Determinants of primary medical care quality measured under the new UK contract: cross sectional study

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Abstract
Objective To identify factors associated with the quality of primary medical care incentivised under the new UK general medical services contract.
Design Cross sectional study.
Setting NHS Ayrshire and Arran area, Scotland.
Participants 60 general practices.
Main outcome measures Quality scores reflecting the total points achieved on the 10 clinical domains and holistic care. Univariate and multivariate regression analyses were used to relate quality scores to measures of population characteristics, urban-rural location, general practitioner characteristics, clinical team size and composition, practice characteristics, and income from other sources.
Results Deprivation was associated with higher scores. Quality scores increased with the size of the clinical team. Practices with higher income from other sources had lower quality scores. Practices that were accredited, had training status, or contained younger general practitioners had higher quality scores, but these effects were explained by other associated factors. 53% of the variation in quality scores was explained by a multivariate model, which included measures of deprivation, clinical team size and composition, and financial incentives.
Conclusions Population characteristics showed little association with the quality of primary medical care incentivised under the UK general medical services contract. Larger clinical teams delivered higher quality clinical care, but the nurse-doctor composition of the clinical team did not influence quality. Practices that were more likely to respond to financial incentives because of previous behaviour or lower income from other sources recorded higher quality. If generalisable, the results suggest that initiatives to improve primary medical care quality should focus on the structure and resourcing of providers.

Introduction
The new contract for general medical services introduced in 2004 constitutes the biggest change in UK primary medical care for many decades. Substantial financial rewards are now linked to achievements in clinical and non-clinical quality. This reform reflects international interest in using financial incentives as a method of improving primary care.1 A previous study of quality when it was not explicitly incentivised found clinical quality for three chronic conditions to be higher with longer consultation times and in larger practices.3 A follow-up study found substantial improvements in quality between 1998 and 2003, just before quality became incentivised.4 We provide the first analysis of the determinants of incentivised quality.

Methods
We analysed data for 60 of the 61 practices in the NHS Ayrshire and Arran area, which has a population of about 367 000. It is broadly representative of Scotland, with a slightly older and more deprived population, and considerable remoteness, including two inhabited islands. We derived quality scores reflecting the total points achieved on the 10 clinical domains and holistic care (reflecting performance on the third worst clinical domain) for 2004-5 in the UK general medical services contract.

Using linear regression analysis, we estimated the univariate associations between possible determinants of quality and the quality score. Univariate analyses show general patterns, but multivariate analysis identifies the unique contribution of each factor, keeping other factors constant. We identified statistically significant factors in the multivariate model using forward stepwise selection. We considered many factors and have a relatively small sample. Consequently our results may be sensitive to outliers. See bmj.com for similar results from more complex analyses that are less sensitive to the distribution of scores.

Results
The mean (standard deviation) quality score was 612 (59) out of a possible maximum of 650. Deprivation was associated with higher scores (table). Practices with older general practitioners had lower scores. Quality scores increased with clinical team size (measured by the whole time equivalent number of principals, non-principals, and practice nurses). Former fundholder, Royal College of General Practitioners accredited, and training practices had higher quality scores. Practices with higher global sum payments per registered person (allocated for workload on a weighted capitation formula) had lower quality scores. Fifty three per cent (F test, F = 4.24; P < 0.001) of the variation in quality scores was explained by a multivariate model, which included measures of deprivation, clinical team size and composition, and financial incentives.

Discussion
Quality scores for the 10 clinical domains and holistic care in the UK general medical services contract were higher for deprived areas, larger clinical teams, and practices more likely to respond to financial incentives. The size and composition of the clinical team was the most important determinant. Practices with fewer than four whole time equivalent clinicians had lower quality recorded. Once we controlled for other factors, practices with higher proportions of non-principals performed better, possibly because they are more recently trained. Although nurses may keep more complete records than doctors, higher proportions of clinical input from doctors, possibly because they are more recently trained. Although nurses may keep more complete records than doctors, higher proportions of clinical input from
Incentivised quality is higher for deprived areas, larger clinical teams, and longer consultations and in larger practices. Before the new contract, clinical quality was known to be higher with financial rewards to quality.

The new UK contract for general medical services links substantial financial rewards to high quality of care. Concerns have been that the new contract will increase inequalities in health care, but we found that deprivation was positively associated with quality. Factors associated with quality but that were not significant once we controlled for other factors were accreditation, training status, and average age of general practitioner. The structure and resourcing of the practices with these characteristics accounted for the quality of their care.

Managers of healthcare systems worldwide are seeking to maximise their cost effectiveness, and the results of the new UK contract will attract much interest. Our study was based on a small sample in a particular area but, if generalisable, suggests that the structure and resourcing of primary providers of medical care should be the focus of policy makers seeking to improve quality.

We thank Paul Ardin (NHS Ayrshire and Arran) for comments on a draft and, with Rowan Johnstone and Nicola Watson (NHS Ayrshire and Arran) and Rosalia Munoz-Arroyo (ISD Scotland), for providing us with access to these data. Contributors: GM and MS conceptualised the study, carried out the data analysis, and wrote and revised the manuscript. MS is guarantor.

Funding: This study was funded by NHS Ayrshire and Arran. The Health Economics Research Unit receives funding from the Chief Scientist Office, GM is funded by the Platform Project, which is jointly funded by the Chief Scientist Office (Award No RDG HR01012) and the Scottish Higher Education Funding Council (Award No OOB/3/67).

Competing interests: None declared. Ethical approval: Not required.