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DATA **Briefing**

November 2012

Improving GP services in England: exploring the association between quality of care and the experience of patients

Summary

- **Both clinical effectiveness and patient experience are key domains of health care quality. It is important to recognise the relationship between the two domains; considering them together is an effective way for general practices to understand the quality of care they are providing and identify areas for improvement.**
- **Our analysis shows that, generally speaking, practices that perform well on delivering a good experience for their patients also perform well on measures of clinical quality.**
- **With some exceptions, practices that perform poorly on both clinical outcome measures and patient experience are more likely to be located in London and in more deprived areas.**
- **Overall, practices that perform well both on clinical outcomes and on most domains of patient experience have more GPs on average than practices that perform poorly.**
- **Patients' satisfaction with access to their general practice consistently shows a strong association with practice performance on indicators of clinical quality. Patients' experience of using their GP services – especially ease of access – can affect their uptake of services and their interaction with those services; this, in turn, can affect their quality of care and outcomes.**

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Introduction

There are two key measures of the quality of health care GPs provide to their patients:

- the Quality and Outcomes Framework (QOF), which was designed to improve quality by rewarding GP practices for meeting performance thresholds across a range of indicators of clinical quality
- patients' experiences of using their GP services, as measured by patient surveys on issues such as ease of making an appointment, information received from the practice, and consultations with staff.

This paper examines whether or not patients' perceptions about the non-clinical aspects of the quality of care delivered by their GP practices are consistent with practice performance on measures of clinical quality. We also examine the nature of any associations. The analysis is based on 2010/11 data from more than 8,000 general practices in England.

Why is this association important?

Patients' experience of the care and service they receive from health care services is recognised internationally as a key measure of health care quality. Lord Darzi's 2008 *NHS Next Stage Review* identified patient experience as one of three dimensions of quality, along with clinical effectiveness and patient safety (Department of Health 2008). The coalition government's NHS Outcomes Framework for England similarly recognises patient experience as one of five domains that will be used to assess the performance of the newly formed NHS Commissioning Board from 2013 onwards (Department of Health 2010). Patient experience was also one of the key areas covered by The King's Fund 2011 inquiry into the quality of general practice in England (The King's Fund 2011).

The GP Patient Survey (GPPS) in England, carried out regularly by Ipsos MORI through postal questionnaires sent to patients registered with general practices in England, asks patients about their experience of using their GP services. It covers issues such as ease of access (including opening hours), trust and confidence in practice staff, and how involved patients are in making decisions about their care and treatment. Almost two million people responded to the 2010/11 GP Patient Survey – a response rate of 42 per cent.

The Quality and Outcomes Framework (QOF), introduced in 2004, rewards practices financially for performance across a range of evidence-based clinical quality indicators for selected conditions. QOF indicators measure both the process of caring for patients (eg, the percentage of patients with coronary heart disease whose notes have a record of total cholesterol in the previous 15 months) and the outcomes of that care (eg, the percentage of patients with coronary heart disease whose most recent total cholesterol measure was 5mmol/l or less).

Practices that deliver high standards of clinical care may not necessarily also provide a positive experience for their patients and vice versa. The non-clinical aspects of patients' interactions with services, as measured by patient experience, can also affect the quality of their clinical care. For example, if patients have easy access to their practice in terms of getting an appointment, usually being able to see the GP they choose, and having a say in decisions about their care, they are more likely to comply with treatment and take responsibility for managing their own care – leading to better outcomes. For patients, what matters is that their GP provides both a high quality of clinical care and a positive all-round experience of using GP services.

Data on the performance of general practices in England on QOF and the GPPS are analysed and published independently of each other. However, we argue that it is only by considering them together that practices can see the full picture of the quality of care they provide, offering them the greatest potential to make the necessary improvements.

Methodology

We examined the association between the clinical quality of services provided by general practice and the experience of patients using those services by analysing QOF and GP Patient Survey (GPPS) data for 2010/11 for all practices in England (NHS Information Centre 2012).

Of the 20 clinical areas covered by QOF, we chose to focus on nine of the more common conditions (asthma, hypertension, coronary heart disease, chronic obstructive pulmonary disease, dementia, depression, diabetes, heart failure and stroke) and smoking (see Appendix for further details of the methodology used). QOF includes process indicators for all nine conditions that we examined, and smoking; QOF also includes outcome indicators for four of the nine conditions (diabetes, hypertension, stroke and coronary heart disease).

We grouped the questions in the GP Patient Survey into seven domains of patient experience based on the issues that the questions related to, and the questions were allocated to each domain accordingly (*see* Appendix for details). The domains were: access, cleanliness, confidence in staff, dignity and respect, information, involvement, and overall satisfaction.

Our analysis controlled for three practice-level characteristics: geographical location of the practice (its strategic health authority (SHA)), the level of deprivation in the area (Index of Multiple Deprivation), and the number of GPs in the practice. About 18 per cent of practices were in London. The average number of GPs per practice was 4.4, although the inter-practice variation was significant, ranging from 1 GP to 30 (standard deviation 2.8) (*see* Table A1).

How are practices performing on patient experience and clinical quality?

Overall, patients are satisfied with their GP: 85 per cent reported being satisfied with the care they received at their practice, and said they would recommend it to others (Table A1). However, mean GPPS scores showed considerable variation between the different domains of the patient experience. For example, only 50 per cent of patients were satisfied with the information they received from the practice , whereas 72 per cent were satisfied with access, 93 per cent expressed confidence and trust in practice staff, and 97 per cent said the practice premises were clean.

In terms of clinical quality, mean QOF achievement scores for the outcome indicators (diabetes 77 per cent, hypertension 80 per cent, stroke 83 per cent, and coronary heart disease 86 per cent) were lower than scores for the process indicators for those conditions, and lower also than the process indicators for the other conditions, and for smoking (achievement scores on all the process indicators ranged from 86 per cent to 94 per cent) (*see* Appendix, Table 1). This indicates that it is comparatively more straightforward to, for example, measure a patient's blood pressure, than it is to ensure a positive outcome, for example, that blood pressure is well controlled.

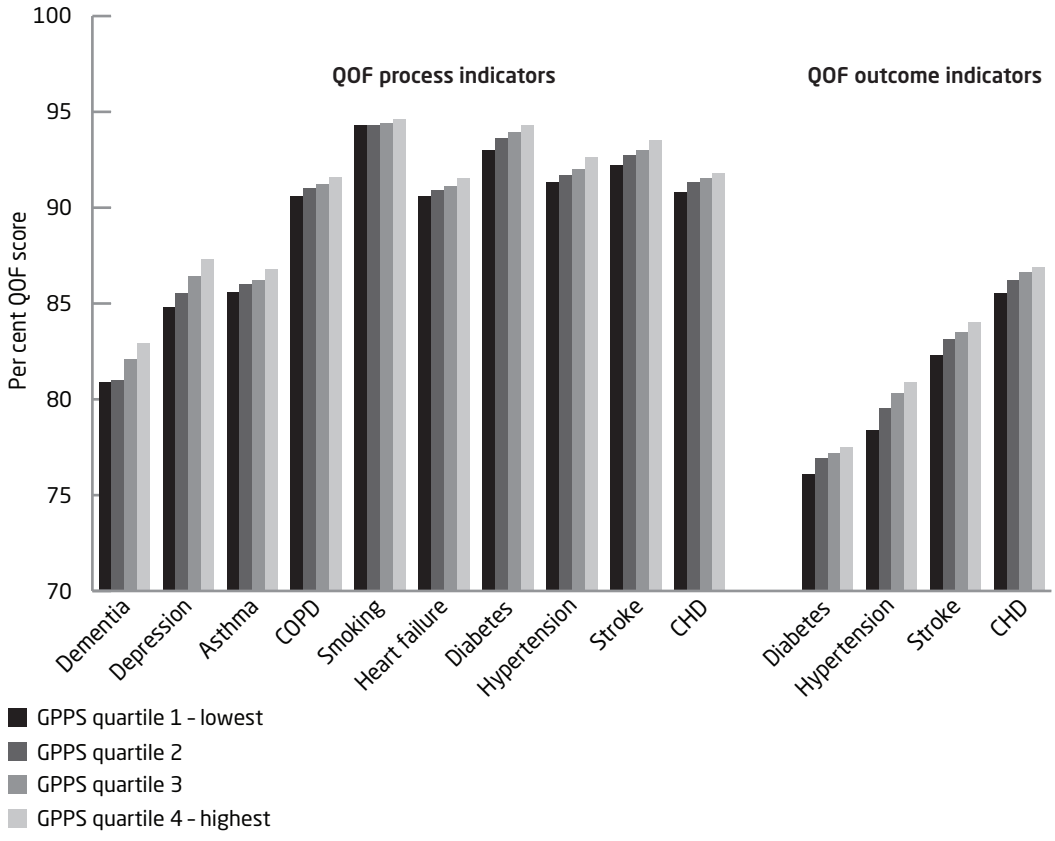
In general, practices that scored well on patient experience also scored well on clinical quality (*see* Appendix, Table 2). For the process indicators (that measure how care was provided), the link with patient satisfaction was strongest in relation to diabetes (a very strong link), depression and stroke, and weakest for asthma, dementia, heart failure and smoking. For some clinical conditions, the coefficients indicated a negative association – that is, practices that scored well for patient experience scored poorly on QOF process indicators; however, most of these results were not statistically significant. For hypertension, coronary heart disease, diabetes and stroke, practices that scored well on patient experience also scored better on QOF outcome measures of clinical quality for these conditions. The relationship was somewhat stronger for stroke than for the other conditions.

Overall, the link between a practice's QOF scores (process and outcome indicators) and patients' experience of using its services was stronger in relation to access, cleanliness and information ('transactional' areas) than for other, more 'relational' areas of patient experience (such as dignity and respect, involvement, confidence and trust, and overall satisfaction). In particular, patients' feedback on ease of access to their general practice consistently showed a strong link with the process and outcome indicators for all clinical conditions. Patients' responses to questions about the information they received also consistently showed a clear positive link with all process and outcome measures of quality of clinical care.

To explore the relationship further, we divided practices into four equal groups based on their patient experience scores, ranging from the lowest to the highest performing practices. Then we compared the average QOF scores for process and outcome indicators (adjusted for SHA, level of deprivation, and number of GPs) of the four groups. This meant we could look at QOF scores for those practices with the lowest scores for patient experience (the bottom 25 per cent of practices) through to those with the highest scores (the top 25 per cent) (*see* Appendix, Table 3). Consistent with our earlier analysis, we found that practices with higher scores for patient experience generally also performed better on clinical quality. The difference in QOF scores between the highest and poorest performers on patient experience was greater for outcome indicators (for hypertension, coronary heart disease, diabetes and stroke) than for process indicators.

Overall, the four groups' scores for the 'access' domain of patient experience showed the strongest and most consistent link with the process and outcome indicators of clinical quality (*see* Figure 1). In contrast, their scores for the 'dignity' domain showed the weakest association with indicators of clinical quality.

Figure 1: The association between patient experience (access domain) and QOF scores (process and outcome indicators)



What distinguishes stronger performers from weaker performers?

We analysed practices that scored in the top 10 per cent for both patient experience and clinical quality (based on average scores on clinical outcome indicators for hypertension, coronary heart disease, diabetes and stroke). This analysis was done separately for each of the seven domains of patient experience, giving 28 sets of analyses in total. The patterns were largely consistent, and showed the following.

- Only a very small proportion of practices (1–2 per cent) were among the top 10 per cent for their scores on *both* patient experience and outcomes of clinical quality. A similar proportion (1–2 per cent) were among the lowest 10 per cent. (However, these were not necessarily the same practices across all 28 analyses.)
- In all of the patient experience domains except for 'information', practices that performed poorly on both patient experience and clinical quality tended to be in areas with higher levels of deprivation (*see* Figure 2). About 40 per cent of the practices in this low-performing group belonged to the quintile of practices with the highest Index of Multiple Deprivation (IMD) – that is, they serve the most deprived populations.
- For the 'information' domain, this association was reversed for all four clinical conditions; practices that performed well on both patient experience and clinical quality tended to be in areas with higher deprivation than poor-performing practices (*see* Figure 2).
- Overall, except for the 'access' and, to some extent, the 'information' domain, high-performing practices had more GPs on average than poor-performing practices (*see* Figure 3).

Figure 2: High-performing and low-performing practices on patient experience and QOF outcomes scores, by level of deprivation

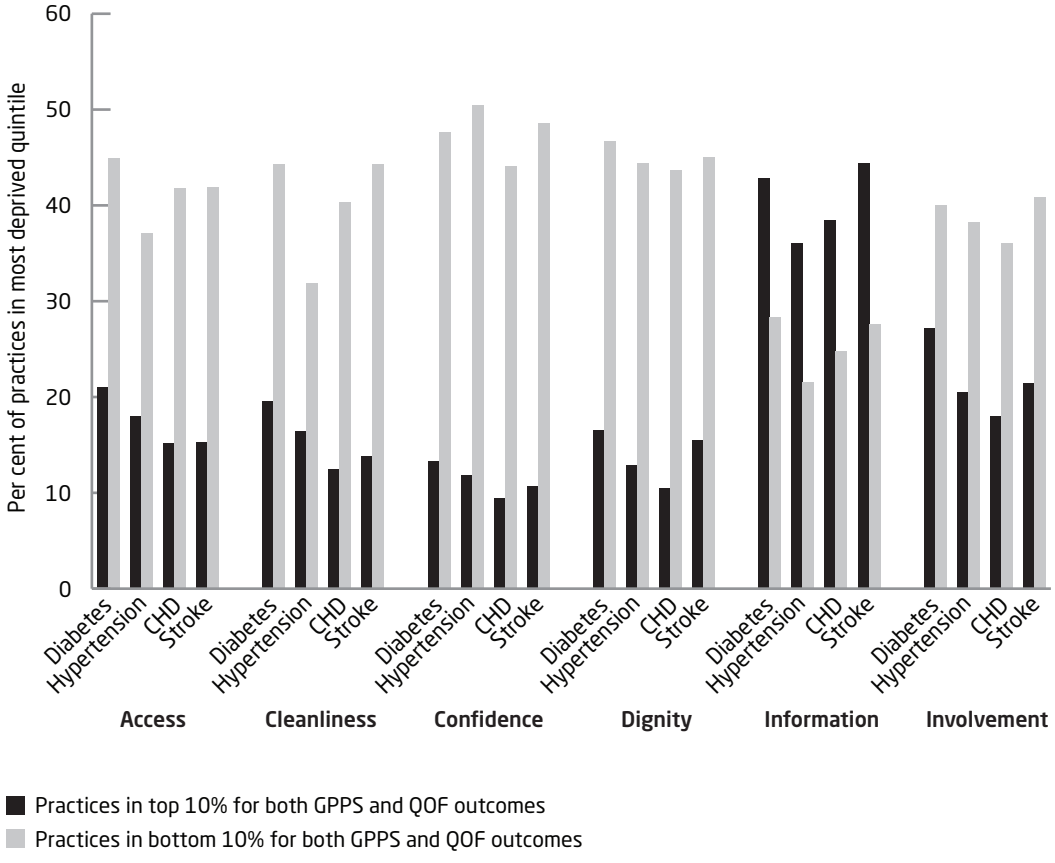


Figure 3: High-performing and low-performing practices on patient experience and QOF outcome scores, by number of GPs

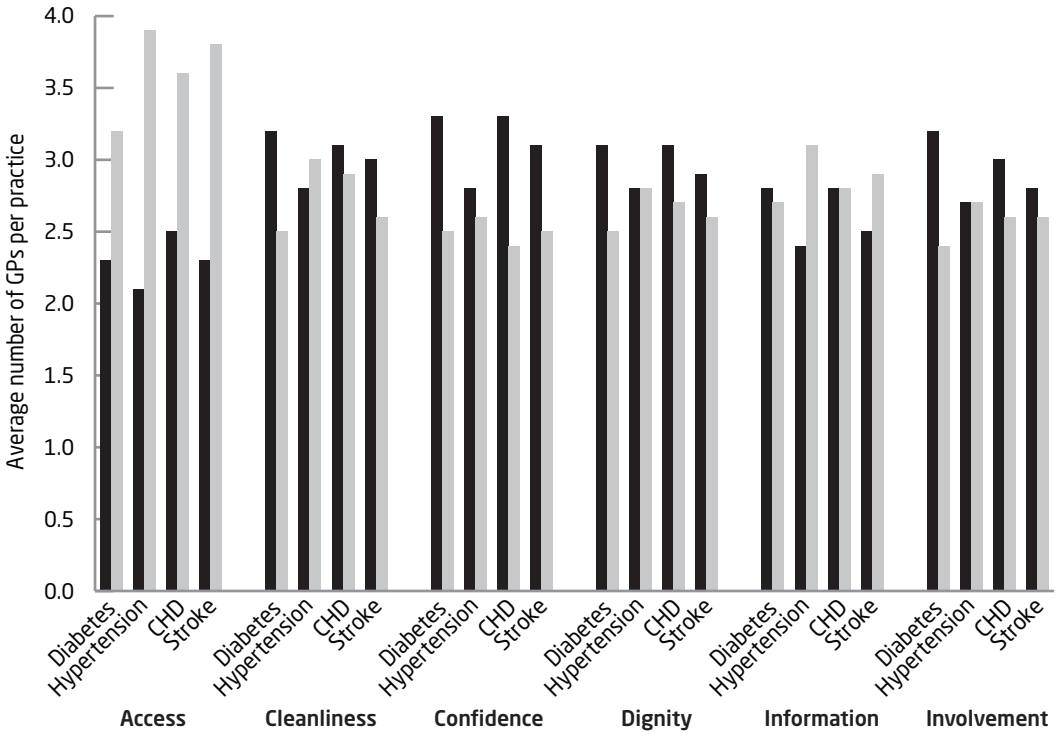
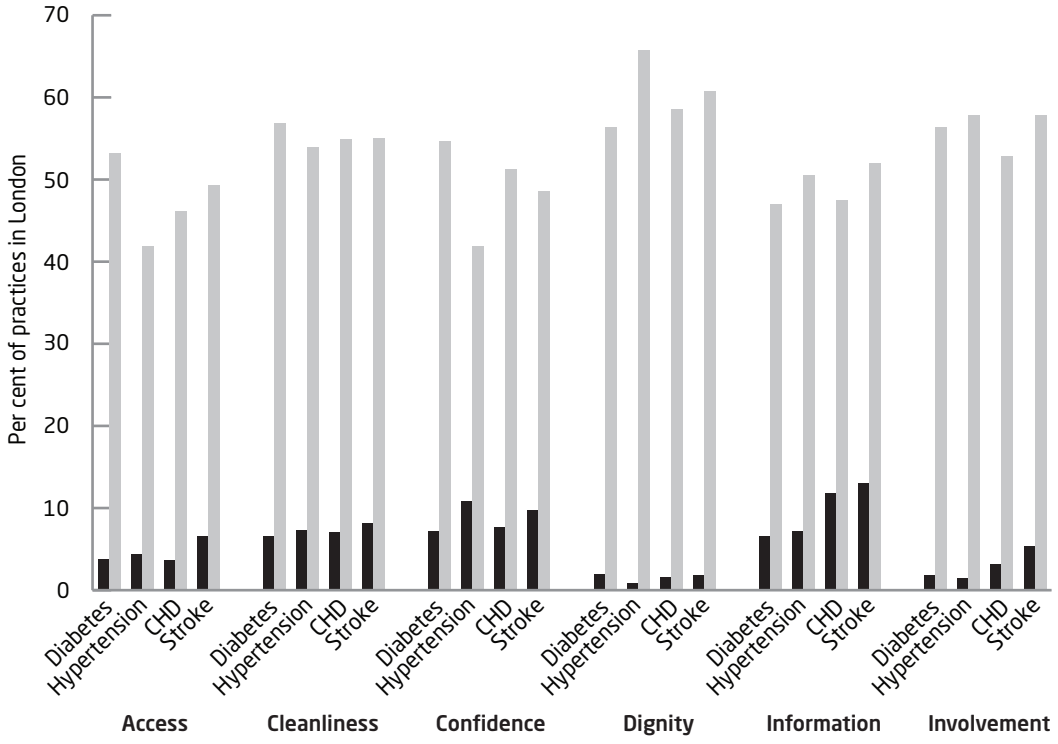


Figure 4: High-performing and low-performing practices on patient experience and QOF outcome scores, practices located in London



- For the 'access' domain, this association was reversed for all four clinical conditions; high-performing practices had fewer GPs than poor-performing practices (*see* Figure 3). Here, the difference in the number of GPs between high-performing and poor-performing practices was also greater than for the other patient experience domains.
- In all cases, more than 40 per cent of the poor-performing practices and very few (generally less than 10 per cent) of the high-performing practices were in London (*see* Figure 4). The difference between high-performing and poor-performing practices in terms of the proportion in or out of London was greater for the 'dignity' and 'involvement' domains of patient experience than for the others.

What do other studies show?

There is a substantial and growing body of literature in the UK and beyond exploring the associations between patients' experience of health care services and the quality of care they receive, as well as the resulting health outcomes. Studies carried out in US hospitals found that patients' experiences of care showed an association with measures of hospital quality and safety, covering medical conditions as well as surgical care (Isaac *et al* 2010; Jha *et al* 2008). In England, patients' ratings of the quality of hospital care they received, given online on the NHS Choices website, were found to be positively correlated with objective quality measures such as mortality, readmission and infection rates (Greaves *et al* 2012). However, other research suggests the association is either more tenuous or absent altogether, and can even be in the reverse direction (Fenton *et al* 2012; Chang *et al* 2006).

Much of the available literature focuses on secondary care. A US study of older patients found no association between patients' baseline assessments of the quality of primary care they received and subsequent changes in health-related quality of life and/or survival. The authors concluded that older patients' level of satisfaction with the quality of their primary care may not be a good proxy measure of effectiveness (Mold 2012). Another US study using a statewide sample of physician practice sites and physicians found only modest correlations between clinical quality and patient experience (Sequist *et al* 2008).

Although there have been studies of the factors associated with variations in patients' responses to the GP Patient Survey in England, we are not aware of any in-depth studies that have explored the association between patient experience and clinical quality in the context of general practice.

What implications do our findings have?

Overall, our analysis of data for 8,042 general practices in England found fairly consistent positive associations between patient-reported experience of their general practice and practice performance on process as well as outcome indicators of clinical quality.

We found the strongest and most consistent associations were between clinical quality and patients' satisfaction in the 'access' domain of the patient experience. This includes questions on things like how easily patients can get through to the surgery by phone, ease of booking appointments, being able to see a doctor quickly, seeing their GP of choice, and their views about opening hours. Our analysis suggests that a patient's ease of access to their practice and preferred GP could affect their quality of care and outcomes – for example, through its impact on attendance rates, continuity of care, communication and engagement with clinical staff, compliance and adherence with treatment, and out-of-hours access.

This is supported by the findings of other studies. One study suggested that patients' satisfaction with access to primary care was correlated with higher QOF scores, and also with slightly lower rates of emergency hospital admission (Kontopantelis *et al* 2010). Another study found that poor access to a GP (for example, being less able to offer appointments within 48 hours) was one of the practice characteristics associated with a

higher proportion of patients with a first diagnosis of cancer being admitted to hospital as an emergency (Bottle *et al* 2012). Although there can be many reasons why some patients with cancer are admitted on an emergency basis, poor access could indicate late diagnosis. This provides further evidence that access to primary care could affect patient outcomes.

We also found a similar association between clinical quality and the other domains of patient experience: information, dignity and respect, involvement, cleanliness, confidence and trust, overall satisfaction. This supports other evidence showing that good patient experience scores are positively correlated with patients' adherence to medication and other care regimens and processes (particularly for patients with chronic conditions) as well as better health outcomes, cost savings, and lower risk of medical malpractice actions (Browne *et al* 2010). It is therefore important that patients' views on their experience of using primary care services are used by practices to inform improvements in the quality of care that they provide.

We found that a small proportion (1–2 per cent) of practices performed well on both patient experience and clinical outcomes, and a small proportion performed poorly on both. The features that characterise these high- and poor-performing practices differ. With some exceptions, the high-performing practices are predominantly located outside London and in more affluent areas; they also tend to be the larger practices (that is, with more GPs). In contrast, and again with some exceptions, practices that performed poorly on both patient experience and clinical outcomes are predominantly located in London and in areas with higher deprivation; they also tend to have fewer GPs.

However, we found two exceptions to this pattern.

- Practices that performed well on the 'access' domain of patient experience and also had good clinical outcomes tended to have fewer GPs than practices that performed poorly on both. For all other domains of patient experience, high-performing practices tended to be larger. The study by Kontopantelis *et al* (2010) also found that patient feedback on access issues was more positive for smaller practices. The evidence therefore appears consistent: in general, smaller practices are perceived by patients to offer better access than larger practices. It is therefore important that these and other benefits of smaller practice size are not lost when primary care services are reconfigured.
- Practices that performed well on both the 'information' domain and on clinical outcomes were more likely to be in deprived areas than practices that performed poorly on both. The information domain includes questions about how well tests and treatments were explained, and availability of information about dealing with health problems. One possible explanation for this could be that patients' level of expectation or demand for information is lower in areas of higher deprivation and among poorer socio-economic groups than in areas with more affluent patients.

Overall, practices that performed poorly on both patient experience and clinical outcomes were predominantly located in London (40–60 per cent). In contrast, less than 10 per cent of practices that performed well on both patient experience and clinical outcomes were in London. The proportion of high-performing practices (on both patient experience and clinical outcomes) that were in London was lowest (less than 2 per cent) for the 'dignity and respect' domain, suggesting that London practices could do more to give patients enough time, treat them with concern and listen to them. The proportion was also low for the 'involvement' domain (less than 5 per cent), suggesting that London practices are not doing enough to engage patients in their own care.

Londoners respond more negatively across all NHS patient surveys, whether as users of inpatient, outpatient or accident and emergency services (Healthcare Commission 2006; Healthcare Commission 2005; Raleigh *et al* 2012; Clay 2012). This begs the question of whether there is a special 'London effect' in patient surveys that reflects specific factors that

are to do with living in London and/or being Londoners, rather than the quality of care. This is a question that warrants further research. That said, general practice in London faces a unique combination of challenges, including a more diverse and transient population, poorer infrastructure and premises, and more single-handed and smaller practices than in other geographical areas (Raleigh *et al* forthcoming). These factors could have a range of negative impacts, particularly on interactions between staff and patients.

Our analysis illustrates the importance of examining patient experience and clinical quality data together. Robert and Cornwell (2011) note that patient experience data are typically collected and reported on separately from data on clinical effectiveness and patient safety. They argue that measures of patient experience should be closely aligned with measures of clinical outcomes at the local level, for accurate attribution, to improve ownership by clinical teams, to strengthen performance management, and to aid benchmarking. GPs and other staff working in general practice need to recognise that clinical quality and patient experience are closely inter-related, otherwise there is a risk that patient experience indicators will be seen as remote adjuncts to clinical work.

Furthermore, our analysis found that higher standards of clinical quality were more strongly associated with the 'transactional' domains of patient experience (access, cleanliness, and information) than for the 'relational' aspects (dignity and respect, involvement, confidence and trust, and overall satisfaction). However, Robert and Cornwell note that while top-down policy priorities and financially incentivised performance schemes encourage practices to focus on the 'transactional' or 'functional' elements of patient experience (eg, access, cleanliness, food, and noise), it is often the 'relational' aspects (such as compassion, empathy, and support) that practices are doing less well on, and that are important to patients.

The independent inquiry into the quality of care in general practice in England carried out by The King's Fund noted that, although many general practices are proactively seeking to deliver improvements in care, quality improvement is not yet routinely embedded as a way of working (The King's Fund 2011). GPs are often unaware of the variations in quality that exist within and between practices. For this reason, making clinicians aware of such variations in performance is a first step to encouraging them to explore the reasons behind it and take appropriate action. In this paper we suggest that GPs and other staff in general practice can use readily available data more effectively to identify priority areas for quality improvement – namely, by considering their performance on clinical quality indicators jointly with their performance in terms of patient experience.

Conclusion

Our analysis of the data presented here represents an important contribution to the literature on patient experience and quality measurement in general practice, and has significant potential for driving improvements in quality. The analysis is based on a large dataset – more than 8,000 practices. The results are therefore meaningful, robust and apply across general practice in England. The findings demonstrate that practices which deliver a better experience of services for their patients generally also perform better on clinical quality in terms of both process and outcome measures. Although our analysis cannot demonstrate a causal link, it is fair to assume that patients' experience of using their GP services – especially ease of access – can affect their uptake of services and their interaction with services. And this, in turn, can affect their quality of care.

Our analysis also shows that practices that performed poorly on both clinical quality and patient experience are more likely to be located in London and in deprived areas. While general practice in London does face atypical challenges (Raleigh *et al* 2012), the NHS reforms and the shift to GP-led clinical commissioning offer important opportunities for tackling some of the underlying issues.

Performance on QOF indicators is linked to financial incentives, and QOF is therefore a powerful lever. Patient feedback on the quality of care can also help to drive quality improvement. Primary health care professionals – GPs, practice nurses, reception and other staff – should therefore routinely monitor their GPPS results, benchmark themselves against their peers, and make improvements where needed. Analysing both dimensions of quality together can reveal systemic problems such as poor access, or gaps in co-ordination and communication, that can have a major impact on both quality and efficiency. We urge staff in general practice to consider how they perform in terms of the patient experience alongside how they perform on the quality of clinical care, as it is this bigger picture that offers the greatest potential for driving further improvements in the overall quality of care.

APPENDIX

Methodology

Sample and data

This paper is based on an analysis of 2010/11 GP Patient Survey (GPPS) and Quality and Outcome Framework (QOF) data for general practices in England. We also used data from the Information Centre Indicator Portal on two practice-level characteristics: 2010 Indices of Multiple Deprivation (IMD) and the number of GPs in 2010. We linked each practice to its strategic health authority (SHA).

Of the 8,227 practices in the QOF and GPPS datasets, 159 had missing data in one or more of the QOF or the GPPS domains, and were excluded from the analysis. A further 26 practices were excluded because of missing data on either IMD or the number of GPs. The final dataset comprised 8,042 practices.

Domains

GP Patient Survey (GPPS)

We grouped questions into seven domains of patient experience based on the issues that the questions related to, and the questions were allocated to each domain accordingly. The domains were: access (eight questions), information (three questions), dignity and respect (three questions), involvement (four questions), cleanliness (one question), confidence and trust (one question), and overall satisfaction (two questions). For each domain, we derived simple means of the published GPPS data, which is weighted for non-response by age, sex and practice list size. The means related to the proportion of respondents giving a positive answer to each question. For example, where the response scale ranged from 'very easy' to 'not at all easy', we used the mean of the aggregated score for all 'easy' categories.

The overall response rate for the 2010/11 GPPS was 42 per cent. The weighted data is adjusted for non-response by age, sex and practice list size.

Details of the GPPS are available at: www.gp-patient.co.uk/

Quality and Outcomes Framework (QOF)

We used QOF data for smoking and nine clinical domains: coronary heart disease, hypertension, heart failure, stroke, diabetes, chronic obstructive pulmonary disease (COPD), depression, dementia, and asthma. We excluded the mental health domain because data were missing for several practices. Clinical domains that relate to small numbers of patients – for example, epilepsy – were also excluded. We used the published QOF scores – that is, excluding reported exceptions.

We derived mean achievement scores at practice level separately for the process and intermediate outcome indicators in each clinical domain, as the unweighted means of the scores for the process/outcome indicators in that domain. We excluded indicators for having a register. Of the nine QOF clinical domains, outcome indicators are available only for hypertension, coronary heart disease, diabetes and stroke.

Details of QOF 2010/11 are available at: www.ic.nhs.uk/statistics-and-data-collections/audits-and-performance/the-quality-and-outcomes-framework/the-quality-and-outcomes-framework-2010–11

Use of means

For both GPPS and QOF, we used simple means of the scores. Although the inter-practice range of performance on both GPPS and QOF indicators is quite wide, the standard deviation (SD) is small and the means are very similar to the medians. The use of means was therefore a pragmatic way of summarising the data for about 8,000 practices.

Analysis

We used multivariate models to analyse associations at practice level between the mean QOF scores for the process and outcome indicators for each clinical domain, and the mean scores for the GPPS domains, with the QOF scores as the dependent variable. The analyses were adjusted for three practice characteristics: deprivation, number of GPs and region (SHA). We also examined adjusted mean QOF scores for practices grouped in quartiles according to their GPPS domain scores, to further examine the relationships.

We examined clusters of performance on GPPS and QOF outcomes – that is, practices performing well or poorly on both patient experience and clinical quality as measured by mean scores for the outcome indicators for hypertension, coronary heart disease, diabetes and stroke. (The same analysis is not presented for QOF process indicators also, owing to the large volume of analyses entailed.) We selected practices that were among the best 10 per cent of scores on *both* the GPPS domain and the QOF outcome indicator domain. We also examined the practice characteristics associated with each of these clusters.

Tables

Table 1: QOF and GPPS domain scores for practices in England, 2010/11

	Mean	Median	SD	Min	Max
QOF domain scores					
Asthma - Process	0.86	0.86	0.06	0.39	1.00
Hypertension - Process	0.92	0.92	0.04	0.67	1.00
Hypertension - Outcome	0.80	0.80	0.06	0.35	1.00
CHD - Process	0.91	0.91	0.03	0.68	1.00
CHD - Outcome	0.86	0.87	0.05	0.55	1.00
COPD - Process	0.91	0.92	0.06	0.13	1.00
Dementia - Process	0.82	0.81	0.13	0.00	1.00
Depression - Process	0.86	0.91	0.14	0.04	1.00
Diabetes - Process	0.94	0.94	0.03	0.60	1.00
Diabetes - Outcome	0.77	0.77	0.05	0.28	0.98
Heart Failure - Process	0.91	0.91	0.06	0.00	1.00
Smoking - Process	0.94	0.95	0.03	0.60	1.00
Stroke - Process	0.93	0.93	0.04	0.55	1.00
Stroke - Outcome	0.83	0.84	0.06	0.39	1.00
GPPS domain scores					
Overall satisfaction	0.85	0.87	0.09	0.45	1.00
Access	0.72	0.72	0.07	0.43	0.93
Cleanliness	0.97	0.98	0.03	0.63	1.00
Confidence	0.93	0.94	0.05	0.57	1.00
Dignity	0.79	0.80	0.06	0.37	0.95
Information	0.52	0.52	0.05	0.31	0.89
Involvement	0.77	0.77	0.06	0.44	0.94
Covariates					
IMD	23.80	21.81	12.19	2.86	68.47
Per cent practices in London	18.23				
Number of GPs in the practice	4.41	4.00	2.85	1.00	30.00

Table 2: Coefficients of the association between GPPS and QOF data for 2010/11, adjusting for IMD, number of GPs and SHA

	Asthma	Hyper-tension	Hyper-tension	CHD	CHD	COPD	Dementia	Depres-sion	Diabetes	Diabetes	Heart failure	Smoking	Stroke	Stroke
	P	P	O	P	O	P	P	P	P	O	P	P	P	O
Access	0.54	0.94	0.85	0.69	0.65	0.64	0.79	1.07	1.22	0.44	0.58	0.31	1.00	0.66
	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Cleanliness	-0.09	1.21	0.90	0.55	0.97	0.99	-0.27	1.13	1.90	1.09	-0.36	0.25	1.12	1.07
		***	***	**	***	**		**	***	***			***	***
Confidence	-0.47	0.58	0.59	0.14	0.47	0.69	-0.76	1.29	0.99	0.44	-0.64	-0.27	0.71	0.40
	**	***	***		***	**	**	***	**	***	*		**	**
Information	0.39	1.21	0.67	0.73	1.02	1.42	0.90	0.80	1.70	0.71	0.80	0.52	1.15	1.10
	**	***	***	***	***	***	***	*	***	***	***	**	***	***
Involvement	-0.05	0.93	0.49	0.34	0.58	0.96	-0.15	0.86	1.57	0.58	-0.18	0.00	0.88	0.52
		***	***	**		***		**	***	***			***	***
Dignity	-0.15	0.76	0.35	0.13	0.38	0.48	-0.38	0.58	1.31	0.56	-0.53	-0.03	0.63	0.42
		***	***		***	**		*	***	***	**		***	***
Overall satisfaction	-0.10	0.63	0.44	0.28	0.48	0.53	-0.11	0.70	0.92	0.43	-0.10	-0.06	0.62	0.45
		***	***	***	***	***		***	**	***			***	***

NB: A positive coefficient indicates that higher GPPS scores are associated with higher QOF scores and vice versa. A negative coefficient indicates the reverse, ie, higher GPPS scores are associated with lower QOF scores and vice versa. The absence of any asterisks for a coefficient shows that the association is not statistically significant; it could, for example, be the result of random variation. The greater the number of stars, the stronger the statistical significance and hence reliability of the association.

Note: P=Process indicator; O=Outcome indicator

*** p<=0.000 ** p<=0.01 *p<=0.05

Table 3: Adjusted mean QOF scores for quartiles of GPPS scores, 2010/11 (continued overleaf)

Quartile of patient experience	Asthma Process		Hypertension Process		Hypertension Outcome		CHD Process		CHD Outcome		COPD Process		Dementia Process	
	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig
Overall experience														
Low	0.863	ns	0.913	***	0.789	***	0.911	***	0.856	***	0.906	***	0.823	ns
1	0.863		0.918		0.798		0.913		0.863		0.911		0.812	
2	0.862		0.921		0.801		0.915		0.867		0.913		0.817	
High	0.860		0.925		0.804		0.915		0.867		0.915		0.821	
Range	-0.004		0.011		0.015		0.004		0.012		0.009		-0.003	
Access														
Low	0.856	***	0.913	***	0.784	***	0.908	***	0.855	***	0.906	***	0.809	***
1	0.860		0.917		0.795		0.913		0.862		0.910		0.810	
2	0.862		0.920		0.803		0.915		0.866		0.912		0.821	
High	0.868		0.926		0.809		0.918		0.869		0.916		0.829	
Range	0.012		0.014		0.024		0.010		0.013		0.009		0.020	
Cleanliness														
Low	0.864	ns	0.915	***	0.792	***	0.912	***	0.858	***	0.908	*	0.820	ns
1	0.861		0.918		0.798		0.913		0.863		0.911		0.811	
2	0.860		0.920		0.799		0.914		0.865		0.910		0.817	
High	0.863		0.923		0.803		0.916		0.868		0.916		0.823	
Range	0.000		0.008		0.012		0.004		0.010		0.007		0.003	
Dignity														
Low	0.862	ns	0.915	***	0.793	***	0.912	ns	0.857	***	0.907	**	0.820	ns
1	0.861		0.918		0.796		0.913		0.863		0.910		0.818	
2	0.863		0.921		0.801		0.915		0.865		0.915		0.815	
High	0.860		0.923		0.802		0.915		0.867		0.913		0.820	
Range	-0.002		0.008		0.010		0.003		0.010		0.007		0.000	
Confidence														
Low	0.866	**	0.917	**	0.792	***	0.913	ns	0.859	***	0.909	ns	0.824	
1	0.862		0.920		0.799		0.914		0.863		0.912		0.818	
2	0.860		0.919		0.799		0.914		0.865		0.912		0.812	
High	0.860		0.922		0.803		0.914		0.866		0.913		0.819	
Range	-0.006		0.005		0.010		0.001		0.008		0.004		-0.005	
Information														
Low	0.861	ns	0.916	***	0.794	***	0.911	***	0.856	***	0.905	***	0.814	ns
1	0.860		0.918		0.796		0.913		0.862		0.910		0.816	
2	0.862		0.919		0.797		0.914		0.864		0.913		0.816	
High	0.864		0.924		0.805		0.917		0.870		0.916		0.826	
Range	0.003		0.008		0.011		0.006		0.014		0.011		0.012	
Involvement														
Low	0.862	ns	0.915	***	0.792	***	0.911	***	0.857	***	0.905	***	0.819	ns
1	0.861		0.917		0.796		0.912		0.862		0.908		0.814	
2	0.863		0.921		0.799		0.915		0.865		0.915		0.816	
High	0.862		0.924		0.805		0.916		0.869		0.916		0.823	
Range	0.000		0.010		0.013		0.005		0.012		0.010		0.004	

Table 3: Adjusted mean QOF scores for quartiles of GPPS scores, 2010/11 (continued)

Depression Process		Diabetes Process		Diabetes Outcome		Heart failure Process		Smoking Process		Stroke Process		Stroke Outcome	
Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig	Adjusted means	Sig
0.851	***	0.931	***	0.760	***	0.913	ns	0.944	ns	0.924	***	0.825	***
0.857		0.937		0.773		0.910		0.944		0.928		0.833	
0.866		0.939		0.772		0.909		0.944		0.931		0.836	
0.867		0.941		0.773		0.910		0.944		0.931		0.836	
0.015		0.010		0.014		-0.004		-0.001		0.008		0.011	
0.848	***	0.930	***	0.761	***	0.906	***	0.943	*	0.922	***	0.823	***
0.855		0.936		0.769		0.909		0.943		0.927		0.831	
0.864		0.939		0.772		0.911		0.944		0.930		0.835	
0.873		0.943		0.775		0.915		0.946		0.935		0.840	
0.025		0.013		0.014		0.009		0.003		0.013		0.016	
0.851	*	0.932	***	0.762	***	0.911	ns	0.943	ns	0.924	***	0.827	***
0.861		0.937		0.771		0.912		0.944		0.929		0.832	
0.865		0.938		0.770		0.908		0.944		0.929		0.833	
0.865		0.941		0.775		0.911		0.945		0.932		0.838	
0.014		0.009		0.012		0.000		0.003		0.008		0.011	
0.854	ns	0.930	***	0.760	***	0.915	*	0.944	ns	0.925	***	0.826	***
0.856		0.936		0.770		0.911		0.944		0.928		0.833	
0.865		0.939		0.772		0.908		0.945		0.930		0.834	
0.866		0.942		0.775		0.909		0.944		0.932		0.836	
0.012		0.012		0.015		-0.006		0.000		0.007		0.010	
0.853	*	0.933	***	0.764	**	0.914	*	0.945	ns	0.926	*	0.829	*
0.860		0.938		0.772		0.912		0.945		0.929		0.833	
0.861		0.938		0.770		0.908		0.943		0.929		0.832	
0.869		0.940		0.772		0.908		0.944		0.931		0.836	
0.016		0.006		0.008		-0.007		-0.001		0.005		0.007	
0.854	ns	0.931	***	0.762	***	0.908	ns	0.944	ns	0.925	***	0.826	***
0.862		0.936		0.769		0.910		0.943		0.927		0.830	
0.859		0.938		0.770		0.912		0.944		0.929		0.833	
0.866		0.943		0.776		0.912		0.945		0.933		0.840	
0.012		0.012		0.015		0.005		0.001		0.008		0.015	
0.852	*	0.930	***	0.762	***	0.913	ns	0.944	ns	0.924	***	0.826	***
0.859		0.936		0.769		0.910		0.944		0.928		0.832	
0.863		0.939		0.773		0.909		0.944		0.930		0.834	
0.867		0.943		0.774		0.910		0.944		0.933		0.837	
0.015		0.012		0.012		-0.002		0.000		0.009		0.011	

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