clothing, it is likely that the increases in waist circumference are genuine.

Increases in waist circumference on current and future morbidity should be a cause for concern. One US study found that young people above the 90th centile for waist circumference had higher concentrations of low density lipoprotein cholesterol, triglycerides, and insulin and lower concentrations of high density lipoprotein cholesterol than young people below the 10th centile.[14] It is not known how early in life the increases in waist circumference over the reference values from 1977 and 1987 are detectable in a contemporary population, although we have observed similar increases in children as young as 3 years (unpublished observations).

The increase in waist circumference was appreciably larger in females than in males, for reasons that are unclear. Energy intake has decreased to a similar extent in the sexes.[7] It may be that levels of physical activity have decreased faster in females than in males, and central fatness may be related more to physical activity than to energy intake.

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Views of doctors and managers on the doctor-manager relationship in the NHS

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A well functioning relationship between doctors and managers is crucial if government plans for "modernising" the NHS are to deliver real service improvements.[1 2] We aimed to shed some light on current perceptions of the doctor-manager relationship by examining areas of convergence or divergence of views among a large sample of doctors and managers in the NHS.

Participants, methods, and results

We conducted a postal questionnaire survey in NHS acute trusts across Great Britain during the summer of 2002. The survey included a census of chief executives and medical directors (from 197 trusts), together with a stratified cluster sample of both medical and non-medical managers at directorate level (clinical directors or their equivalent and non-medical directorate managers or their equivalent) randomly selected from 75 trusts. Comparisons between these different role groups form the central part of the analysis; we assessed variations across all four groups using χ^2 tests.

We received replies from 103 chief executives, 168 medical directors, 445 clinical directors (or equivalent), and 376 non-medical directorate managers (or equivalent). The response rate was 66% at board level and 73% at directorate level, giving a total of 1092 respondents.

Overall, chief executives were the most optimistic about the state of doctor-manager relationships, and clinical directors the least. About three quarters (78/103, 76%) of chief executives rated the quality of current doctor-manager relationships as 4 or more on a scale of 1 (poor) to 5 (excellent), compared with just 37% (164/443) of clinical directors. Further, 78% (80/102) of chief executives thought that doctor-manager relationships would improve over the next year, compared with just 28% (123/439) of clinical directors (indeed, 26% (113/439) of clinical directors thought that the relationships would deteriorate). Differences across all four groups were significant at $P < 0.01$.

Questions about specific aspects of the doctor-manager relationship showed some areas of good agreement but also highlighted issues where views diverged significantly between the four groups (table). Only rarely was the most obvious divide between those medically qualified and those not. More often, the dif-

Agreement with statements about doctor-manager relationships among 1092 survey respondents. Values are the percentages (numbers) of respondents in each group who agreed with given statement

Statements	Chief executives (n=103)	Medical directors (n=168)	Directorate managers (n=376)	Clinical directors (n=445)	Overall (n=1092)
Issues of relative power					
The relative power and influence between management and medical staff is about right	74 (75)	73 (123)	54 (199)	45 (198)	55 (595) **
Doctors are adequately involved in hospital management activities	78 (79)	75 (124)	68 (253)	63 (282)	68 (738) **
Doctors have sufficient influence on hospital management	92 (95)	77 (127)	87 (320)	48 (211)	70 (753) **
Managers allow doctors sufficient autonomy to practise medicine effectively	97 (99)	95 (157)	95 (354)	73 (317)	86 (927) **
Management do not exert pressure to reduce use of tests or services†	75 (76)	88 (147)	83 (306)	76 (330)	80 (859) **
Management do not exert pressure to discharge or transfer patients early†	50 (51)	52 (87)	49 (179)	55 (241)	52 (558)
Perceptions of staff calibre					
Management staff in this hospital are consistently of high quality	81 (82)	70 (114)	78 (292)	53 (232)	67 (720) **
Medical staff in this hospital are consistently of high quality	92 (94)	91 (148)	85 (316)	90 (397)	88 (955) *
Managers are well versed in clinical activity	84 (85)	76 (124)	83 (311)	47 (206)	68 (726) **
Managers have confidence in clinical leadership capabilities	68 (70)	67 (111)	69 (253)	71 (310)	69 (744)
Doctors have confidence in management leadership capabilities	87 (89)	63 (105)	55 (202)	42 (184)	54 (580) **
Views on goals, decision making, and team working					
Hospital managers and doctors are largely in agreement on the overall goals of the institution	96 (99)	83 (140)	81 (302)	78 (343)	81 (884) **
Management is driven more by clinical rather than financial priorities†	78 (80)	44 (71)	53 (197)	24 (104)	42 (452) **
Managers and doctors focus together on patient need	87 (88)	80 (134)	82 (306)	61 (267)	74 (795) **
Doctors view the management decision making process to be fair	74 (75)	60 (99)	40 (148)	36 (159)	45 (481) **
Doctors generally are supportive of management decisions	90 (93)	77 (127)	64 (231)	52 (224)	63 (675) **
Doctors and managers work well together as a team	91 (94)	87 (141)	82 (303)	73 (315)	80 (853) **
Continuous improvement is undertaken on the basis of partnership and teamwork	90 (92)	79 (131)	82 (305)	70 (303)	78 (831) **
Communication issues					
Management is good at providing feedback to doctors about service delivery	75 (76)	63 (104)	73 (272)	51 (223)	63 (675) **
Doctors are good at keeping management informed about service development issues	66 (67)	55 (93)	42 (155)	56 (246)	52 (561) **
The use of clinical performance data stimulates good practice and strengthens service management	93 (96)	86 (142)	84 (310)	74 (321)	81 (869) **
The availability of clinical performance data improves the doctor-manager relationship	83 (84)	73 (121)	70 (257)	61 (266)	68 (728) **
Resource issues					
There is an adequate number of consultants to provide quality patient care	32 (33)	24 (39)	41 (153)	14 (62)	27 (287) **
Within this organisation there are generally sufficient clinical resources	24 (25)	18 (29)	25 (92)	9 (38)	17 (184) **
Management is generally responsive to requests for additional clinical resources	86 (87)	69 (114)	76 (282)	38 (167)	61 (650) **
Doctors prioritise effectively when making requests for additional resources	39 (40)	32 (53)	23 (86)	47 (204)	36 (383) **

Some denominators are reduced because of missing data (never more than 3% for any individual question).
*P<0.05 for χ^2 test of equality across groups.
**P<0.01 for χ^2 test of equality across groups.
†These statements were "reverse worded," and values have been adjusted accordingly.

ferences were between senior managers (board level) and middle managers (directorate level). Most striking was that clinical directors often seemed to have views markedly divergent from—and much less positive than—the views held across the other three groups.

Typically, clinical directors were the least impressed with management and the most dissatisfied with the role and influence of clinicians. For example, whereas almost all (95% (610/640)) chief executives, medical directors, and directorate managers agreed that "managers allow doctors sufficient autonomy to practise medicine effectively," 27% of clinical directors disagreed. Further, as a group, clinical directors were less likely ($P < 0.01$) than each of the other groups to agree that "management staff in this hospital are consistently of high quality" (53% *v* 77% (average across the other three groups)), that "managers are well versed in clinical activity" (47% *v* 81%), and that "doctors have sufficient influence on hospital management" (48% *v* 85%). Indeed, for almost all positive statements about doctor-manager relationships at least a quarter of clinical directors disagreed. The only statement that received near unanimous approval from clinical directors (90%) was "medical staff in this hospital are consistently of high quality."

Comment

Doctors and managers in the NHS are often dissatisfied with doctor-manager relationships but differ in their views depending on their role in the organisation. In general, senior managers were more positive than staff at directorate level, and lay managers were more positive than medical managers. Clinical directors (or those in equivalent roles) were easily the most disaffected, with many holding negative opinions about managers' capabilities, the respective balance of power and influence between managers and clinicians, and the prospects for improved relations. Unless such divergence is addressed, further difficulties in delivery

of the government's ambitious agenda for modernisation are likely.[3]

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Evidence of *Plasmodium falciparum* malaria resistant to atovaquone and proguanil hydrochloride: case reports

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The increased spread of drug resistant malaria highlights the need for alternatives for treatment and chemoprophylaxis. The combination of atovaquone and proguanil hydrochloride (Malarone, GlaxoSmithKline, NC) has shown high efficacy against *Plasmodium falciparum* with only mild side effects and has been registered for use in several countries, including Denmark, Germany, Sweden, the United Kingdom, and the United States.[1] Treatment failures have been attributed to suboptimal dosage, reinfections, or to a point mutation in the cytochrome b gene.[1 2] Bioavailability of atovaquone depends on the concomitant intake of a fatty diet, yet drug concentrations were not analysed in these reports. We provide evidence of resistance in two patients treated with atovaquone and proguanil hydrochloride for *P falciparum* infection.

Methods and results

In September 2000, two boys and their mother were diagnosed as having *P falciparum* malaria at the university hospital in Gothenburg, after returning from an eight week visit to the Ivory Coast. They had taken chloroquine weekly and proguanil daily for chemoprophylaxis against malaria. Case 1, the youngest boy (18 months), had fever, convulsions, and 1% infected erythrocytes. He was treated with atovaquone and proguanil hydrochloride (table). His fever continued, and

Details of three patients treated with atovaquone and proguanil hydrochloride (Malarone; GlaxoSmithKline) for *Plasmodium falciparum* malaria

			Gene mutations*	
Patients' details	**Infected erythrocytes (%)**	**No of tablets**	**Cytochrome b**	**Dihydrofolate reductase**
Case 1 (11 kg)				
Day of presentation	1	2	Wild type	Wild type
Days after presentation:				
1	5	1		
2	4	Mefloquine†		
4	Gametocytes only			
7	Gametocytes only		Wild type	Wild type
28	0			
Case 2 (19 kg)				
Day of presentation	0.5	1	Mutant type 1	Wild type
Days after presentation:				
1		1		
2	0.2	1		
4	Gametocytes only		Negative	Negative
7	Gametocytes only		Negative	Negative
28	1.6	Mefloquine†	Mutant type 1	Mutant type 2
Case 3 (101 kg)				
Day of presentation	Few rings	4	Mutant type 1	Wild type
Days after presentation:				
1		4		
2	0	4		
3	Gametocytes only		Mutant type 1	Negative
7	Gametocytes only		Mutant type 1	Negative
28	0		Negative	Negative

Mutant type 1=locus 268-Ser. Mutant type 2=loci 51-Ile, 59-Arg, and 108-Asn.
*Detected by polymerase chain reaction.
†Rescue treatment.