

## Staff news

Professors **Nigel Rice** and **Andrew Street** have been promoted to personal chair.



Nigel's research interests include the application of econometric methods to the analysis of micro-data on health and health care.

Andrew's research interests include health system productivity, activity based funding mechanisms, organisational efficiency, and critical appraisal of health policy.



**The Health, Econometrics and Data Group (HEDG)** have been awarded a major grant under the ESRC Large Grant Scheme. With funding of c.£1.3 million over four years, the Group will focus on the empirical analyses of health, health-related behaviour and health care. The result of the research aims to better inform health-related policy on areas such as health inequality and ways to evaluate public health initiatives. It will also compare the performance of health care systems on an international level. A series of introductory and advanced training courses in applied health economics will be a feature of the award. HEDG is a collaboration between the Centre for Health Economics and the Department of Economics. The grant, due to commence in January 2009, will be led by Professors Nigel Rice, Andrew Jones and Peter C Smith.

Welcome to the fourth edition of the Centre for Health Economics electronic newsletter. The objective of the newsletter is to keep policy makers, researchers and practitioners informed about recent developments at the Centre, including completed research and forthcoming events. For further information please visit our website [www.york.ac.uk/inst/che](http://www.york.ac.uk/inst/che)

## The quality and outcomes framework—a cost-effective use of NHS resources?

Simon Walker, Anne Mason, Mark Sculpher

### Introduction

In April 2004 the new General Medical Service (GMS) contract was introduced into UK primary care. It included a major pay for performance scheme, known as the Quality and Outcomes Framework (QOF), which used a system of financial incentives for the achievement of various quality indicators. Under the QOF, payments to GP practices vary according to the proportion of patients meeting the indicator target, disease prevalence, practice size and the number of points assigned to each indicator. Focussing on QOF indicators that are likely to have a direct therapeutic impact, our research aimed to assess the extent to which the introduction of payments could be considered a cost-effective use of resources.

### Methods

The research comprised three stages:

1. An analytic framework: the framework took account of the cost-effectiveness of the treatment incentivised by the QOF; the incentive payment; and the subsequent change in utilisation level.
2. A literature review: to identify and appraise the cost-effectiveness evidence relating to those interventions covered in the therapeutic QOF indicators considered.
3. Estimation of the cost-effectiveness of the QOF indicators: Cost-effectiveness evidence from the literature review was combined with payments under the QOF. As evidence on the actual changes in utilisation due to QOF is unavailable, the actual cost-effectiveness of the QOF indicators could not be estimated. Instead, the *potential* cost-effectiveness of the QOF was estimated, based on the overall proportional change in utilisation required, as a result of QOF, for the payments to be a cost-effective use of resources.

### Results

The framework demonstrated that QOF payments are more likely to be cost-effective if one of three conditions holds. First, where the proportion of new, previously untreated, patients is higher (as there is more potential health gain); second, where the proportion of eligible patients who were being treated previously is lower (so there is less extra cost for those who have no extra health gain, as payments do not distinguish between previously treated patients and newly treated patients); and lastly, where the payment per patient is lower.

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## The quality and outcomes framework—a cost-effective use of NHS resources (Cont'd)

Potential indicator cost-effectiveness varied by baseline uptake, which is defined as the level of utilisation that would have occurred if QOF had not been introduced. Assuming a cost-effectiveness threshold of £20,000 per QALY, if baseline uptake were 30%, the mean absolute change in utilisation needed for an indicator to be cost-effective would be 0.5%. In other words, if, without the introduction of the QOF, GP practices would have met the indicator for 30% of their patients, then on average a change of only 0.5% would be needed for the indicator to be cost-effective. For baseline uptake levels of 60%, the mean absolute change in utilisation needed for an indicator to be cost-effective would be 4.6% (range: just over 0% to around 20%). For baseline uptake levels of 90% (i.e. when, prior to QOF, all practices are already meeting the QOF target for 90% of the indicator population), the mean absolute change in utilisation needed for an indicator to be cost-effective would be 1.7% (range: just 0.1% to around 7.5%); however, two of the indicators were excluded from this analysis as they could never be cost-effective with a baseline of 90%.

### Conclusions

There are a number of important caveats to the research. Firstly, for many indicators, the cost and QALY evidence from the literature is subject to major uncertainties. The second caveat relates to the assumed duration of the QOF payments: the results presented here assume five years of payments (sensitivity analyses for 10 and 15 years of payments are also explored in the report). A third caveat relates to the uncertainty

over whether the QOF payments were intended to cover GP practice costs; our analysis assumes they were purely incentive payments and is therefore a worst case analysis. A fourth caveat is that the cost-effectiveness threshold of £20,000 per QALY applied in this research may not appropriately reflect the true opportunity cost in the NHS. It should also be noted that our analysis focused on indicators with a direct therapeutic benefit because we expected there to be little relevant evidence on other types of indicators. We have, therefore, only explored the potential cost-effectiveness of a small subset of QOF indicators, and as such this research does not tell us whether the QOF as a whole is a cost-effective use of resources

On the basis of the available evidence on the incremental costs and benefits of a given therapeutic intervention, relative to one or more comparators, this research estimated the absolute change in the utilisation that would be necessary for an indicator to be considered cost-effective given the QOF payment. This absolute change is conditional on the baseline utilisation (the level of utilisation if QOF had not been introduced (the counter-factual)) because, if this utilisation is high, the additional cost of QOF payment can be spread over fewer additional patients and so the indicator is less likely to be cost-effective. Although some of the necessary changes in utilisation to make the QOF potentially cost-effective appear modest, further research is needed to demonstrate empirically whether these changes have been realised in practice.

For full report <http://www.york.ac.uk/inst/che/pdf/jointexecutivesummaryUEA-York-%20270308final.pdf>

## New funding

### **Roy Carr-Hill**

'The role, organisation and management of support staff in secondary care'. Sponsored by NCCSDO via Department of Health Sciences. Duration 15.3.07-31.10.09.

### **Mike Drummond and Anne Mason**

'Assessment and appraisal of oncology medicines: does the NICE approach include all relevant elements and what can be learnt from international HTA experiences?'. Sponsored by the Pharmaceutical Oncology Initiative Group via OHE. Duration 1.7.08-30.11.08.

### **Andrea Manca**

'Statistical issues in health economics evaluation'. Sponsored by MRC. Duration 1.7.08-30.6.10.

### **Laura Bojke and Mark Sculpher**

'MRC-NICE Scoping Study'. Sponsored by MRC. Duration 11.9.08-11.3.09.

### **Mark Sculpher**

'The place of minimal access surgery amongst people with gastro-oesophageal REFLUX disease (GORD) - A UK Collaborative Study - REFLUX 2'. Sponsored by NCHTA via University of Aberdeen. Duration 1.5.07-30.6.11.

### **Mark Sculpher**

'Cardiac magnetic resonance imaging in coronary heart disease: from research to clinical practice.' Sponsored by British Heart Foundation via University of Leeds. Duration 1.11.08-31.10.10.

## WHO European ministerial conference on 'Health systems, health and wealth'

The Centre made a major contribution to preparations for a summit of health ministers in Tallinn organized by the European Region of the World Health Organization. The summit entitled focused on the links between health, wealth, and the health system, and ended with the signing of a new European health charter. CHE researchers contributed position papers on various aspects of performance measurement, which will be published next year in a volume for Cambridge University Press. At the conference, Peter Smith gave a plenary speech on health system performance assessment, and also organized a workshop on using performance measurement to promote health system improvement."

## New estimates of NHS output growth

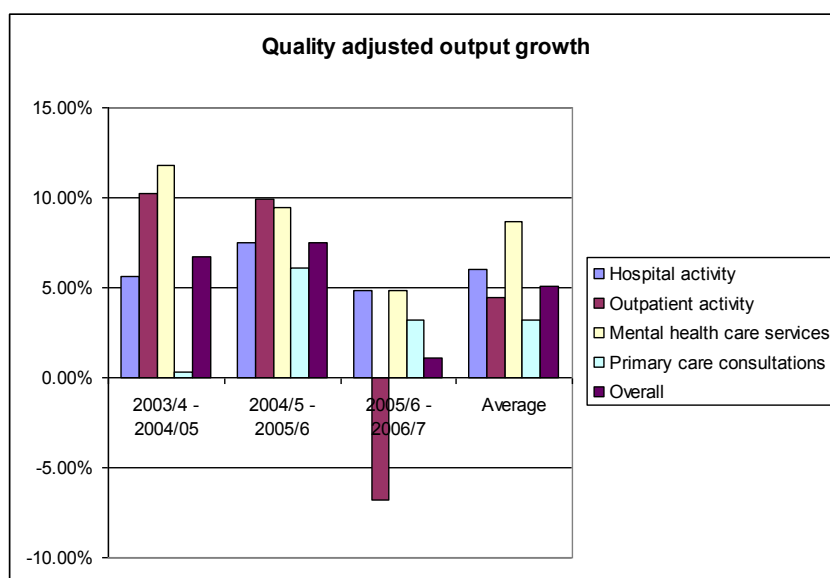
Adriana Castelli, Mauro Laudicella, Andrew Street

The latest estimates of output growth for the National Health Service in England over the period 2003/4 to 2006/7 are now available (see CHE research paper 43 details below).

Two aspects of our estimates distinguish them from standard practice in other sectors and internationally. First, our output index is virtually comprehensive, capturing as far as possible all the activities undertaken for NHS patients by both NHS and non-NHS providers. This contrasts with most indices that are based on a 'basket' of activities that are deemed to be representative of the whole. Second, we assess the quality of output by measuring the waiting times and survival status of every single patient treated in hospital each year. We also allow for improved disease management in primary care.

We address a major practical challenge that arises in the NHS because of periodic wholesale revisions to the classification systems used to describe output categories. Traditional methods to calculate output growth require output categories to be consistent across adjacent time periods. We propose and apply a method that avoids the requirement for consistent definition of output categories over time. Use of our approach is critical: it would not otherwise be possible to calculate output growth for the NHS over the years we consider in any meaningful way.

The Figure shows output growth, calculated using a Laspeyres index, for each pair of years and the average for the entire period.



- ◆ Growth in hospital activity has averaged 6% per year with improvements in survival rates and waiting times accounting for 2.4% of the annual growth.
- ◆ Output growth in outpatient activity averages 4.5% per annum, with improvements in outpatient waiting times contributing 0.1% to this figure. The fall in output recorded between 2005/6 and 2006/7 is due mainly to a shift toward less complex outpatient activities.
- ◆ Growth in mental health care has averaged 8.7%, with quality improvements being modest but positive.
- ◆ Growth in primary care consultations has averaged 3.2% over the full period, of which 0.5% is accounted for by the improvements in the management of blood pressure for patients suffering from chronic heart disease, stroke and hypertension.
- ◆ Overall growth across these settings has averaged 5.1% per year, with quality improvements contributing 1% to this figure.

## CHE Research Papers

CHE has a research paper series which gives early release of research findings. The following have recently been published and are free to download [www.york.ac.uk/inst/che/publications/publicationsbyyear.htm](http://www.york.ac.uk/inst/che/publications/publicationsbyyear.htm)

**RP37** Optimal contracts and contractual arrangements within the hospital: bargaining vs. Take-it-or-leave-it offers—*Matteo Galizzi and Marisa Miraldo*

**RP38** Dimensions of design space: a decision-theoretic approach to optimal research design—*Stefano Conti and Karl Claxton*

**RP39** Establishing a fair playing field for payment by results—*Anne Mason, Marisa Miraldo, Luigi Siciliani, Peter Sivey and Andrew Street*

**RP40** Quality in and equality of access to healthcare services in England *Maria K Goddard*

**RP41** Price adjustment in the hospital sector—*Marisa Miraldo, Luigi Siciliani and Andrew Street*

**RP42** The link between health care spending and health outcomes for the new English Primary Care Trusts—*Stephen Martin, Nigel Rice, Peter C Smith*

**RP43** Measuring NHS output growth—*Adriana Castelli, Mauro Laudicella, Andrew Street*

Brekke K, **Siciliani L**, Straume OR. Competition and waiting times in health care markets. *Journal of Public Economics*. 2008;92(7):1607-28.

Busse R, Schreyogg J, **Smith PC**. Variability in healthcare treatment costs amongst nine EU countries - results from the Healthbasket project. *Health Economics*. 2008;17(S1):S1-S8.

Chalabi Z, **Epstein D**, **McKenna C**, **Claxton K**. Uncertainty and value of information when allocating resources within and between healthcare programmes. *European Journal of Operational Research*. 2008;191(2):530-9.

Chauhan D, **Mason A**. Factors affecting the uptake of new medicines in secondary care - a literature review. *Journal of Clinical Pharmacy and Therapeutics*. 2008;33(4):339-48.

**Claxton K**, **Culyer A**. Not a NICE fallacy: A reply to Dr Quigley. *Journal of Medical Ethics*. 2008;34:598-601.

**Claxton K**. Exploring uncertainty in cost-effectiveness analysis. *Pharmacoeconomics*. 2008;9:781-98.

**Culyer A**, **Sculpher M**. Lessons from health technology assessment. In: Tompa E, Culyer A, Dolinschi R, eds. *Economic evaluation of interventions for occupational health and safety*. Oxford: Oxford University Press 2008

Dawson D, **Gravelle H**, **Jacobs R**, Martin S, **Smith PC**. The effects of expanding choice of provider on waiting times: evidence from a policy experiment. *Health Economics*. 2007;16(2):113-28.

**Epstein D**, **Sculpher M**, Clayton T, Henderson R, Pocock SJ, Buxton M, et al. Costs of an early intervention versus a conservative strategy in acute coronary syndrome. *International Journal of Cardiology*. 2008;127(2):240-6.

**Gravelle H**, **Siciliani L**. Optimal quality, waits and charges in health insurance. *Journal of Health Economics*. 2008;27(3):663-74.

**Griffin S**, **Claxton K**, **Sculpher M**. Decision analysis for resource allocation in health care. *Journal of Health Services Research and Policy*. 2008;13:23-30.

Jimenez-Rubio D, **Smith PC**, van Doorslaer E. Equity in health and health care in a decentralised context: evidence from Canada. *Health Economics*. 2008;17(3):377-92.

**Marini G**, **Street A**. A transactions costs analysis of changing contractual relations in the English NHS. *Health Policy*. 2007;83(1):17-26

**Mason A**, **Carr-Hill R**, Myers L, **Street A**. Establishing the economics of engaging communities in health promotion: what is desirable, what is feasible? *Critical Public Health*. 2008;18(3):285-97.

**Mason A**, **Walker S**, **Claxton K**, Cookson R, Fenwick E, **Sculpher M**. The GMS quality and outcomes framework: Are the quality and outcomes framework (QOF) indicators a cost-effective use of NHS resources? In: *Quality and Outcomes Framework*. Joint executive summary: Reports to the Department of Health from the University of East Anglia and the University of York.

**Mason A**, **Weatherly H**, Spilsbury K, Golder S, Arksey H, Adamson J, et al. Respite care for frail older people: a systematic review of the effectiveness and cost-effectiveness of different models of community-based respite care for frail older people and their carers. *Health Technology Assessment*; April 2007;11(15):1-176.

**Mason AR**, **Drummond M**. NHS reimbursement of new cancer drugs: is NICE getting nastier? (abstract from the ISPOR thirteenth annual international meeting May 3-7 2008). *Value in Health*. 2008;11(3):A11

McCabe C, **Culyer A**, **Claxton K**. The NICE cost-effectiveness threshold: what it is and what it means. *Pharmacoeconomics*. 2008;9:733-44

Phillips Z, **Claxton K**, **Palmer S**. The half-life of truth? what is the appropriate time horizons for research decisions? *Medical Decision Making*. 2008;28:287-99

**Sculpher MJ**. NICE's 2008 methods guide: sensible consolidation or opportunities missed? *Pharmacoeconomics*. 2008;26:721-4.

**Sculpher MJ**. Subgroups and heterogeneity in cost-effectiveness analysis. *Pharmacoeconomics*. 2008;26:799-806

**Siciliani L**. A note on the dynamic interaction between waiting times and waiting lists. *Health Economics*. 2008;17(5):639-47.

**Smith PC**, **Goddard M**. Performance management and operational research: a marriage made in heaven? In: Thorpe R, Holloway J, eds. *Performance management: multidisciplinary perspectives*. Basingstoke: Palgrave Macmillan 2008.

Twelve members of staff, students and visitors from CHE attended the 7th European Health Economics Conference in Rome on July 23-26. They were involved in over 22 presentations, posters and panel discussions of health economics research undertaken in the Centre.

**Roy Carr-Hill** visited Thailand to advise on an appropriate health service resource allocation system for their new Universal Coverage scheme.

**Mike Drummond** gave two invited presentations at the second Annual Conference of the Israeli Society for Pharmacoeconomics and Outcomes Research; one on a European perspective on the costs and cost-effectiveness of cancer therapies; the other on NICE guidance on the use of cancer drugs in the UK. He then contributed a presentation at a workshop in Portland (Oregon) for the Drug Effectiveness Review Project (DERP), whereby 15 US States cooperate to produce reports on the effectiveness of new drugs to assist decisions on formulary listing in State Medicaid programmes. Finally, Professor Drummond gave a presentation at the University of Washington (Seattle) on 'Current Methodological Controversies in Economic Evaluation'.

**Anne Mason** gave a presentation on 'Topical Treatments for Chronic Plaque Psoriasis: a systematic review' to the Twelfth Annual Cochrane Skin Group Meeting in London.

**Peter Smith** gave a plenary presentation on 'Can market-type mechanisms lead to more rational health care resource use?' at a joint OECD and European Commission conference on health system efficiency in Brussels. He also gave an invited presentation on 'Sixty years of the English National Health Service' to the annual meeting of the Italian Health Economics Association in Matera and a series of presentations on performance measurement in health to senior Austrian policy makers as part of this year's Vienna Healthcare Lecture series.

**Adriana Castelli** and **Maria Goddard** presented the paper 'Exploring the impact of public services on quality of life indicators: the case of health' at the 2008 Joint Meeting of the UK and Nordic Health Economics Study Groups Aberdeen.

## CHE Seminar Series

Date: Thursday 6th November

Time: 2.00pm to 3.15pm

Venue: ARRC Auditorium RC/014

Speaker: Sylvia Brandt, Assistant Professor, Department of Resource Economics, University of Massachusetts.

Title: Designing contingent valuation scenarios for environmental health: the case of childhood asthma.

Date: Thursday 4th December

Time: 2.00pm to 3.15pm

Venue: ARRC Auditorium RC/014

Speaker: Matt Sutton, Professor of Health Economics, Health Methodology Research Group, School of Community Based Medicine, University of Manchester.

Title: Is clock-watching productive? The effect of hours harmonisation on hospital doctor outputs.

Date: Monday 15th December

Time: 4.30pm to 5.30pm

Venue: CHE, Alcuin A Block, Rooms A019 and A020

Speaker: Steve Morris, Reader in Health Economics, Health Economics Research Group, University of Brunel.

Title: TBA

Visit our website for further details on the CHE Seminar series and our series of specialist seminars in economic evaluation: [www.york.ac.uk/inst/che/seminars/index.htm](http://www.york.ac.uk/inst/che/seminars/index.htm)