thrombolysis. The company has been active in helping to encourage the adoption of fast track systems to ensure that patients are treated as early as possible. Taking thrombolysis out of the hospital and into the community without adequate cardiological support may not, however, be the best way of ensuring that patients receive the earliest and most appropriate treatment.

ANTHONY K HALL
Medical adviser
D M HUMPHREYS
Medical director

Boehringer Ingelheim,
Bracknell, Berkshire RG12 8YS

- 1 Rawles J. Treatment of myocardial infarction and angina. *BMJ* 1995;310:465. (18 February.)
- 2 McMurray J, Rankin A. Cardiology. I. Treatment of myocardial infarction, unstable angina, and angina pectoris. *BMJ* 1994; 309:1343-50. (19 November.)
- 3 Fibrinolytic Therapy Trialists' Collaborative Group. Indications for fibrinolytic therapy in suspected acute myocardial infarction: collaborative overview of early mortality and major morbidity results from all randomised trials of more than 1000 patients. *Lancet* 1994;343:311-22.
- 4 GUSTO Angiographic Investigators. The effect of tissue plasminogen activator, streptokinase, or both on coronary-artery patency, ventricular function, and survival after acute myocardial infarction. *N Engl J Med* 1993;329:1615-22.

Carotid endarterectomy

Author's reply

EDITOR,—Many of those who commented in the debate on carotid endarterectomy suggested that the use of non-invasive tests for carotid stenosis can transform the balance of risks and benefits to patients of a service for carotid endarterectomy.^{1,2} This may overstate the case.

These tests should firstly be exposed to a more comprehensive formal evaluation; it should not stop at small case series assessing only accuracy, as this represents an inadequate assessment of these technologies. The acceptability, reproducibility, and economics of these investigative techniques requires more examination.

We should not be surprised that some centres with considerable expertise are able to achieve high levels of accuracy, but this may be unrepresentative of what happens in many centres carrying out investigation and surgery. This process of evaluation should therefore extend to a local level, with each service carrying out an audit of the investigation pathways used locally, and should examine the accuracy of these tests when the investigators are blinded to the results of any previous investigations.

Even if we were to ensure that this process of evaluation and audit did happen, the benefits for the individual and for the population are likely to be marginal. For example, increasing the sensitivity of carotid Doppler ultrasonography from perhaps 80% to 95% to attain a positive predictive value of 90%, and discontinuing conventional angiography, might increase the number of strokes saved in England from 116 to 146 (using the sample collected by Hankey and Warlow³), but only if we assume that the operation has no net effect on the 208 people who would have had an unnecessary operation. If we then introduce a second non-invasive test (perhaps magnetic resonance angiography), optimised to achieve, perhaps, a sensitivity of 95%, this might save as many strokes (146), but only if we assume that it identifies all those incorrectly assigned as having severe carotid stenosis by the first test (hence no one will be exposed to the risk of unnecessary surgery). The most optimistic assessment of the effect of a carotid endarterectomy service in England then rises from 0.14% to 0.15% of strokes saved. If we are to have such a service, improving investigation pathways may well be important for individual patients, but commissioners will still need to think carefully about whether even a technologically updated

(and perhaps more costly) service is worth their investment.

MARK LAMBERT
Senior registrar in public health medicine
Nuffield Institute for Health,
Leeds LS2 9PL

- 1 Baird RN, Lambert M. Should carotid endarterectomy be purchased? *BMJ* 1995;310:316-8. (4 February.)
- 2 Correspondence. Carotid endarterectomy. *BMJ* 1995;310:1135-6. (29 April.)
- 3 Hankey JH, Warlow CP. Symptomatic carotid ischaemic events: safest and most cost effective way of selecting patients for angiography before carotid endarterectomy. *BMJ* 1990;300: 1485-91.

Influence of patient's age on GPs' definition of hypertension

Patients aged over 80 may not benefit from antihypertensive treatment

EDITOR,—J E C Dickerson and M J Brown explore the influence of patients' ages on general practitioners' reported management of hypertension but include all patients aged ≥ 65 in one category.¹ While it has been shown that treatment of hypertension is beneficial in people aged 65-80, there is no good evidence that it is warranted in those aged over 80.² Asking what are the lowest blood pressures at which general practitioners would both define and treat hypertension in this heterogeneous age group is therefore ambiguous, and the responses are difficult to interpret.

If, however, we accept the data at their face value it is useful to look for reasons why general practitioners' reported practices are at variance with the recommended guidelines. The increase in the threshold blood pressure at which general practitioners report starting treatment with age could be explained by the fact that general practitioners care for all over 65 year olds, while healthier subgroups have been studied in trials. In the Medical Research Council's trial, for instance, the participants were fit enough to attend for screening (68% responded to an invitation).³ Even in this ambulant group 565 patients with hypertension (11% of those identified) were excluded from randomisation because of pre-existing disease and 575 patients (13%) were withdrawn from their allocated treatment groups because of side effects. Patients not enrolled into trials of antihypertensive drugs will therefore be more likely to suffer from other health problems and may be less likely to tolerate antihypertensive agents.

General practitioners' experiences in caring for this portion of the elderly, hypertensive population may have contributed towards their reported management of hypertension. This may explain why general practitioners seem reluctant to consider starting antihypertensive drugs in the over 65s, reserving this intervention for patients with the highest blood pressures and the greatest chances of morbidity.

TIM COLEMAN
Honorary clinical research fellow
Faculty of Medicine,
University of Leicester,
Leicester General Hospital,
Leicester LE5 4PW

- 1 Dickerson JEC, Brown MJ. Influence of age on general practitioners' definition and treatment of hypertension. *BMJ* 1995; 310:574. (4 March.)
- 2 Sever B, Beevers G, Bulpitt C, Lever A, Ramsay L, Reid J, et al. Management guidelines in essential hypertension: report of the second working party of the British Hypertensive Society. *BMJ* 1993;306:983-7.
- 3 MRC Working Party. Medical Research Council trial of treatment in older adults: principal results. *BMJ* 1992;304:405-12.

General practitioners' age may influence management of hypertension

EDITOR,—The paper on the influence of patients' ages on general practitioners' definitions and treatment of hypertension does not mention the ages of

the general practitioners.¹ Last year we asked all of the general practitioners in Avon (n=542) to state the minimum blood pressure that would make them consider starting drug treatment for a man aged 40 with no cardiovascular risk factors; 325 (60%) responded. We also asked the general practitioners whether they would start drug treatment for a 70 year old woman, also with no additional cardiovascular risk factors, with a consistent blood pressure of 180/100 mm Hg. Overall, we found that 269 general practitioners would start drug treatment at or below 160/100 mm Hg, and 244 (75%) would start drug treatment for the woman. However, we found a significant linear association when we examined the general practitioners by age group (table).

Proportions of general practitioners according to age who would start drug treatment for hypertension at various blood pressures

	Age of general practitioner (years)				Comparison between age groups
Blood pressure (mm Hg)	< 36 (n=75)	36-45 (n=143)	46-55 (n=84)	> 55 (n=23)	
<i>For 40 year old man with no other risk factors</i>					
140/90	1 (1)	5 (3)	4 (5)	3 (13)	NS*
150/95	7 (9)	20 (14)	19 (23)	8 (35)	P < 0.05
160/100	56 (75)	122 (85)	74 (88)	17 (74)	NS
170/105	69 (92)	134 (94)	82 (98)	22 (96)	NS
<i>For 40 year old man who smokes</i>					
140/90	3 (4)	6 (4)	9 (11)	4 (17)	P < 0.05
150/95	10 (13)	30 (21)	29 (35)	11 (48)	P < 0.001
160/100	62 (83)	126 (88)	78 (93)	18 (78)	NS
170/105	72 (96)	137 (96)	83 (99)	22 (96)	NS
<i>For 70 year old woman with no other risk factors</i>					
180/100	62 (83)	109 (76)	60 (71)	13 (57)	NS*

*Mantel-Haenszel test for linear association P<0.05.

We were intrigued to find this tendency and wonder why older general practitioners seem to be keener to treat younger people and not start treatment in elderly people. If a risk factor (cigarette smoking) is introduced into the scenario of the 40 year old patient the thresholds for treatment change but the effect of age remains.

We also asked the local consultant physicians, who commonly manage patients with hypertension, at what blood pressure they would expect a general practitioner to start drug treatment. Although a higher percentage (87%) would treat the 70 year old woman, they expected the general practitioners to start treatment at considerably lower blood pressures than described above, and well below the British Hypertension Society's guidelines.

It is difficult to see how patients will obtain consistent advice about the management of blood pressure with these widely differing opinions.

MICHAEL WHITFIELD
Consultant senior lecturer in general practice
ANTHONY HUGHES
Senior lecturer in statistics

Department of Social Medicine,
University of Bristol,
Bristol BS8 2PR

- 1 Dickerson JEC, Brown MJ. Influence of age on general practitioners' definition and treatment of hypertension. *BMJ* 1995; 310:574. (4 March.)

The World Health Organisation

Changes require consistent action and long term vision by the WHO

EDITOR,—Of Fiona Godlee's articles on the World Health Organisation, the one on the European office is of particular concern to me.¹ Two of the concluding sentences in this article accurately summarise the work of this office: "Through the Health for All initiative, WHO's European office has had a profound influence on the debate on health in Europe. The office has also shown itself

able, within its limited resources, to respond to the enormous changes in its constituents and their needs over the past five years."

Our mission is, indeed, to use our influence to improve people's health while adapting our work to the major changes that are occurring in our region. We do not, however, believe that we can alter overnight health behaviour that has been shaped over generations. Changes in this can be achieved only through a long term vision, implemented through consistent action. This is the road that the member states in the European region of WHO have chosen in updating their Health for All policy for the 1990s.

Godlee does not reflect this broad vision of health. Why should policy action be contrasted with specific programmes? Why set the short term against the long term? One contradiction in the article illustrates this well: on the one hand, the European office is being called on to move from broad based policy issues to the nitty gritty of health care management and delivery; on the other, with regard to immunisation in eastern Europe the office is reproached for focusing on individual programmes rather than on guiding policy. We believe that all these approaches are steps along a continuum from identifying problems to formulating policy, designing a strategy, and designing methods for practical implementation. Health for All offers a logical and comprehensive framework for doing this since it deals equally with all these aspects.²

Too much is made of the differences between the various organisations and their activities, and the evidence for this seems to be mainly anecdotal. For instance, instead of alluding to discord with the European Union Godlee might have mentioned the 46 areas of cooperation developed between the two bodies.

As for the claim that WHO's work in eastern Europe is consultant based, this is simply not true. Of the 485 staff of WHO's regional office for Europe, some 185 are spread over 26 countries. WHO's liaison offices operate in 24 of the 26 countries of central and eastern Europe and the new independent states. In addition, every one of the 70 or so professional staff in the regional office in Copenhagen spends a substantial part of his or her time "out there," helping countries. Our unique network of consultants is used to supplement this structure, not to serve as a substitute for it.

No country in Europe exploits fully its potential for helping its people choose healthier lifestyles, live in a healthy environment, and enjoy cost effective, quality conscious health services. The WHO regional office in Copenhagen is committed to helping them do this better.

DAVID MACFADYEN
Director, programme management

WHO Regional Office for Europe,
DK-2100,
Copenhagen,
Denmark

1 Godlee F. WHO in Europe: does it have a role? *BMJ* 1995;310: 389-93. (11 February.)

2 World Health Organisation. *Health for all targets: the health policy for Europe*. Copenhagen: WHO, 1993. (European health for all series No 4.)

WHO stimulates a commitment to tackling inequalities in health

EDITOR,—In her article on the World Health Organisation in Europe Fiona Godlee fails to appreciate just how large a contribution the European office has made to one of the key issues in health policy today: social inequalities in health.¹ Before the 1980s it was easy for European countries to be complacent about their "fully fledged health infrastructure and high overall levels of health."²

But it is no longer possible for countries to ignore uncomfortable facts about the existence of

inequalities in health, even in the countries with the highest standards of health, such as the Netherlands and Sweden. A major factor in moving the issue up the political agenda has been the work of the European office. Throughout the 1980s it kept up the pressure with a succession of authoritative reports and international meetings on the impact on health of unemployment, migration, recession, and the other major socioeconomic changes that have swept through the region in the past 15 years. It was instrumental in helping researchers in central and eastern Europe to bring into the open the once secret statistics on inequalities in health in their countries, and it continues to document the desperate plight of populations to the east of the region.

More recently, WHO has been at the centre of a concerted effort to shift the focus from documenting the existence of inequalities towards taking action to tackle the problem. Much work has been done on getting interested countries to develop national health strategies that take equity in health into consideration. The fruits of these efforts can be seen, for example, in the Netherlands, which has been committed since 1987 to a national research and development programme on inequalities in health; in Finland, which now has a national centre starting a new phase of collaboration with WHO to develop health policy oriented towards equity; and in Sweden, which is poised to do the same. Even in Britain the WHO's Health for All strategy has helped to stimulate and legitimise a commitment to tackling inequalities in health at the local and regional levels over the many years when there was not even a glimmer of encouragement at the national level.

As socioeconomic conditions across the region continue to worsen I believe that we need more, not less, scrutiny of what is happening to the health and welfare of the most vulnerable sections of the population in Europe. There is a clear and continuing role for WHO in all this.

MARGARET WHITEHEAD
Independent health policy analyst

Ash Magna,
Whitchurch,
Shropshire SY13 4DR

1 Godlee F. WHO in Europe: does it have a role? *BMJ* 1995;310: 389-93. (11 February.)

Appropriate prescribing in asthma

EDITOR,—It is gratifying to see that our paper on appropriate prescribing in asthma and its related cost in east London¹ stimulated debate and constructive criticism.^{2,3} It is also heartening to read Philip Leech's comment that the NHS Executive supports more prophylaxis against asthma though it may be more expensive.² The progressive view of cost effective prescribing taken by Camden and Islington's pharmaceutical advisers is also good news.³ Nevertheless, the overall emphasis of the indicative prescribing scheme is of downward pressure, which may affect prescribing for asthma in the context of reductions in indicative prescribing amounts.

Although prescribing costs in City and East London are lower than national averages despite high morbidity and mortality, general practitioners still face the possibility of reductions in prescribing budgets. While the Prescription Pricing Authority has pointed out that the extra costs of steroid inhalers in asthma may be justified, the overriding message that doctors receive from prescribing analysis and cost (PACT) data and their indicative prescribing budget statements is that prescribing costs should be contained. The low cost of prescribing for asthma in east London suggests that general practitioners may be extending this message to asthma.

We acknowledge the drawbacks inherent in using as an indicator of effectiveness a crude process measure such as the ratio of prophylactic treatment to bronchodilators prescribed.^{4,5} Methods that link process to patient outcomes are needed before we can really talk about effectiveness.

JEANNETTE NAISH
Senior lecturer
CHRIS GRIFFITHS
Senior lecturer
PATRICIA STURDY
Research officer
PETER TOON
Lecturer

Department of General Practice and
Primary Care,
Medical College of St Bartholomew's and
the London Hospitals,
London E1 4NS

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 Leech P. Appropriate prescribing in asthma. *BMJ* 1995;310: 1069-70. (22 April.)

3 Shine C, Dutt A. Appropriate prescribing in asthma. *BMJ* 1995;310:1070. (22 April.)

4 Campbell M, Bateman DN, Roberts SJ, Smith JM. Appropriate prescribing in asthma. *BMJ* 1995;310:1069. (22 April.)

5 Tracey D. Appropriate prescribing in asthma. *BMJ* 1995;310: 1070. (22 April.)

Measuring cardiolipin antibodies

EDITOR,—Cardiolipin antibodies have been variously cited as a risk factor for cerebral thrombosis^{1,2} or splanchnic venous thrombosis,³ or as an epiphenomenon loosely associated with vascular disease.⁴

Cardiolipin antibodies seem to represent a family of low affinity antibodies which share a limited ability to bind to bovine cardiolipin. This rather artificial assay system, dependent on the binding of a low affinity human autoantibody to a non-primate, cross reacting substrate of unproved relevance, can lead to some rather bizarre comparisons. Cardiolipin antibodies are probably identical to the chronic biological false positive Wasserman reaction described more than two decades ago in relation to systemic lupus erythematosus and related disorders, the same bovine cardiolipin being used in the modern enzyme linked immunosorbent (ELISA) assays for cardiolipin antibodies and in the classic Wasserman reaction. Cardiolipin antibodies are related to, but are distinct from, lupus anticoagulant, which represents a further feature of the more general grouping of phospholipid antibodies.

Experience in distributing both single patient materials and pooled materials in the United Kingdom national external quality assessment scheme for anticardiolipin antibody has revealed several inconsistencies. Individual patient materials characterised as containing cardiolipin antibodies of defined levels with one commercial kit do not always give similar results with another kit from an equally reputable source. That the various commercial kits have a similar, if not identical, standardisation can be shown by their parallel responses when tested with pooled human serum materials or with the reference material 90/656.

Of concern, however, is the tendency for users of the assay results to accept the numbers as hard data and decide patient stratification or treatment on the basis of those numbers. Distributions within assessment scheme show a between laboratory coefficient of variation of 25-30% for any one sample. Similar levels of imprecision have been shown between assays, and on occasion between lots, for individual commercial kits by the Medical Devices Agency kit evaluation ("blue cover") reports.

A further concern has arisen from recent studies within the assessment scheme. Four serum samples were made by diluting a single patient