Long to short consultation ratio: a proxy measure of quality of care for general practice

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SUMMARY. Eighty five general practitioners in the Lothian region recorded information on all surgery consultations on one day in every 15 for a year. On the basis of their mean consultation times with patients the working styles of the general practitioners were described as 'faster' (n=24), 'intermediate' (n=40) or 'slower' (n=21). The 21 707 consultations which they carried out over this period were defined as 'short' (five minutes or less), 'medium' (six to nine minutes) or 'long' (10 minutes or more). Independent of doctor style, 'long' consultations as against 'short' consultations were associated with the doctor: (1) dealing with more of the psychosocial problems which had been recognized and were relevant to the patient's care; (2) dealing with more of the long term health problems which had been recognized as relevant; and (3) carrying out more health promotion in the consultation. Patients also reported greater satisfaction with longer consultations. The ratio of long:short consultations was found to be 0.28:1 for 'faster' doctors as against 2.3:1 for 'slower' doctors. When doctors in either group had more heavily booked surgeries or were running late, the long:short consultation ratio fell, in some cases by over 50%.

This paper suggests that the ratio of long to short consultation length for a general practitioner might become the basis of a simply proxy measure of quality of care; and that its use might help monitor the effect of recent and proposed changes in the way in which general practice care is delivered.

Introduction

MUCH of the recent work on the quality of care in general practice in the UK has centred on the availability and use of time at consultations. In 1987, Butler and Calnan[1] discussed recent literature relating list size to quality of care and described a postal study in which 1419 doctors gave information on their use of time both generally and in relation to consultations within their surgeries. Wilkin and Metcalfe[2] in a large study of urban general practitioners found that doctors with smaller lists had longer mean consulting times and Fleming and colleagues[3] have shown benefits in the processes of care in relation to list size and consulting time. Howie and colleagues[4] in a study of the work of 85 doctors in the Lothian region, have reported that doctors with longer mean consultation times explore the psychosocial element of respiratory illness consultations more and prescribe fewer antibiotics than do doctors with shorter consultation times, but the same group[5] have described higher stress levels, associated with running behind schedule, in these 'slower' doctors. Morrell and colleagues[6] in a study in a single practice, found that when doctors offered longer consultation times, more problems were identified and patients were more satisfied with the consultation. Ridsdale[7] has repeated this work in two further practices and reported a range of process and outcome benefits with longer booking intervals.

Variation between and within general practitioners in their working styles is a reality, yet some of the causes and effects of the variation are easier to describe and evaluate than others. Work which relates aggregated consulting times (whole sessions divided by the number of patients seen) to clinical processes and outcomes lacks the power of studies where individual consulting times within complete surgery sessions can be studied. The aim of the work presented in this paper was the further exploration of the relationship between quantity and quality of care; the authors' belief was that there is only a weak direct link between the number of patients which a general practitioner sees and the goodness of service they receive, but that there is a stronger link between the length of consultations they receive and the quality of care that follows. Working on the assumption that both doctors and patients feel that the quality of consultations is generally constrained by shortage of available time it was hypothesized that preferred patterns of care may be put at risk by working conditions in which the number of longer consultations falls and the number of shorter consultations rises.

Method

Data collection

All 496 general practitioners in Lothian were invited to one of three meetings at which the aims and methods of the study were explained. All interested doctors were subsequently visited at their practices. The 86 general practitioners (17% of all Lothian general practitioners) who were recruited into the study were not randomly selected but represented a cross-section of single-handed doctors and doctors in large group practices, male and female doctors and younger and older doctors. During the first three months of the study, one male and one female doctor withdrew from the study, and one single handed male doctor joined the study leaving 85 general practitioners who completed the project.

The doctors recorded information on all surgery consultations on one day in every 15 for a year from November 1987. A Monday recording day was followed progressively by a Tuesday, a Wednesday, and so on, including Saturdays and Sundays. The arrival time of patients was noted by the reception staff using a digital clock synchronized with a clock in the doctors' consulting rooms. When relevant, the appointment time of patients was also recorded. When each patient entered the doctor's consulting room, the doctor noted the time that the patient came in, and at the end of the consultation noted the time that the patient left. This procedure for timing patients through surgery sessions using synchronized clocks in the reception area and in the doctors' consulting rooms was piloted in a previous study by Porter, Howie and Levinson.[8]

At the end of the consultation, the doctors also recorded

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details of patients' presenting and other health problems, their clinical management, and doctor satisfaction which was measured on a five point Lickert scale from very dissatisfied (1) to very satisfied (5). This method for collecting consultation data had been piloted in one Edinburgh practice of five doctors over a three week period, and found to be acceptable to the doctors, though it did take 30–45 seconds to complete.

During the latter five months of the study, 43 of the 85 doctors agreed to issue a health status measure (the Nottingham health profile)[9,10] and a 33-item questionnaire to patients attending for consultations. When patients arrived at the doctor's surgery they were asked to complete the first questionnaire, which included the Nottingham health profile, while they were waiting to see the doctor. As they were leaving the doctor's consulting room, patients were asked by the doctor to complete a satisfaction questionnaire before they left the premises. All questions, other than the Nottingham health profile, were derived from pilot studies in one Edinburgh practice, but had not been further validated.

Definition of variables

The consulting style of the doctors was defined after calculating the mean face-to-face length for all surgery consultations (excluding special clinics, for example, antenatal or child care clinics). The 24 general practitioners with the fastest times (6.99 minutes or less per patient) were described as 'faster' doctors; the 21 doctors in the quartile with the longest times (9.00 minutes or more per patient) were described as 'slower' doctors; and the remaining 40 doctors (7.00 to 8.99 minutes per patient) were described as 'intermediate' doctors. The proportion of faster, intermediate and slower doctors was similar for the doctors who agreed to participate in the patient health and satisfaction study.

Within each of the three doctor styles, the percentage distribution of consultation lengths was displayed and the ratio of long:short consultations calculated. The case mix of patients seen by faster, intermediate and slower doctors was assessed in several ways: using the Nottingham health profile, doctors' diagnostic statements, the age and sex of patients and the proportions of new to return consultations.

Quality of care was defined using three process variables and one outcome measure. For the first process variable the general practitioner was asked to note whether a long term health problem had been recognized at the consultation and, if so, whether it had been dealt with. For the second process variable the general practitioner was asked to note whether the patient had a psychosocial problem which was relevant to his or her care and, if so, whether an attempt had been made to deal with it. The third process variable was the amount of health promotion in the consultation; the doctor was asked to score this on a scale from 1 ('none') to 5 ('a lot'). The outcome measure was the 33-item patient satisfaction questionnaire described above.

Finally, the influence of administrative circumstances on the ratio of long:short consultation lengths was examined by recalculating the ratios of consultation lengths, after controlling for the general practitioner's consulting style, for sessions which ran more than half an hour late as against on time, for sessions which included 15 or more as against nine or fewer patients and sessions with and without booked appointments.

Results

Information was recorded on 21 707 consultations.

Consultation length

For the 24 faster doctors, 15.2% of consultations lasted 10 minutes or more, and 54.1% lasted five minutes or less, giving a ratio of long:short consultation lengths of 0.28:1 (Figure 1a). For intermediate doctors the figures were 35.7% and 26.6%, giving a ratio of 0.75:1. For the slower doctors the figures were 45.0% and 19.6%, giving a ratio of 2.3:1 (Figure 1b).

Case mix

Table 1 shows the Nottingham health profile scores prior to consultation for patients aged 16 years and over. This shows broad similarity in the quantity of physical and emotional morbidity presented to general practitioners in each consulting style group. The diagnostic statements recorded by the three groups of general

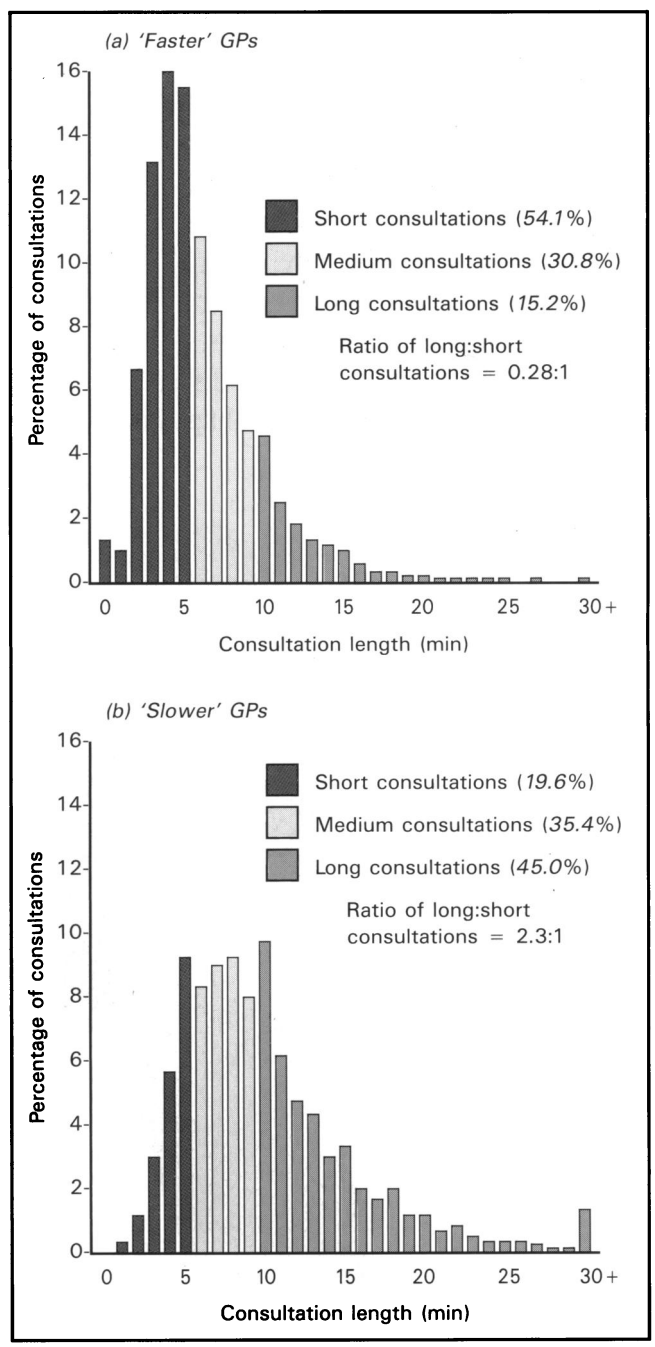

Figure 1. *Distribution of consultation lengths for (a) general practitioners with 'faster' consulting style (n = 6858 consultations) and (b) general practitioners with 'slower' consulting style (n = 4460 consultations).*

Table 1. Mean scores on the six dimensions of the Nottingham health profile (NHP) for patients aged 16 years and over prior to consultation according to general practitioner's consulting style.

General practitioner's consulting style	Total no. of patients seen	Patients' mean scores on NHP dimensions					
		Energy	Emotional reaction	Social isolation	Sleep	Pain	Physical mobility
Faster	601	20.39	13.44	5.99	17.92	10.32	5.93
Intermediate	879	21.46	12.89	6.94	20.57	12.13	7.06
Slower	499	20.27	12.65	6.93	16.59	8.51	5.60
Kruskal-Wallis one-way analysis of variance		NS	NS	NS	NS	$P<0.05$	NS

NS = not significant.

practitioners were also broadly similar, as were the ages of the patients seen, the proportion of new and return consultations and the number of extra patients fitted into surgery sessions. Slower doctors saw a small excess of female patients compared with faster doctors but not sufficient to explain the observed variations in consultation lengths.

Content of consultations

Figure 2 shows the extent to which concurrent health problems were recognized and explored in short (five minutes or less), medium (six to nine minutes) and long (10 minutes or more) consultations for faster, intermediate and slower doctors (see Appendix 1 for chi-squared values). The chances that long term health problems which had been recognized would be dealt with increased progressively with consultation length, irrespective of doctor's consulting style. Figure 3 demonstrates that the chances that a psychosocial problem which had been recognized would be dealt with also increased progressively with consultation length and irrespective of doctor style. Figure 4 demonstrates the same trends for the amount of health promotion activities.

Patient satisfaction

Table 2 shows the responses to the patient satisfaction questionnaire. A significantly higher proportion of favourable responses were shown for long compared with short consultations for 17

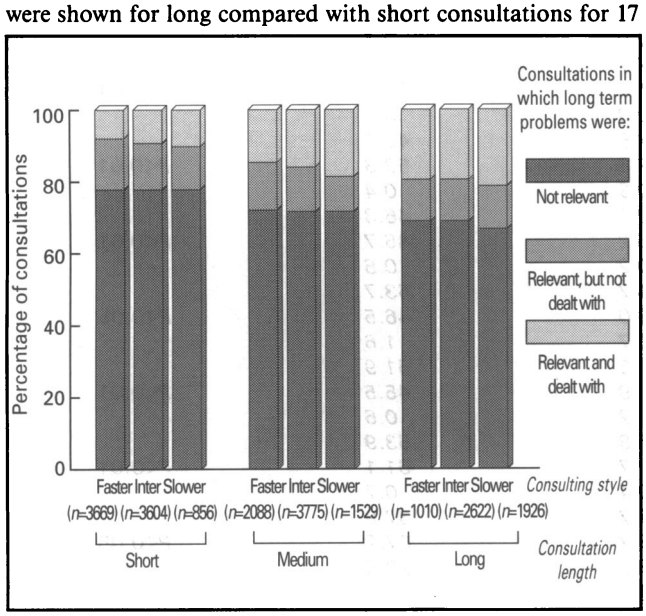

Figure 2. *Percentage of consultations in which long term health problems were dealt with, according to consultation length and general practitioner's consulting style.*

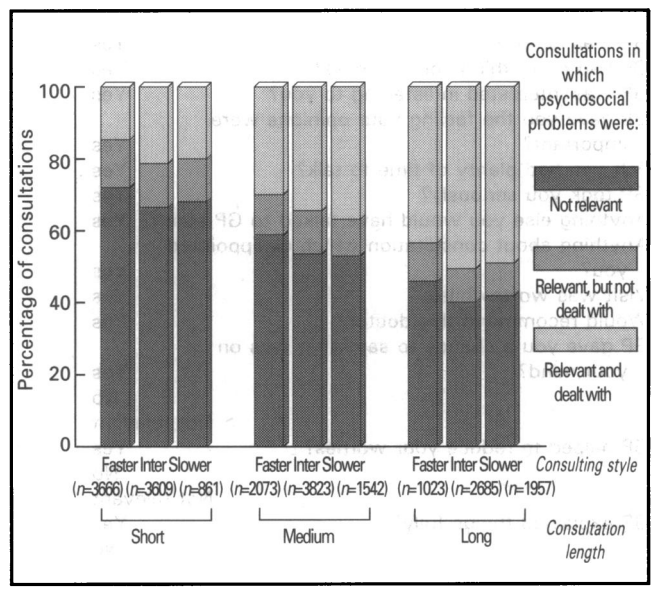

Figure 3. *Percentage of consultations in which psychosocial health problems were dealt with, according to consultation length and general practitioner's consulting style.*

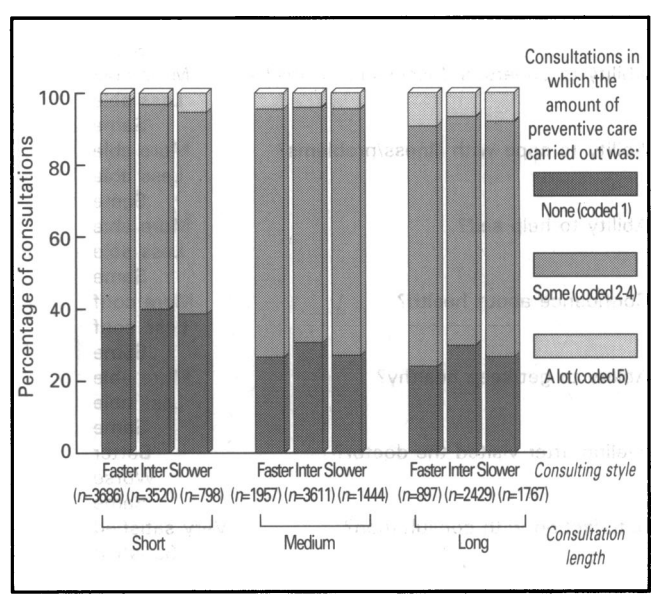

Figure 4. *Percentage of consultations in which preventive care was carried out, according to consultation length and general practitioner's consulting style.*

Table 2. Results of the satisfaction questionnaire.

		Percentage of respondents		
		Short consultations[a] (n = 585–721)	Long consultations[b] (n = 579–722)	Significance (χ^2 test)
Consulted this doctor before?	Yes	89.9	87.6	NS
Waiting time was too long?	Yes	14.4	13.4	NS
GP annoyed you?	Yes	1.7	1.1	NS
GP was rather inconsiderate?	Yes	3.1	1.9	NS
GP upset you because it was bad news?	Yes	1.0	1.4	NS
GP upset you because of how he spoke?	Yes	0.4	0.3	NS
GP was difficult to understand?	Yes	0.9	1.3	NS
GP was friendly?	Yes	99.0	99.7	NS
GP was in a hurry?	Yes	12.3	6.2	$P<0.01$
GP was tense?	Yes	3.2	0.9	$P<0.05$
GP was relaxed?	Yes	92.7	95.5	$P<0.05$
GP was caring?	Yes	95.1	98.0	$P<0.05$
GP had other things on his mind?	Yes	3.8	3.2	NS
GP was interested in listening to you?	Yes	96.7	98.5	NS
GP gave you the feeling your opinions were important?	Yes	88.9	94.7	$P<0.01$
Felt you had plenty of time to talk?	Yes	94.2	96.8	$P<0.05$
GP took you seriously?	Yes	95.4	96.7	NS
Anything else you would have talked to GP about?	Yes	10.7	13.1	NS
Anything about consultation which disappointed you?	Yes	6.4	5.6	NS
Visit was worthwhile?	Yes	96.9	96.8	NS
Would recommend this doctor?	Yes	97.4	97.9	NS
GP gave you a chance to say what was on your mind?	Yes	67.1	83.4	$P<0.01$
	No	3.1	1.3	
	Not relevant	29.8	15.3	
GP helped to reduce your worries?	Yes	54.3	68.2	$P<0.01$
	No	10.9	9.6	
	Not relevant	34.8	22.3	
GP explained things fully?	Yes	83.5	91.4	$P<0.01$
	No	2.7	1.9	
	Not relevant	13.9	6.7	
You will follow the treatment?	Yes	91.2	92.1	NS
	No	1.1	0.8	
	Not relevant	7.6	7.0	
Ability to cope with life?	More able	22.9	32.2	$P<0.01$
	Less able	0.0	0.4	
	Same	77.1	67.3	
Ability to understand illness/problems?	More able	41.2	57.1	$P<0.01$
	Less able	0.3	0.7	
	Same	58.5	42.2	
Ability to cope with illness/problems?	More able	37.8	53.3	$P<0.01$
	Less able	0.3	0.4	
	Same	62.3	46.3	
Ability to help self?	More able	35.2	45.7	$P<0.01$
	Less able	0.2	0.6	
	Same	64.7	53.7	
Confidence about health?	More conf	39.0	46.5	$P<0.05$
	Less conf	0.7	1.6	
	Same	60.3	51.9	
Ability to get/keep healthy?	More able	33.9	45.5	$P<0.01$
	Less able	0.2	0.6	
	Same	65.9	53.9	
Feeling after visited the doctor?	Better	50.7	61.1	$P<0.01$
	Worse	0.4	0.7	
	Same	48.7	37.9	
Satisfaction with consultation?	Very satisfied	59.7	67.2	$P<0.05$
	Satisfied	33.2	28.6	
	50/50	5.1	2.5	
	Dissatisfied	0.7	0.7	
	Very dissatisfied	1.2	1.0	

n = range of total number of respondents. NS = not significant. [a]Consultations lasting five minutes or less. [b]Consultations lasting 10 minutes or more.

of 33 questions asked ($P<0.01$ for 11 questions). When the data were reanalysed for the four questions which included a 'not relevant' category, the question 'Did the doctor give you a chance to say what was really on your mind?' remained significant, but the other two questions which are shown in the table as significant, lost their significance.

Other process/outcome measures

The proportions of patients who were brought back, referred and investigated were similar for doctors of different consulting styles. Faster doctors gave prescriptions for drugs at 60% of consultations and slower doctors prescribed at 54% of consultations ($P<0.01$), and this is in line with our previously published work on antibiotic prescribing.[4] Faster doctors reported lower levels of satisfaction with consultations than slower doctors.

Influence of administrative circumstances on ratios of long:short consultation length

Table 3 shows that the ratio of long:short consultations changed with all the changes in administrative circumstances irrespective of the general practitioner's consulting style.

Table 3. Ratio of long to short consultations according to general practitioner's consulting style for different administrative circumstances.

	Ratio of long to short consultations (total no. of consultations)		
	Faster GPs	Slower GPs	All GPs
Overall	0.28 (6858)	2.30 (4460)	0.70 (21707)
Appointment sessions	0.31 (5828)	2.41 (3936)	0.75 (18957)
Non-appointment sessions	0.15 (1020)	1.72 (524)	0.45 (2750)
<10 patients per session	0.36 (1151)	3.13 (1058)	0.96 (4623)
>14 patients per session	0.23 (3349)	1.46 (825)	0.44 (6849)
Sessions running on time	0.33 (3965)	2.69 (1752)	0.74 (11605)
Sessions running 15-30 minutes late	0.26 (1437)	2.39 (1275)	0.68 (5274)
Sessions running >30 minutes late	0.20 (1456)	1.85 (1433)	0.63 (4828)

Discussion

Even in a study of over 20 000 consultations, where attempts were made to control simultaneously for more than a few of the many process or contextual variables about which we had information, the numbers available for comparison fell quickly. In addition, many variables were interdependent to some degree and our analyses and interpretations of our data have to be made against these difficulties. At the same time, where the numbers available are large the risk of meaningless statistical significance being found rises. Readers have to judge the balance between statistical and clinical importance for themselves and we have tried to help this by producing detailed tables. However, there are some clear trends.

As would be expected, the content of longer and shorter consultations was different. The greatest differences were first in the number of psychosocial problems identified and dealt with and second in the number of other health problems which were identified and dealt with but were not the primary reason for the consultation. Longer consultations did include more health promotion, but not a great deal more. What was of interest was that doctors with different styles of consulting (faster or slower) appeared to behave similarly when they worked in the same consulting style: for example, when slower doctors worked fast their consultation behaviour appeared to be similar to the behaviour of faster doctors. Long consultations were associated with greater patient satisfaction in several important areas. However, the relationship between patients' expectations of consultations, their perception of the 'relevance' of the questions asked, and satisfaction was not answerable from this data.

Because 'faster' and 'slower' doctors were defined by their mean consultation lengths, it is not surprising that faster doctors had more short consultations and slower doctors more long consultations. However, the evidence we have available suggests that the case mix they see is similar; the diagnostic labels used, the Nottingham health status scores of patients, the proportion of new and return consultations, the age and sex distribution of patients and the extra patients seen, are unable to account for doctors of different style working with the different mix of shorter and longer consultations we have described.

The shape of the distribution curves shows that slower doctors have a much longer 'tail' of long consultations (17% of consultations lasting 15 minutes or more as against 3%). Thus slower doctors are not just faster doctors who work more slowly. Faster doctors had a larger personal list size (mean 1789; standard deviation 775) than did slower doctors (mean 1567; standard deviation 726), but as in our previous paper[4] this difference disappears when partnership totals are calculated as complete units.

Further work will explore the personal and biographical features that might contribute to how doctors adopt the styles they use. In the meantime we recognize that doctors generally feel constrained by their commitments and, although many faster doctors expressed dissatisfaction with short consultations, they did not see a change in organization as a realistic option. Consequently their working pattern becomes relatively fixed and this was reflected in the fact that mean consultation lengths for faster doctors did not vary much with the number of patients they had to see. Slower doctors behaved relatively consistently with sessions of up to 12 patients (about two hours work) but when they had a larger number of patients to see in a session their mean consultation length fell to accommodate the extra patients.

Given that our knowledge of why some doctors are 'fast' and others 'slow' is incomplete, it seems safer to make comparisons between general practitioners using doctors of the same consulting style. Doing this we found that several common administrative problems significantly changed the patterns of time distribution. This happened most noticeably for the slower doctors who started with greater opportunity for flexibility. For them, having a larger number of patients to see in a session as against a smaller number changed the ratio of long:short consultations from 3.13:1 to 1.46:1. The greatest loss was in the number of consultations lasting 15 minutes or more, which fell from 22% to 12% of all consultations while the number of consultations of five minutes or less arose from 16% to 26%. The same trends were seen when doctors were running late and when they worked with unbooked rather than booked appointments. It is worth commenting, however, that the single feature which most commonly correlates with running late is having booking intervals that are incompatible with consultation times (manuscript in preparation). This was a much more common problem for slower doctors, and their patients indicated dissatisfaction with the times they often had to wait (manuscript in preparation).

Given the comments we have made about the similarity of the case mix, it is difficult not to conclude that differences in the ratio of long:short consultations reflect differences in the

quality of care being offered, certainly within doctor style and possibly between doctor styles. The advantages of longer consultations do not simply lie in more services being provided but in a larger proportion of the needs which have been recognized being followed up by the doctor. It seems reasonable to equate shorter consultations with 'presenting symptom' medicine and longer consultations with the wider interpretation of consultations as described by the Stott and Davies model.[11] There are those who argue that the 'presenting symptom' model is the appropriate one and that the patients do not wish for or benefit from wider discussion of perhaps insoluble problems, but the responses to our satisfaction questionnaire do not support this view. We have yet to investigate the economic implications of these different consulting styles.

At present there is considerable concern that changes in the contracts and modes of working of general practitioners will adversely affect the quality of care they offer. If more time has to be spent on administration or on the provision of new services, this may be reflected either in changes in the time available for consultations, or in how that time is used. Longer consultations (especially those over 15 minutes) may have to be sacrificed as part of a change to shorter average lengths. Alternatively average consultation lengths may arise but the number of longer consultations may fall because of an increase in the time spent recording information.

If longer consultations are better than shorter ones, then our method of displaying the distribution of consultation lengths and trying to interpret the shapes of these distributions may offer a practical and sensible way of monitoring the quality of care delivered in general practice in the years ahead. We recommend its further exploration.

Appendix 1

The following tables show the chi-square values and statistical significance of the differences in the processes of care recorded by general practitioners between length of consultation and between general practitioners' style of consultation. In general, significant differences were found between type of consultation within the same style, rather than between style within type of consultation.

	Long term health problems			
	Not relevant, relevant (not dealt with) and relevant (dealt with)		Relevant (not dealt with) and relevant (dealt with)	
GP consulting style (faster/inter/slower) controlling for consultation length				
Short	11.4	P=0.07	6.8	P<0.05
Medium	14.0	P<0.05	13.2	P<0.001
Long	26.0	P<0.001	17.6	P<0.001
Consultation length (short/medium/long) controlling for GP consulting style				
Faster	164.7	P<0.001	45.0	P<0.001
Intermediate	156.4	P<0.001	48.1	P<0.001
Slower	109.0	P<0.001	34.5	P<0.001

	Psychosocial problems			
	Not relevant, relevant (not dealt with) and relevant (dealt with)		Relevant (not dealt with) and relevant (dealt with)	
GP consulting style (faster/inter/slower) controlling for consultation length				
Short	45.5	P<0.001	6.5	P<0.05
Medium	34.3	P<0.001	10.2	P<0.01
Long	15.0	P<0.05	4.1	P=0.13
Consultation length (short/medium/long) controlling for GP consulting style				
Faster	594.7	P<0.001	85.9	P<0.001
Intermediate	887.9	P<0.001	158.9	P<0.001
Slower	328.7	P<0.001	66.9	P<0.001

	Preventive care	
	Codes 1, 2, 3, 4 and 5	
GP consulting style (faster/inter/slower) controlling for consultation length		
Short	100.0	P<0.001
Medium	55.6	P<0.001
Long	73.7	P<0.001
Consultation length (short/medium/long) controlling for GP consulting style		
Faster	224.4	P<0.001
Intermediate	196.7	P<0.001
Slower	62.4	P<0.001

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