

# Learning in practice

## Impact on patients of expanded, general practice based, student teaching: observational and quantitative study

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### Abstract

**Objectives** To compare patients' enablement and satisfaction after teaching and non-teaching consultations. To explore patients' views about the possible impact that increased community based teaching of student doctors in their practice may have on the delivery of service and their attitudes towards direct involvement with students.

**Design** Observational study using validated survey instruments (patient enablement index—PEI, and consultation satisfaction questionnaire—CSQ) administered after teaching consultations and non-teaching consultations. Ten focus groups (two from each practice), comprising five with patients participating in prearranged teaching sessions and five with patients not participating in these.

**Setting** Five general practices in west Suffolk and southern Norfolk, England, that teach student doctors on the Cambridge graduate medical course.

**Participants** 240 patients attending teaching consultations (response rate 82%, 196 patients) and 409 patients attending non-teaching consultations (response rate 72%, 294 patients) received survey instruments. Ten focus groups with a total of 34 patients participating in prearranged teaching sessions and 20 patients not participating in these.

**Main outcome measures** Scores on the patient enablement index and consultation satisfaction questionnaire, analysed at the level of all patients, allowing for age, sex, general practitioner, and practice, and at the level of the individual general practitioner teacher. Qualitative analysis of focus group data.

**Results** Patients' enablement or satisfaction was not reduced after teaching consultations compared with non-teaching consultations (mean difference in scores on the patient enablement index and consultation satisfaction questionnaire with adjustment for confounders 2.24% and 1.70%, respectively). This held true for analysis by all patients and by general practitioner teacher. Qualitative data showed that patients generally supported the teaching of student doctors in their practice. However, this support was conditional on receiving sufficient information about reasons for doctors' absence, the characteristics of students, and the nature of teaching planned. Many patients viewed their general practice as different from hospital and expected greater control over students' presence during their consultations.

**Conclusions** Patients' enablement and satisfaction are not impaired by students' participation in consultations. Patients generally support the teaching of student doctors in their general practice but expect to be provided with sufficient information and to have a choice about participation, so they

can give informed consent. Recognising this when organising general practice based teaching is important.

### Introduction


Primary care as a setting for training doctors has expanded to such an extent that a third of general practices in the United Kingdom are likely to undertake medical teaching to undergraduates.<sup>1</sup> Although understanding of how patients view participating in community based teaching has grown through qualitative studies and retrospective inquiries,<sup>2-4</sup> no studies have examined patients' satisfaction immediately after they have participated in teaching. Few studies have explored potential indirect effects on access or continuity of care or the information needs of patients participating in teaching and those not participating.<sup>5</sup>

In 2001, the University of Cambridge introduced a four year, graduate entry, medical course (the Cambridge graduate course). At intervals, students on this course spend two days a week in five practices located in west Suffolk and southern Norfolk. These practices participated in more intensive and protracted teaching between March and July 2003 than before. Using a multimethod approach combining interviews, focus groups, and validated survey instruments, we examined how this expanded teaching affected a wide range of parties, including patients, general practitioners, and practice staff. This paper describes the findings in respect of patients: their enablement and satisfaction after teaching consultations and their views about increased community based teaching in their practice.

### Methods

During the Cambridge graduate course, patients meet students in general practice either in "teaching consultations" or in "pre-arranged teaching sessions." Teaching consultations, which last 20 minutes, are booked as normal surgery, all of which is given over to teaching. With patients' consent and with supervision by a general practitioner at the time or shortly afterwards, students may initiate consultations and perform medical interviews. They usually work in pairs. They may also undertake supervised examinations. In contrast, prearranged teaching sessions involve patients who have been invited to attend to help with teaching on a specific topic.

We used two distinct methods. We used validated survey instruments to compare patients' satisfaction after teaching con-

 The patient enablement index and consultation satisfaction questionnaire are on [bmj.com](http://bmj.com)

**Table 1** Survey participants by practice and individual general practitioner. Values are numbers of patients unless otherwise indicated

	Patients attending teaching consultations			Patients attending non-teaching consultations		
	Questionnaires			Questionnaires		
	Issued	Returned	Response rate in %	Issued	Returned	Response rate in %
All patients	240	196	82	409	294	72
Practice 1	43	34	79	80	67	84
Practice 2	49	41	84	77	60	78
Practice 3	52	42	81	62	45	73
Practice 4	53	47	89	109	78	72
Practice 5	43	32	74	81	44	54
General practitioner A	—	20	—	—	46	—
General practitioner B	—	16	—	—	19	—
General practitioner C	—	30	—	—	25	—
General practitioner D	—	21	—	—	39	—
General practitioner E	—	17	—	—	30	—
General practitioner F	—	23	—	—	33	—

Figures for questionnaires issued and returned do not include those completed by excluded patients.

Because some general practitioners worked simultaneously, it was not possible accurately to calculate the response rate for individual general practitioners.

For reasons of confidentiality it is not possible to identify general practitioners within practices. At least one general practitioner from each practice is shown.

sultations with that of patients attending non-teaching consultations with the same general practitioner. We used qualitative methods to examine patients' perceptions and views of the possible impact on service delivery, personal involvement in teaching, and increased community based student teaching.

### Quantitative

We used the patient enablement index (PEI)<sup>6</sup> and the consultation satisfaction questionnaire (CSQ)<sup>7</sup> to assess patients' enablement and satisfaction (see [bmj.com](http://bmj.com)). The patient enablement index contains six questions, each with a score range from 0 to 2. The consultation satisfaction questionnaire contains 18 mixed positive and negative statements, scored on a 5 point Likert scale ranging from "strongly agree" to "strongly disagree" and grouped into four different components. Higher scores indicate higher levels of enablement and satisfaction. We combined the scores of the components of the consultation satisfaction questionnaire to indicate overall satisfaction as described elsewhere.<sup>6-8</sup> We expressed scores for both instruments as a percentage of the maximum score obtainable (12 and 90, respectively).<sup>6-8-9</sup>

Between March and July 2003, we gave both instruments to all patients attending teaching consultations and to all patients attending selected non-teaching consultations with the same general practitioner at a similar time of day. We excluded visually impaired, frail, or severely ill patients and those under 16 years.

On the basis of previous studies, we calculated that for each general practitioner teacher, a minimum of 28 teaching consultations and 28 non-teaching consultations would permit detection of a mean difference of 25% in the score of the patient enablement index (assumed standard deviation 32.5%), and 3% for each of the consultation satisfaction questionnaire components (assumed standard deviations 3.8%, 3.5%, 4.3%, and 4.0%; 80% power, 5% level of significance).<sup>6-7</sup>

We aimed to include at least one general practitioner teacher from each practice whose number of consultations fulfilled these power requirements. Several general practitioner teachers' consultation numbers fell just below this threshold, but six teachers (including at least one from each practice) saw sufficient patients to detect differences as above, with a power of at least 65% (table 1).

Age and sex of patient, and practice have previously been found to influence the scores of both instruments.<sup>7-9</sup> We examined their influence at the level of all patients and at the level of individual general practitioners.

At the level of all patients, to account for the nested structure of the data, we fitted multilevel linear mixed effects models allowing for random effects of practice and general practitioner within practice. This used the method of restricted maximum likelihood estimation to compare scores in the teaching and non-teaching groups, adjusting for age of patient.<sup>7-10-12</sup> We omitted sex of patient from the final model as we found it not to influence either score significantly.

At the level of general practitioners, we used Student's *t* test to compare the scores of both instruments in teaching and non-teaching consultations.<sup>6</sup> We also used the non-parametric Mann-Whitney U test to analyse the scores of the patient enablement index because of concern about whether these scores were normally distributed. The results were similar to those from the *t* test. We then used multiple linear regression models to compare scores of both instruments in teaching and non-teaching consultations, adjusting for age of patient. We found no major violations of modelling assumptions in the linear regression or multilevel models.

We considered P values of less than 0.05 to be significant. We used SPSS, version 12.0 (SPSS Incorporated, Chicago, IL, USA) and R, version 2.0 ([www.itc.virginia.edu/research/R/](http://www.itc.virginia.edu/research/R/)) for our analysis.<sup>13</sup>

### Qualitative

In each practice, during the period of expanded teaching, we identified patients attending prearranged teaching sessions, together with matched patients not participating in these. We invited a selected number of each type of patient to attend separate focus groups. We selected patients to achieve maximum diversity with respect to age and sex. Between June and December 2003, 10 focus groups took place, two from each practice, with 34 patients who had attended prearranged teaching sessions and 20 patients who had not.

We gave all discussion groups three topics drawn from the literature: potential impact on service delivery, experience of students, and attitudes towards increased community based teaching of students.<sup>2-3-14</sup> We used a nominal group technique in the initial teaching and non-teaching groups to allow participants to rank issues in order of importance. We presented specific issues emerging from the nominal technique to subsequent focus groups. We adopted a flexible approach to allow emerging areas to be explored and used specific prompts to raise issues identified in other studies if they did not emerge during open discussion.

We recorded discussions on tape, transcribed them, and used Atlas.ti software, version 4.1 (Scientific Software Development, Berlin, Germany) to analyse them. With the study's objectives in mind, four of the authors (JB, TQ, JE, and AH), independently examined two early transcripts to identify emergent themes. As the project proceeded, focus group discussion was informed by data analysis. One transcript was then coded independently by the same authors and an initial code list derived. This code list was subsequently tested against a later transcript, leading to its adjustment. The authors then independently applied the adjusted code list to two further transcripts. We discussed differences in code application, and, where needed, we revised the code list. After this, TQ applied the final code list to all transcripts.

The selection of relevant qualitative findings was informed by a combination of frequency of comment and level of consensus on importance within each focus group. We sent a summary of the findings to the 54 participants. Thirty nine responded, of whom 38 felt that their views had been clearly represented and one felt partially represented.

## Results

Table 1 shows the proportion of patients receiving questionnaires who completed them. Table 2 shows the characteristics of all survey respondents and of all patients aged 17 and older registered with the practices.

### Quantitative data

Organisational constraints in the practices meant that we were unable to compare respondents with non-respondents systematically or to compare respondents with patients attending the surgery. Survey patients tended to be older and more often female than practices' registered patients. We did not compare participants by individual general practitioner in view of likely idiosyncrasies of individual general practitioners' case mix.

#### Analysis by all patients

The mean score on the patient enablement index was 33.4 (SD 30.4) for patients attending teaching consultations and 31.2 (SD 28.9) for patients attending non-teaching consultations. The corresponding statistics for score on the consultation satisfaction questionnaire were 80.4 (SD 10.1) for "teaching patients" and 78.5 (SD 10.5) for "non-teaching patients."

For all patients, we found no difference in respect of patient enablement index scores (table 3). Comparison of mean scores for the consultation satisfaction questionnaire with the linear mixed effects model provided weak evidence that patients attending teaching consultations were more satisfied than patients attending non-teaching consultations, but this difference was just below statistical significance (table 3).

#### Analysis by general practitioner teacher

Analysis at the level of general practitioner teacher, adjusting for age of patient, showed no significant difference between teaching and non-teaching patients for either instrument (table 4).

### Qualitative data

Focus group participants were more likely to be aged 65 years and older than were practices' registered patients, but the sex distribution of participants was similar (table 2). Four main areas emerged from analysis of focus group data: the impact on service delivery, the conditions under which patients are willing to participate in teaching, the implications these have for consent, and the extent to which patients perceive the surgery as "their

**Table 2** Respondents in the study compared with registered patients aged 17 and older. Values are numbers (percentages) of patients, except that numbers of patients in the age and sex categories by individual practice have been omitted to maintain practices' anonymity

Patients	Registered patients*	Survey respondents	Focus group participants
All:	41 307	487	54
Male	20 117 (48.5)	176 (36.2)	25 (46.3)
Aged 17-24	4461 (10.8)	44 (9.0)	4 (7.4)
Aged 25-64	28 171 (68.2)	278 (57.1)	30 (55.6)
Aged 65+	8675 (21.0)	165 (33.9)	20 (37.0)
<b>Patients in each practice</b>			
Practice 1:	—	101 (100)	—
Male	47.9	40 (39.6)	—
Aged 17-24	9.6	12 (11.9)	—
Aged 25-64	63.9	49 (48.5)	—
Aged 65+	26.5	40 (39.6)	—
Practice 2:	—	101 (100)	—
Male	44.5	21 (20.8)	—
Aged 17-24	11.8	12 (11.9)	—
Aged 25-64	72.6	66 (65.3)	—
Aged 65+	15.6	23 (22.8)	—
Practice 3†:	—	87 (100)	—
Male	50.9	31 (35.6)	—
Aged 17-24	10.8	3 (3.4)	—
Aged 25-64	70.7	47 (54.0)	—
Aged 65+	18.5	32 (42.8)	—
Practice 4†:	—	123 (100)	—
Male	49.8	57 (47.9)	—
Aged 17-24	9.5	10 (8.9)	—
Aged 25-64	67.4	65 (54.5)	—
Aged 65+	23.1	44 (36.6)	—
Practice 5:	—	75 (100)	—
Male	49.3	26 (34.7)	—
Aged 17-24	13.0	6 (8.0)	—
Aged 25-64	70.0	49 (65.3)	—
Aged 65+	17.0	20 (26.7)	—

\*The number of registered patients aged 17 and older in each practice ranged from 6135 to 11 104.

†Five patients in practice 3 and four patients in practice 4 did not give their age.

territory." We found no systematic differences in the comments made by patients who had attended prearranged teaching sessions and those who had not.

#### Impact on service delivery

We had no specific reports from participants of being less able to see their preferred general practitioner as a direct result of

**Table 3** Results of linear mixed effects models exploring impact of teaching for all patients

Variable	$\beta$ (approximate 95% CI)	P value for difference
<b>Patient enablement index</b>		
Consultation type (teaching or non-teaching)	2.24* (-3.17 to 7.66)	0.42
Age of patient (years)	0.18† (0.03 to 0.32)	0.01
<b>Consultation satisfaction questionnaire</b>		
Consultation type (teaching or non-teaching)	1.70* (0.12 to 3.51)	0.07
Age of patient (years)	0.15† (0.10 to 0.19)	<0.001

Standard deviation estimates were as follows. For patient enablement index: practice 1.07 (0.55 to 2.08), general practitioner within practice 2.61 (0.42 to 16.4). For consultation satisfaction questionnaire: practice 1.31 (0.22 to 7.76), general practitioner within practice 2.03 (0.89 to 4.64).

\*Average increase in score for patients attending teaching consultations compared with those attending non-teaching consultations, adjusting for age. Positive values indicate "teaching" scores were higher than "non-teaching" scores.

†Average increase in score for an increase in patient age of one year.

**Table 4** Models exploring impact of teaching for individual general practitioners. Scores are expressed as percentage of maximum obtainable

General practitioner teachers	Independent <i>t</i> test comparison of mean scores			Multiple linear regression model comparing “teaching” scores with “non-teaching” scores, controlling for age of patient	
	Teaching mean score	Mean difference*	P value	$\beta$ † (95% CI)	P value
A:					
PEI	26.75	-2.50	0.73	-1.66 (-16.28 to 12.98)	0.82
CSQ	77.01	2.89	0.34	1.47 (-4.20 to 7.15)	0.61
B:					
PEI	35.00	8.68	0.39	8.05 (-13.55 to 29.64)	0.45
CSQ	84.23	2.13	0.56	2.02 (-5.60 to 9.65)	0.59
C:					
PEI	44.64	5.75	0.54	-2.15 (-22.60 to 18.31)	0.83
CSQ	84.55	6.34	0.01	3.44 (-1.08 to 7.96)	0.13
D:					
PEI	28.57	-10.03	0.28	-9.46 (-27.65 to 8.74)	0.30
CSQ	82.90	2.51	0.41	2.84 (-3.20 to 8.88)	0.35
E:					
PEI	30.88	8.66	0.22	10.10 (-3.88 to 24.08)	0.15
CSQ	76.25	-0.47	0.90	0.37 (-6.72 to 7.46)	0.92
F:					
PEI	33.70	-1.52	0.84	-2.61 (-17.37 to 12.16)	0.72
CSQ	81.21	-0.40	0.88	-0.70 (-5.51 to 4.12)	0.77

PEI=patient enablement index; CSQ=consultation satisfaction questionnaire.

\*Difference between mean scores for “teaching” and “non-teaching” patients. Positive values indicate “teaching” scores were higher than “non-teaching” scores.

†Difference between adjusted mean scores for “teaching” patients compared with “non-teaching” patients. Positive values indicate “teaching” scores were higher than “non-teaching” scores.

teaching activities. Many patients preferred to see their “own” doctor. Most accepted that it was not always possible to do this, but few reported being given reasons why their general practitioner was unavailable when requesting an appointment. Patients said they would prefer such information and felt teaching was an acceptable explanation for absence (quotation 1, box). However, continuity of care from the same general practitioner was particularly important for patients with chronic conditions or where trust was crucial (quotation 2, box).

#### *Patients’ willingness to participate in teaching*

Patients reported more advantages than disadvantages of participating in prearranged teaching sessions and teaching consultations. Advantages included improved consultations resulting from more time and perceived greater depth of consultation, a better understanding of their condition and treatment, and feelings of improved self esteem and altruism where patients felt that they had done something worthwhile or given something back to the NHS. Some patients also had a perception that their general practitioner was more up to date as a result of participating in teaching. The only direct disadvantage seen was the increased time allowed for teaching consultations and its possible knock-on effects for other patients.

Teaching and non-teaching patients alike said that they were willing to be seen by students. However, this willingness was conditional and based on several aspects such as the nature of their complaint or possible examination and the sex and number of students likely to be present. Such concerns were not confined to women (quotation 3, box).

Worries were also expressed about students’ competence. However, unlike in other studies, patients did not express concerns about confidentiality.

#### *Informed consent*

Two interrelated aspects of consent emerged: the specific information given to patients before seeking their consent and the point at which consent is sought. Participants wanted to know the sex and number of students, although this information was rarely provided. Information about students’ competence

and experience and the likely nature of the consultation or examination were also felt necessary for truly informed consent.

The timing of consent was felt to be equally important. Participants attending teaching consultations expected to be informed well in advance—for example, when they first telephoned to make an appointment. In a few isolated instances patients were informed only when they reported to reception and others only when met by the general practitioner on their way to the consulting room. Although these instances had not created problems for the patients, situations where consent was sought late were thought inappropriate, leading to potential embarrassment associated with the reason for the visit or feeling pressurised to consent at short notice (quotation 4, box).

#### *Primary care as the patients’ territory*

Many patients distinguished between what “has to be accepted” in hospitals, in terms of student presence, and what is acceptable in the general practitioner’s surgery (quotation 5, box). Perceived lack of personal power and space (quotation 6, box), and the more urgent need for treatment in a hospital context (quotation 7, box), were contrasted with the more intimate, ongoing relationship with the general practitioner and personal setting of the surgery (quotation 8, box).

## Discussion

Participation in teaching by general practitioners and student doctors had no negative impact on patients, as shown by our quantitative and qualitative results. Patients were generally supportive of teaching in primary care, from the perspective of what they gained personally as well as from a wider perspective. But patients’ willingness to participate directly in teaching was conditional. The nature and timing of information given to patients to enable them to make an informed choice were particularly important. The importance of enabling patients to make an informed choice is related to the finding of the study that indicates that patients saw participation in teaching in a primary care context as different from that in hospital. This may reflect the longer term relationship that a patient has with the

general practitioner, involving shared experiences and mutual understandings; the phenomenon described by Balint as their “mutual investment company.”<sup>15</sup>

### Comparison with other studies

Quantitative analysis showed that mean scores and standard deviations recorded for the patient enablement index and consultation satisfaction questionnaire resembled those seen in other studies of a similar size that used the same approach to both measures.<sup>6</sup> Overall patients’ satisfaction was therefore similar to that observed previously elsewhere.<sup>6, 8, 9</sup>

The results of the qualitative analysis support findings of other studies indicating the benefits that patients derive from involvement in teaching: longer and more thorough consultations,<sup>16, 17</sup> better understanding of their complaint, and improved self esteem.<sup>2, 3</sup> In contrast to previous studies, patients did not

express concerns about confidentiality, exploitation, or reinforcement of a stereotypical “sick” role.<sup>3, 14</sup> Although patients value continuity and, as noted elsewhere,<sup>18</sup> this may be crucial for some, patients in this study reported no direct problems of continuity.

### Strengths of the study

This study was new in combining quantitative and qualitative methods and in exploring the views not only of patients participating in teaching but also of those who were not. Participants in the survey and focus groups were older than registered patients, and survey participants were more often female. This bias may reflect a similar bias in consultation patterns, meaning that findings may be generalised, at least to those attending surgeries.

### Limitations of the study

We attempted to measure the impact on availability and access. However, changes to booking procedures and new, nationally driven triage systems meant that this could not be done on a consistent basis.

### Informed consent in a general practice setting

As previously reported, patients expressed concerns about the sex, number, and competence of students and about the likely nature of any examination.<sup>3, 14, 17-19</sup> Information about these are key components to enable patients to give informed consent to teaching. In this respect, the study expands and clarifies issues surrounding informed consent.<sup>20, 21</sup> For patients, these issues are framed within a perceived difference in the way that they see the practice environment, compared with hospital. They speak of the practice as being more legitimately within their own control than is the case in hospital.

### Conclusions

This difference in perception has important implications for the range and volume of teaching that may be acceptable in primary care without undermining the relationship between general practitioner and patient. The extent to which general practitioner teachers are sensitive to these subtle differences and their effect on patients’ expressed wishes for information before giving or withholding consent for teaching may be crucial to maintaining doctor-patient relationships in teaching practices. When seeking to involve students in consultations with general practitioners, respect for these wishes and recognition of the need to reaffirm these actively with patients is likely to be important for the successful expansion of community based teaching in the long term.

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### Quotations from patients

#### Quotation 1: Teaching is acceptable

Woman (had not attended prearranged teaching session), age 34: “Yeah, I think teaching now is an important part of general practice so that’s fair enough ... I think so long as there is someone else there you can see.”

#### Quotation 2: Continuity is important for certain patients

Man (had attended prearranged teaching session), age 59: “When I was first diagnosed by the Parkinson Society, not that they diagnosed me but they told me ... get yourself a decent GP and stick to him or her, and that’s what I’ve tried to do.”

#### Quotation 3: Worries about sex of students

Man (had attended prearranged teaching session), age 61: “I mean there was no reason about having to get undressed ... I think I would have been a bit embarrassed by that, a 60 year old alone with a couple of 20 year old girls.”

#### Quotation 4: Worries about feeling pressurised to consent

Woman (had not attended prearranged teaching session), age 41: “But it would be nice if you can say it over the phone because then you haven’t got to get embarrassed about saying yes or no. I’m terrible; I won’t say no to anything.”

#### Quotation 5: Lack of choice

Woman (had not attended prearranged teaching session), age 54: “You’ve got no control over that situation [hospital], so if there’s six people round looking at you, you have to accept it ... You can walk out [of the surgery] if you wanted to you can just sort of close your bag up and walk.”

#### Quotation 6: Difference in power

Man (had not attended prearranged teaching session), age 57: “When you walk through the hospital doors you sort of surrender all your own personal space and personal requirements ... Whereas when you go to the doctor you’re actually taking yourself and your own little personal area into their surgery ... So to some extent, it’s still your territory.”

#### Quotation 7: Difference in urgency of treatment

Man (had attended prearranged teaching session), age 40: “If you are in a hospital bed, you are there for a seriously good reason and ... I think you will ... open up to all and sundry ... If you’re going down to a doctor’s appointment, when you might want to discuss something personal, then you might not feel quite happy to ... I mean there are instances when, and you put it off for weeks, months, years ... Never mind being two young student doctors [there].”

#### Quotation 8: Difference in relationship with doctor

Woman (had attended prearranged teaching session), age 52: “You feel personally in contact with your doctors, and it doesn’t matter too much in hospital because you hardly see them again.”

### What is already known on this topic

Community based teaching for student doctors has expanded and continues to do so

Patients are generally supportive of student doctor education

Few studies have examined patient satisfaction after general practice consultations where students were present

### What this study adds

Students' participation in teaching consultations during surgeries does not lead to diminished enablement or satisfaction of patients

Patients' support for teaching in practices is conditional on receiving adequate information about reasons for reduced access to the doctor, the characteristics of students, and the nature of planned teaching

Patients may see their general practice as different from hospital and expect greater control over students' presence

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