

Exercise testing and angiography in 10 hospital catchment areas in two Danish counties, one rural and one urban

Hospital catchment area	No of exercise tests per million inhabitants	Angiography per million inhabitants	Percentage of exercise tests suggesting disease	Percentage of exercise tests suggesting disease that led to referral for angiography	Distance (km) from hospital to angiography centre
Rural (Ringkøbing):					
1	2213	940	28	33	154
2	2978	1645	31	33	128
3	4044	1451	27	41	127
4	3649	1090	30	40	116
5	2931	1326	28	58	82
Urban (Aarhus):					
1	3965	2441	28	69	62
2	2000	1576	27	53	42
3	3835	2292	25	61	36
4	4278	1519	23	79	21
5*	3634	2683	26	63	2

*Two different units with bicycle exercise testing in Aarhus University Hospital, but serving the same hospital area population.

medical consultant at the local hospital or by a cardiology specialist (three in each county). Stratified for age, the relative risk of referral (urban versus rural) for angiography (if an exercise test result suggested disease) was 2.06 (1.39 to 3.05) for women and 1.27 (1.09 to 1.50) for men. Adjustment for history of myocardial infarction did not affect the relative risk. The highest proportion of patients (per million inhabitants) with a test result that suggested disease who were referred for angiography was 79%—in the hospital catchment area 21 km from the angiography centre. The lowest proportion was 33%—in two areas 128 km and 154 km away. A linear regression was significant ($P < 0.01$) with a slope of -0.78 .

Comments

Referral for coronary angiography in patients with a bicycle exercise test suggesting disease varied strongly with the distance from the angiography centre, showing that triage by medical consultants may constitute a barrier to referral for coronary angiography.

The two Danish counties in this study did not differ in their rates of exercise testing, and the doctors gave similar interpretations of the test results. No economic restrictions affected referral of patients from any of the local hospitals to the angiography centre, and both counties had similar policies on the management of healthcare problems.

The clear association between the distance to the coronary angiography service and the doctor's decision to refer the patient for coronary angiography presumably reflects different local medical cultures rather than problems with the transport of patients. Our data show that the medical specialist is a major barrier to referral for coronary angiography. The observed differences in practice between centres have implications for the organisation of the coronary angiography service, the diffusion of new technology, the use of guidelines, and continuing performance development. It is not known whether the observed differences in 1996 reflect appropriate or inappropriate use of medical resources; this issue deserves further investigation.

We thank Professor Henrik Toft Sørensen for epidemiological support.

Contributors: TN and NT had the original idea, and TTN and JL helped to design the study. TN collected and analysed

data and drafted the paper. TTN, NT, and JL helped to interpret the data and revise the paper. TN is guarantor for the study.

Funding: A research grant from Ringkøbing County.

Competing interests: None declared.

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Corrections and clarifications

Adverse events in British hospitals: preliminary retrospective record review

Two errors persisted to publication in this article by Charles Vincent and colleagues (3 March, pp 517-8). The first column heading in table 2 should read "No of adverse events" [not "No of patients with adverse events"], and the penultimate sentence in the second paragraph of the results section should read: "Overall, 57 [not 53] (48%) adverse events were judged preventable." It should also have been made clear that some of the authors' results had already been published earlier in the *BMJ* (1999;319:1091); in *Organisation With a Memory* (a report by an expert group, chaired by the chief medical officer for England, Liam Donaldson, on learning from adverse events in the NHS); and in *Clinical Governance Bulletin*.

Mimerva

The caption to the photograph submitted by I Grant and colleagues (28 April, p 1072) correctly referred to the left side of the man's face being affected, but unfortunately we published the photograph the wrong way round.

Two more medical schools to open

In the final paragraph of the website version of this news article by Lynn Eaton (7 April, p 816) Newcastle University was inadvertently omitted from the list of new medical schools and places. Newcastle University has been in collaboration with Durham University—the venture has therefore been a joint one.

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