prevent the further diversion of scarce resources into pointless clerical tasks that have nothing to do with improving health care or the management of the NHS.

I thank the extracontractual referrals manager for generous help with data collection. This work was carried out while I was a commissioning manager for acute services in a health authority.

1 Ghodse B, Rawaf S. Extracontractual referrals in the first three months of the NHS reforms. *BMJ* 1991;303:497-9.
2 Williamson JD. Dealing with extracontractual referrals. *BMJ* 1991;303:494-6.
3 NHS Executive. *Consolidation of guidance on extracontractual referrals, tariff and invoicing.* Leeds: NHS Executive, 1994. (FDL(94)33.)
4 NHS Management Executive. *Establishing district of residence.* London: NHS Management Executive, 1993.
5 Auplish S, Shires L. Who goes where? *Health Service Journal* 1994;104(5420): 24-5.
6 Audit Commission. *Their health your business: the new role of the district health authority.* London: HMSO, 1993. (NHS report No 11.)

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Hospital investigation of men and women treated for angina

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Recent studies suggest that women suffering a myocardial infarction and those discharged from hospital with a diagnosis of coronary heart disease receive poorer treatment than men.[1,2] We looked at cases of treated angina in two general practices in Newcastle upon Tyne. We hypothesised that women with angina were less likely to be referred for hospital investigation than men.

Patients, methods, and results

All men and women aged 20 to 74 years in two general practices, who were receiving repeat prescriptions for antianginal drugs (nitrates, β blockers, or calcium antagonists) were identified. One practice is in the most affluent ward of Newcastle (list size 10 000) and the other in one of the most deprived wards (list size 11 500). Patients were sent questionnaires, which included (*a*) questions on personal details such as occupation, (*b*) the Rose angina questionnaire,[3] (*c*) the Canadian Cardiovascular Society's functional classification of angina questionnaire,[4] and (*d*) a question on whether the patient had ever been referred to hospital for chest radiography, exercise electrocardiography, isotope scanning, echocardiography, or coronary angiography. Social class was defined according to the Office of Population Censuses and Surveys' standard occupational classification. Patients were classed as having angina if they met the criteria of the Rose questionnaire.[3]

Questionnaires were sent to 1019 patients and responses were received from 917 (90%). Of these, 100 respondents were selected at random and their responses compared with their medical records. Ninety two records (41 on men and 51 on women) were available for examination, and there was complete agreement in 70. The tendency was to underreport—for example, three men and five women who had been referred for hospital investigation had not indicated it on the questionnaire.

Altogether 144 men and 143 women met the case definition of angina, giving a point prevalence of 2·1% and 2·0% respectively in the combined practice populations aged 20-74 years. Most of the other patients were taking drugs for hypertension. The Canadian Cardiovascular Society classification was fully completed by 125 men and 120 women; seven men and five women had grade 1 angina, 91 and 88 grade 2, 10 and eight grade 3, and 17 and 19 grade 4. The age distribution of the men and women was similar, with a median age of 66·5 (interquartile range 60-71) and 67 (60-73) years. The social class distribution of the men and women who gave an occupation was different, with a greater proportion of the women in social classes 4 and 5 compared with the men (51/117 (44%) *v* 24/141 (17%); (χ^2=20·6, P<0·0001). The table shows the numbers of men and women who reported hospital investigation. When stratified by social class the weighted odds ratio (Mantel-Haenszel test) for hospital investigation for men compared with women was 2·15 (95% confidence interval 1·22 to 3·82) (P=0·008).

Comparison of men and women reporting hospital investigations for angina

Investigation	Men (n=144)	Women (n=143)	Odds ratio* (95% confidence interval)
Chest radiography	88	60	2·17 (1·32 to 3·58)
Exercise electrocardiography	73	40	2·65 (1·58 to 4·46)
Echocardiography	19	14	1·40 (0·64 to 3·10)
Thallium scan	13	9	1·48 (0·57 to 3·90)
Coronary angiography	30	14	2·42 (1·17 to 3·08)
All five	85	53	2·50 (1·49 to 4·20)

*Men to women.

Comment

In this cross sectional study of two general practice populations women with treated angina were half as likely to have been referred for hospital investigation as men. On the basis of the Canadian Cardiovascular Society's classification, however, the severity of their angina was similar to that of the men. They were also of similar age and the difference remained after controlling for social class.

Coronary heart disease is more difficult to diagnose in women than men.[5] The prevalence of angina defined by the Rose questionnaire, or diagnosed clinically, is more similar in women and men than the incidence of myocardial infarction. Women with chest pain are also more likely to have normal coronary arteries. Arguably therefore, hospital investigation in determining the correct diagnosis and management of anginal chest pain is as, if not more, important in women. Our observations suggest that the comparatively unfavourable management of women with coronary heart disease in hospitals is also found in primary care.

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1 Clarke KW, Gray D, Keating NA, Hampton JR. Do women with acute myocardial infarction receive the same treatment as men? *BMJ* 1994;309: 563-6.
2 Petticrew M, McKee M, Jones J. Coronary artery surgery: are women discriminated against? *BMJ* 1994;306:1164-6.
3 Rose GA, Blackburn H, Gillum RF, Prineas RJ. *Cardiovascular survey methods.* 2nd ed. Geneva: World Health Organisation, 1982.
4 Campeau L. Grading angina pectoris. *Circulation* 1975;54:522-33.
5 Jackson G. Coronary artery disease and women: justifies equal opportunity management. *BMJ* 1994;309:555-7.

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