported assumptions, particularly in relation to hormone replacement therapy. An underlying problem with the authors' use of PACT data is the implicit assumption that prescribing is a standardised procedure in which general practitioners diagnose and treat disease systematically. The literature does not support this assumption; indeed, it shows great variation among doctors, much of which can be explained only by personal idiosyncrasy.² It seems dangerous to base an objective measure of deprivation on such subjective behaviour.

Although the correlation between exempted prescriptions and deprivation at health authority level is high, the measure proposed by Lloyd and colleagues is intended for practice based research rather than epidemiological research on larger populations. For example, the authors suggest that it would be useful in researching topics such as prescribing. Given that PACT data are Britain's main source of prescribing data and also provide the data for the authors' deprivation index, however, this suggestion seems tautologous. Further efforts are needed to develop a reliable and valid measure of deprivation at the practice level.

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1 Lloyd DCEF, Harris CM, Clucas DW. Low income scheme index: a new deprivation scale based on prescribing in general practice. *BMJ* 1995;310:165-9. (21 January.)

2 Crombie DL, Cross KW, Fleming DM. The problem of diagnostics variability in general practice. *J Epidemiol Community Health* 1992;46:447-54.

Poor correlation with Jarman index may be due to changes in deprivation since 1981

EDITOR,—David C E F Lloyd and colleagues compare three deprivation indices—the Jarman, Townsend, and Carstairs indices—and show that the correlation between the Jarman index and the two other indices is not as good as that between the Townsend and Carstairs indices themselves.¹ I note that the Townsend and Carstairs indices were based on data for 1991 whereas the Jarman index was based on data for 1981. We should not necessarily conclude that the Jarman index is less good. Perhaps the pattern of deprivation has changed over the past 10 years, explaining the slightly worse correlation between the Jarman index and the Townsend and Carstairs indices.

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May perpetuate variation in prescribing unrelated to patients' need

EDITOR,—Measures based on entitlement to free prescriptions because of low income are attractive as indices of deprivation, but there are inherent drawbacks to an index based on the number of

prescriptions rather than of people receiving (or entitled to) them.

Firstly, as David C E F Lloyd and colleagues comment about their proposed low income scheme index, the "deprivation score is calculable but is affected by the individual habits of prescribers."¹ The effect is simply illustrated if different relative prescribing rates (1-3) are used for a population (population A; table). Although the effect will be most pronounced at practice level, the prescribing habits of practitioners within a family health services authority may be subject to the same local influences, with consequent effect on the proposed deprivation score at health authority level.

Effect of relative prescribing rates, demography, and proportions of people entitled to free prescriptions because of low income on low income scheme score

Population group	Population		Relative prescribing rate		
	A	B	1	2	3
<i>Example 1</i>					
Entitled to free prescriptions	10		1.25	1.5	2.0
Not entitled to free prescriptions	90		1	1	1
Low income scheme score (%)			12.2	14.2	18.2
<i>Example 2</i>					
Entitled to free prescriptions	10	10	2		
Not entitled to free prescriptions:					
Aged < 65	70	50	1		
Aged ≥ 65	20	40	3		
Low income scheme score (%)	13.3	10.5			

Secondly, the acknowledged influence of patients' age on prescribing need² means that the value of the proposed index depends on the demography of those not exempted because of low income, which is illustrated by populations A and B in example 2 in the table. Note that population A, with fewer elderly people, has a higher low income scheme index for the same proportion of people entitled to free prescriptions because of low income.

By definition, the low income scheme index is strongly driven by the distribution of poverty among people of working age, and high correlations with the Townsend, Jarman, and Carstairs indices of deprivation are therefore to be expected. All the indices have imperfections, but no absolute definition of deprivation is available as a true comparator. Indeed, the various physical and social components of deprivation may be of different relative importance, depending on the context in which the index is to be used. The low income scheme index is derived from the current distribution of prescribing resources, which is largely historic and influenced by practitioners. This may or may not make it a suitable index for studying the relation between population deprivation and the uptake of drugs, but its use in determining future allocation of resources may have the undesirable effect of perpetuating variations in prescribing unrelated to patients' need.

At family health services authority or local authority level there is potential for an index based on the Department of Social Security's rates for income support and family credit, which would be population based rather than prescription based and would take into account deprivation among elderly people and children. Whether such an index would have any substantial advantage over those already available is for debate.

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1 Lloyd DCEF, Harris CM, Clucas DW. Low income scheme index: a new deprivation scale based on prescribing in general practice. *BMJ* 1995;310:165-70. (21 January.)

2 Roberts SJ, Harris CM. Age, sex and temporary resident originated prescribing units (ASTRO-PU): new weightings for analysing prescribing of general practices in England. *BMJ* 1993;307:485-8.

Authors' reply

EDITOR,—Nicky Britten and colleagues say that we did not validate our index at practice level in the way that we did at family health services authority level. This would have required the postcode of every patient; not only is this impractical but we have already established, in a paper submitted for publication, that attributing census data to practices can give severely misleading results. R S James' comment, although possibly true, is not relevant until Jarman figures based on the 1991 census become available.

We acknowledged the overlap between categories, exempting people from prescription charges and assumed that it would not differ significantly among areas. The table presented by Sarah J Roberts supports this assertion since a doubling of the population aged over 65 changes the index by less than 3%—an impressive demonstration of robustness. The criticism of Britten and colleagues that patients will choose a disease based category of exemption in preference to one that is income based according to the degree to which poverty is stigmatised in different areas is interesting, but there is no evidence for it. We do not understand the meaning of their sentence "Prescribing analysis and cost (PACT) data depend on the provision and quality of services, which further confound the index."

Our choice of drugs in the second part of the validation was scarcely based on dubious assumptions, given what is known about the distribution of cardiovascular disease, childhood infections, and breast cancer, and we described at some length our reason for including hormone replacement therapy. We are well aware of the variation in practices' prescribing habits, but our study was based on patients' claims, not doctors' idiosyncrasies. No tautology is involved. Roberts's example 1 in the table presents changes in the index depending on assumptions about general practitioners' prescribing, but perhaps she has neglected to consider that the index is based on cost, not items. While there has been speculation that some general practitioners will prescribe cheap items for patients exempted from charges and suggest to other patients that they should buy the drugs, it is not clear that there would be a twofold difference in the resultant cost.

We agree that research needs a reliable and valid measure of deprivation at practice level (we acknowledged in our paper that our index might not be suitable for resource allocation). Despite its imperfections the low income scheme index is the best available at the moment.

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Academic integrity

Proper review makes funding irrelevant

EDITOR,—In writing on academic integrity Richard Smith discusses conflicts of interest and suggests that authors of papers in scientific journals should state their source of funding on the basis that any bias in their work may thereby be made apparent to readers.¹ This seems to be logically inconsistent.

Editors of journals have the responsibility to ensure that material that is published is soundly based, conducted, and interpreted; if it is, then the source of the funding is immaterial. If editors have any doubts about any of these then they do not publish the paper; again, the source of the funding is immaterial.

If those who take money from commercial sources are required to identify their interests, what of other potential conflicts? For example, I might be a member of the Conservative party and consider that it was individual behaviour that accounted for most ill health and interpret the results of my study accordingly. Alternatively, as a member of the Labour party I would have an interest in showing how urban deprivation and poverty were the cardinal determinants of health. Smith is surely not suggesting that all conflicts of interest should be enumerated at the end of a paper; if they were, the disclaimer might take up considerably more space than the subject matter.

Another point needs consideration—namely, the source of funds for medical research. Without the support of commercial organisations many medical scientists would be unable to carry out any research, and to deny them the opportunity to publish their work because they have received funding from commercial or other sponsors seems indefensible. At present the Medical Research Council is not able to attend to everyone's needs, nor are other important sources of funding such as the Wellcome Trust. Many of my colleagues undertake work that is supported by drug companies, and I doubt that their judgment is adversely influenced by this. In case it is, however, might not an agreeable alternative be for all the commercial sponsors to put money into a central fund that was administered by an independent board, which could allocate the money irrespective of the outcomes hoped for by the primary sources of the funds?

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1 Smith R. Questioning academic integrity. *BMJ* 1994;309:1597-8. (17 December.)

Most people are not disgusted by the Portman group

EDITOR,—To bracket the Portman Group with an organisation such as Forest is grossly unfair, as anyone familiar with the group's activities will know.¹ It is untrue to say that most people are "disgusted" by our activities. On the contrary, our participation in a wide range of prevention projects has been welcomed by everyone who recognises that the drinks industry has a role in tackling alcohol misuse. Indeed, it has won over many people who were sceptical. Most of our work in research, education, and practical measures that target particular problems such as drinking and driving is done in partnership with government departments and non-government organisations. Richard Smith may be disgusted but most people are not.

I very much regret the controversy caused by the Portman Group's plan to publish a critical commentary on *Alcohol Policy and the Public Good*, not because I think that we acted improperly but because that impression has been erroneously given. There is genuine disagreement about how best to prevent alcohol misuse, and we have as much right as anyone else to argue for or against a particular approach. The fact that we wished to obtain expert contributions to present our view should be to our credit. We do not believe that we know all the answers but we do believe in a balanced debate. Surely it is not suggested that only one side in the debate should have access to expert advice.

Unfortunately, the controversy has played into the hands of those who want to see confrontation between the industry and the health community. I am determined to prevent that because I am convinced that collaboration without illusions is the better way. Smith advises doctors and academics to "consider very carefully the ethical implications of all their actions." I have always accepted that the Portman Group should do no less.

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1 Smith R. Questioning academic integrity. *BMJ* 1994;309:1597-8. (17 December.)

Referral of women with breast lumps

EDITOR,—Justine Foster¹ disagrees with J M Dixon and R E Mansel's suggestion that general practitioners should not aspirate breast lumps.² I can understand that a general practitioner finds that aspiration of a cyst provides instant relief, and it is true that a surgeon will aspirate the cyst anyway. A patient who is presenting with a first breast lump, however, is more likely to have a solid lump than a cyst. In this situation, many general practitioners will not obtain a satisfactory aspirate for cytological examination since it requires a high level of practice to obtain cells in most smears. The best opportunity for getting an early diagnosis is then hampered. Patients resent having the test repeated unnecessarily.

If a patient is known to have cysts then the balance of probability is different and it seems sensible for the general practitioner to aspirate a new lump on the assumption that it may well be another cyst and easily relieved.

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1 Foster J. Referral of women with breast lumps. *BMJ* 1995;310:331. (4 February.)

2 Dixon JM, Mansel RE. ABC of breast diseases: symptoms, assessment, and guidelines for referral. *BMJ* 1994;309:722-6. (17 September.)

Appropriate prescribing in asthma

PACT data have drawbacks

EDITOR,—Jeannette Naish and colleagues describe the variations in the costs of prescribing respiratory drugs among general practices in one family health services authority.¹ While it is possible that better asthma care results in higher prescribing costs, the use of costs from prescribing analysis and cost (PACT) data to derive the volume of prescribing for asthma has two major drawbacks.

Firstly, PACT data are not linked to indication, and therefore one cannot assume that all bronchodilators or inhaled steroids prescribed are for use in asthma. For example, aggregate data from a research database based on general practice computer systems in the former Northern region show that 15% (1354/8985) of patients receiving inhaled steroids in 1992-3 had a diagnosis other than asthma. Thus the management of bronchitis and other obstructive airways diseases is a source of variation among practices in the prescribing of inhaled steroids.

Secondly, the cost of prescribing, as the authors acknowledge, is not a good measure of the amount of prescribing. The table shows the volume and cost of inhaled steroids prescribed in the 16 family health services authorities in the Northern and

Volume of prescribing and cost of inhaled beclomethasone, budesonide, and fluticasone in Northern and Yorkshire Regional Health Authority, 1993-4

Family health services authority	No of defined daily doses prescribed	Net ingredient cost (£)	Net ingredient cost/defined daily dose (£)
Cleveland	5 703 028	2 207 108	0.39
Cumbria	6 493 063	1 849 211	0.28
Durham	7 250 846	2 471 500	0.34
Northumberland	4 994 130	1 595 383	0.32
Gateshead	2 502 342	812 058	0.32
Newcastle	3 578 339	1 332 644	0.37
North Tyneside	2 134 631	783 882	0.37
South Tyneside	1 599 347	618 189	0.39
Sunderland	3 427 872	1 158 173	0.34
Humberside	8 873 858	3 067 972	0.35
North Yorkshire	7 577 784	2 603 121	0.34
Bradford	7 820 934	1 747 018	0.22
Calderdale	2 818 016	765 748	0.27
Kirklees	5 572 910	1 436 207	0.26
Leeds	9 058 999	2 806 670	0.31
Wakefield	3 706 345	1 373 148	0.37
Regional health authority	83 112 444	26 628 032	0.32

Yorkshire region in 1993-4. This varies almost twofold (£0.22-0.39 per defined daily dose), indicating that one of the principal determinants of total cost is the choice of product. This is not surprising since the basic NHS cost of comparable inhaled steroid treatments ranges from £0.17/day (200 µg beclomethasone twice daily by pressurised inhaler) to £0.44/day (100 µg fluticasone twice daily by Diskhaler).

The ratio of the rate of prescribing of bronchodilators to that of inhaled steroids has been suggested as a marker of prescribing quality in respiratory diseases.² Ratios, however, are influenced by changes in the numerator or the denominator, or both, so the same ratio can derive from any absolute prescribing rate, large or small. High quality prescribing in asthma therefore requires an appropriate range of prescribing of both prophylactic and bronchodilator treatments. The optimum rate of consumption of antiasthma drugs remains unknown, and the difficulties in accurately expressing drug consumption should not be underestimated.

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1 Naish J, Sturdy P, Toon P. Appropriate prescribing in asthma and its related cost in east London. *BMJ* 1995;310:97-100. (14 January.)

2 Audit Commission. *A prescription for improvement*. London: HMSO, 1994:26-7.

NHS Executive promotes prophylaxis

EDITOR,—In their paper on appropriate prescribing in asthma in east London Jeannette Naish and colleagues highlight the difficulties in defining and measuring good prescribing.¹ In both the paper and the Editor's choice, statements are made that pressure to reduce the cost of prescribing in asthma may lead to a reduction in prophylactic treatment, lower the quality of asthma care, and be cost ineffective. The implication of these statements is that the government's policy for rational prescribing has created or is intended to create such pressure.

None of the initiatives or guidance on general practitioners' prescribing with which the NHS