Policy Research Programme Funded Unit

Centre for Health Economics, Final Report

Title of Unit	Centre for Health Economics
Grant holder and institution	Professor Andrew Street Centre for Health Economics, University of York York YO10 5DD Professor Maria Goddard Centre for Health Economics, University of York York YO10 5DD Mrs Anne Mason Centre for Health Economics, University of York York YO10 5DD
Key researchers	Bojke, Christopher (from August 2009) Castelli, Adriana Daidone, Silvio (from March 2010) Goddard, Maria Gutacker, Nils (from August 2010) Laudicella, Mauro (from Sept 2007 to Sept 2010) Marini, Giorgia (to August 2009) Mason, Anne Miraldo, Marisa (to July 2008) Street, Andrew Verzuilli, Rossella (from January 2009) Ward, Padraic (from October 2009)
Start and end dates:	August 2006 – July 2011
Budget:	£2,304,205
Date submitted	31st August 2011

Contents

Lay Summary

Objectives of the Unit

'Health economics' has emerged over the past 30 years as a major branch of economics. It considers the causes of health and wellbeing, and how we approach the organization and delivery of health and social care.

Health economics provides a toolkit for all those concerned with the delivery, management and planning of services from clinicians, managers, policy analysts, government and society. Established in 1983, the Centre for Health Economics (CHE) at the University of York is one of the largest health economics research centres in the world and is renowned for its high policy impact research.

Research programme

This report focuses on the projects funded from the Department of Health programme grant, which covers the period August 2006 – July 2011. The research funded from the programme grant falls into five themes.

Measuring NHS productivity

In the current economic climate, the need to assess the productivity of National Health Service (NHS) is ever more important, both to account for how resources are used and to identify room for improvement. There is intense public debate about NHS productivity.

Our work on productivity includes:

- Methodological developments in measuring outputs and inputs
- Annual updates of indices of output, input and productivity growth for the NHS, for England as a whole and by healthcare setting
- Estimates of productivity at regional level

Payment by Results (PbR)

Under PbR, English hospitals are paid a fixed price for each type of patient treated. Our work in this area includes:

- Evaluating strategies for managing demand for health care
- Assessing the impact of PbR on contracting costs
- Paying for mental health care
- Evaluating payment policy for NHS and private providers
- Estimating the costs of specialised care

Performance and efficiency analysis

Research under this theme is designed to identify variations in performance and strategies to secure better value for money from the healthcare system. Projects cover a wide range of topics including measurement issues, efficiency analyses of health care organisations, and evaluation of the impact of performance management systems on organisations and individuals.

Health care commissioning

Over the past 20 years, there have been major organisational and budgetary changes for NHS commissioners (purchasers). The most recent reforms devolve commissioning to groups of GPs. Our research explores the trends in commissioning patterns, examining how English NHS purchasers make use of hospital providers.

Responsive work

This is work that does not fit into any of the above themes. It includes an assessment of which costs should be taken into account in health care decisions; a review of the performance of foundation trusts; and a review of the implications of hospital car parking charges.

Brief Executive Summary

Objectives of the Unit

The Centre for Health Economics (CHE) at the University of York is one of the largest and best known health economics research centres in the world. Established in 1983, CHE is renowned for its high policy impact and was awarded the Queen's Anniversary Prize in 2007 for the exceptional quality of its work. The mission of the Centre for Health Economics (CHE) is to undertake, publish and otherwise disseminate high quality research in the field of health economics capable of informing policy decisions.

One of four teams in CHE, the Health Policy Team undertakes applied and methodological economics research to critically appraise and evaluate organisational and incentive structures of the health care system, including the behaviour and performance of organisations and individuals within the health care system. The team receives research funding from a variety of sources, including a programme grant from the Department of Health annually which comprises approximately 15-20% of CHE's research income.

Research programme

This report focuses on the projects funded from this programme grant, which covers the period August 2006 – July 2011. The research funded from the programme grant falls into five themes:

- Measuring NHS productivity
- Payment by Results
- Performance and efficiency analysis
- Health care commissioning
- Responsive work

Each of these themes is described in the report, and the associated published outputs (publications and presentations) are listed.

Relevance of work programme to DH policy (2006 – 2011)

The aim of the research programme is to provide high quality scientific research-based information for the Department of Health, with a focus on evaluating the impacts of financial and organisational reform in the NHS.

Theme 1: Measuring NHS productivity

Overview

Productivity as defined in the national accounts is the ratio of the amount of output produced to the amount of input used to produce the output. The fewer inputs used for a given amount of output, the higher is productivity. The amount of NHS output comprises the number and type of patients treated in different healthcare settings, the quality of the care received and measures of the success of treatment. NHS input includes NHS and agency staff, equipment and supplies, and buildings.

In the current economic climate, the need to assess the productivity of the National Health Service is ever more important, both to account for how resources are used and to identify room for improvement. There is intense public debate about NHS productivity.

Our work on productivity includes:

- Methodological developments in the measurement and construction of output and input indices
- Annual updates of indices of output, input and productivity growth for the National Health Service, for England as a whole and by healthcare setting
- Estimates of productivity at regional level

Our research underpins changes introduced by the Office of National Statistics to how health service productivity and quality is measured in the National Accounts.

Our definition of productivity is consistent with that employed in the national accounts for calculating things like Gross Domestic Product. Here, productivity measures the ratio of the amount of output produced to the amount of input used to produce the output. The fewer inputs used for a given amount of output, the higher is productivity.

The amount of NHS output comprises the number and type of patients treated in different healthcare settings, the quality of the care received and measures of the success of treatment. Information about who is treated and where is available from datasets such as the hospital episode statistics and reference cost returns. NHS input includes NHS and agency staff, equipment and supplies, and buildings.

Our work on NHS productivity is valuable to the DH because our measure:

- has strong foundations, building on our own methodological advances and fully incorporating the recommendations of the Atkinson and Willmer reviews.
- is comprehensive, capturing all health care delivered to NHS patients, whereas the ONS measure captures only 80% of activity.
- is capable of disaggregation both to different NHS settings (e.g. hospital, community and primary care) and to sub-national levels (e.g. geographical areas or NHS organisations).
- In addition, the ONS is also dependent on our work: we supply them with the measures of quality that are incorporated into their analysis of NHS productivity.

Methods

In 2005, the Centre for Health Economics and National Institute of Economic and Social Research completed a project funded by the Department of Health to improve measurement of the productivity of the NHS. We have built on these methodological foundations to develop better ways of measuring both outputs and inputs to improve estimates of productivity growth. We make better use of existing data to quality-adjust output indices to capture improvements in hospital survival rates and reductions in waiting times. We believe that the routine collection of health outcome data on patients is vital to measure NHS quality. We have also developed improved ways of measuring NHS inputs, particularly by drawing on better information about how many people are employed in the NHS and by accounting more accurately for utilisation of capital.

> Panos Zerdevas, Economic Adviser, Department of Health –
> "Thank you very much for all your hard work on measuring NHS output. You must be really proud of your achievement as this work is of the highest quality, not only for UK standards but globally."
> Email 07/08/2008

National productivity

We construct annual output and input indices and estimate productivity growth of the English NHS. Our index of output growth incorporates all care provided to NHS patients and captures improvements in survival rates, waiting times and disease management. We find that more patients are being treated and the quality of the care they receive has been improving. We implement our approach to dealing with changes to how health services are defined and show what effect this has on estimates of output growth.

Our index of input growth captures all labour, intermediate and capital inputs into health service production and we improve on how capital has been measured in the past. Inputs have increased over time but there has also been a slowdown since 2005/6, primarily the result of a levelling off in staff recruitment and less reliance on the use of agency staff.

Productivity is assessed by comparing output growth with growth in inputs, the net effect being fairly constant productivity growth since 2003/4.

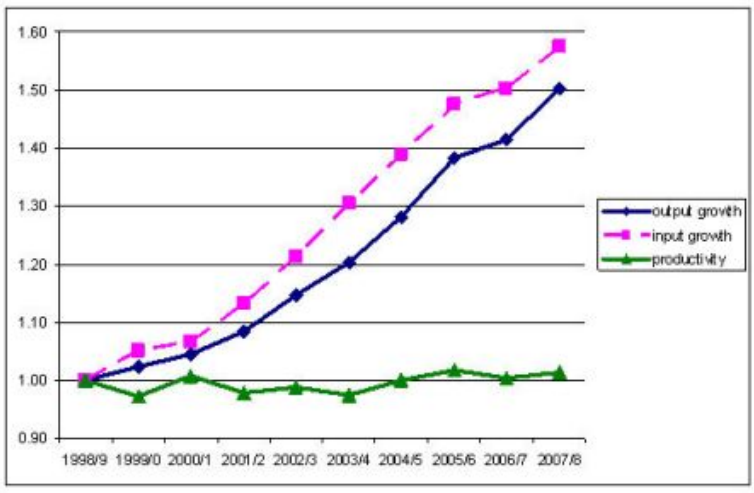


Figure 1: NHS productivity trends, 1998/9 to 2007/8

Regional productivity

We assess the productivity of Strategic Health Authorities (SHAs) in England in 2007/8. We identify areas of the country where expenditure could be reduced without affecting the number of patients treated or the quality of their care. Productivity is calculated by comparing the total amount of health care output to total inputs for each SHA. The amount of healthcare output comprises the number and type of patients treated and the quality of the care received. Healthcare input includes National Health Service (NHS) and agency staff, supplies, equipment and buildings.

Data about healthcare outputs are derived from the Hospital Episode Statistics and Reference Cost returns. Input data derive from the Workforce Census and financial returns made by NHS organisations.

Productivity varies from 5% above to 6% below the national average. Productivity is highest in South West SHA and lowest in East Midlands, South Central and Yorkshire & the Humber SHAs. The relative positions of SHAs hold irrespective of the data source used to measure inputs.

If all SHAs were as productive as South West the NHS could reduce its expenditure by £3.2bn each year.

The work on regional productivity attracted much media coverage:

An editorial and an article on our work appeared in the Health Service Journal "NHS paying for low productivity" (14 October 2010). This was followed by radio interviews by Midwest Radio, BBC Radio Somerset and BBC Radio York and newspaper articles in The York Press, Northern Echo, Western Daily Press, Express and Echo, Gazette & Herald, South West Business, The Western Morning News and the Gazette (October 2010).

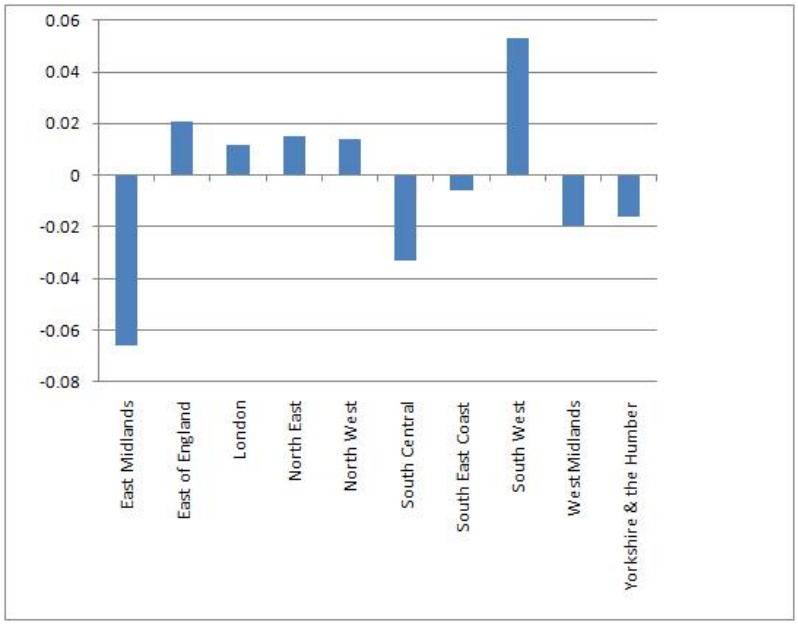


Figure 2: Regional productivity variations

Avoidable mortality

The pioneering work by Rutstein, Berenberg et al. (1976) introduced the notion of 'unnecessary untimely deaths' as a new way to measuring the quality of medical care. It has been argued that deaths occurring from these conditions may be regarded as 'sentinel health events' which demonstrate a failing on behalf of the medical provision.

We have reviewed and updated the most recent empirical literature. We find that the notion of avoidable mortality continues to be used to establish the extent to which people are dying from amenable conditions within and/or across countries and over time, and whether socio-economic status and ethnicity are related to mortality from amenable conditions. Most studies use data taken from national death registries, with only two which link the concept of avoidable mortality to routinely collected administrative data of healthcare provision, such as hospitals.

Hospital mortality

Building on our literature review we assess the role of these concepts in evaluating rates of hospital mortality. Opponents of the use of mortality rates as means of identifying hospitals with systematic excess deaths may not find the new NHS approved Summary Hospital level Mortality Indicator (SHMI) a robust measure. Despite providing clear guidance on a number of issues, such as choice of case-mix adjusters, the new SHMI does not address the central criticism that there is too much 'noise' and that death may be a function of factors beyond the hospital's control.

We attempt to reconcile the use of mortality rate indicators by estimating hospital specific effects for conditions defined as having clinically amenable mortality. These are conditions for which death should be avoided in the event of timely quality medical care. We compare these with estimates produced from examining supposedly non-amenable conditions.

We examine the strength of the signals of systematic differences between hospitals after allowing for case-mix under different conditions of 'noise' - higher probabilities of death independent of hospital effects. By using 8 years of HES data for hospitalisations for four conditions split into amenable and non-amenable by age and Charlson Index criteria and adjusting for patient case-mix, we find:

> María Cristina Peñaloza Ramos, UKCeMGA, ONS
> "Dear Andy and Adriana, I want to thank you all for your welcoming last Thursday, for showing me all the complicated processes you run with the data, and for the data you have provided us with. It was a very productive day for me."
> Email message 1/12/09

- Evidence of a systematic improvement in survival probabilities across conditions and across the NHS over time.

- Stronger signals of systematic differences in in-hospital death rates are generally to be found in the non-amenable conditions rather than the amenable conditions. Furthermore the impact of differences in hospital effects is greater where the patient case-mix indicate that there is a higher underlying risk of death.

Consequently, a strategy of minimising the amount of excess deaths may not involve simply targeting hospitals where the hospital specific effect is largest. It may also require examining larger hospitals with a worse than average effect and a more challenging patient case-mix.

Measuring NHS productivity: Dissemination

Publications

Castelli, A., & Smith, P. C. (2006). *Circulatory disease in the NHS: Measuring trends in hospital costs and output* (CHE Research Paper RP21). University of York: Centre for Health Economics.

Street, A., Castelli, A., Dawson, D., & Gravelle, H. (2006). Retos en le medición y valoración de los rendimientos del sistema de salud [Challenges in measuring and valuing health service output]. *Revista Española de Economía de la Salud, 5*(6), 335-360.

Castelli, A., Dawson, D., Gravelle, H., & Street, A. (2007). Improving the measurement of health system output growth. *Health Economics, 16*(10), 1091-1107.

Castelli, A., Dawson, D., Gravelle, H., Jacobs, R., Kind, P., Loveridge, P., Martin, S., O'Mahony, M., Stevens, P., Stokes, L., Street, A., Weale, M. (2007). A new approach to measuring health system output and productivity. *National Institute Economic Review, 200*, 105-117.

Our work on productivity has received national media coverage:

"Different measures produce different results" Financial Times 28 February 2006.

"Fresh research points to big increase in NHS productivity." The Independent, 28 February 2006.

"New figures show NHS productivity on the up" HSJ 7 May 2009.

"Past, present and future productivity in the NHS" HSJ 28 May 2009.

Smith, P. C., & Street, A. (2007). The measurement of non-market output in education and health. *Economic & Labour Market Review, 1*(6), 46-52.

Castelli, A. (2008). National schedule of reference costs data: community care services. *Unit Cost of Health and Social Care, 16*, 7-14.

Castelli, A., Laudicella, M., & Street, A. (2008). *Measuring NHS output growth* (CHE Research Paper RP43). University of York: Centre for Health Economics.

Street, A., & Ward, P. (2009). *NHS input and productivity growth 2003/4 – 2007/8.* (CHE Research Paper RP47). University of York: Centre for Health Economics

Street A, Häkkinen U (2009). Health system productivity and efficiency. In: Smith PC, Mossialos E, Leatherman S, Papanicolas. *Performance measurement for health system improvement: experiences, challenges and prospects*. European Observatory on Health Systems and Policies, Cambridge University Press. pp 222-248.

Street, A. (2009). A better way of measuring output. *Healthcare Finance* (March), 24.

Street, A. (2009). Past, present and future productivity in the NHS. *Health Service Journal* (28 May), 18-19.

Bojke, C., Castelli, A., Laudicella, M., Street, A., & Ward, P. (2010). *Regional variation in the productivity of the English National Health Service.* (CHE Research Paper RP57). University of York: Centre for Health Economics.

Castelli, A., Laudicella, M., Street, A., & Ward, P. (2011). Getting out what we put in: productivity of the English National Health Service. *Health Economics, Policy and Law, 6*(3), 313-335. http://journals.cambridge.org/repo_A83r1Vwc

Castelli, A., & Nizalova, O. (2011). *Avoidable mortality: what it means and how it is measured?* (CHE Research Paper RP63): University of York: Centre for Health Economics.

Street, A. (2011). Spend less, reap more. *Nursing Management*, 17(9), 6-7.

Presentations

Castelli, A., Dawson, D., Gravelle, H., & Street, A. (2006, 4-6 January). Knowing the cost of everything, the value of nothing? Challenges in measuring NHS output growth. Presented at the 2nd British-French Meeting on Health Economics, City University, London.

Street, A. (2006, 3 February). Hospital episode statistics and reference costs as data to measure NHS output. Presented at the Joint DH/ONS working group meeting, London.

Castelli, A. (2006, 6-9 July). A New Approach to Measuring NHS Output and Productivity. Presented at the 6th European Conference on Health Economics, Budapest, Hungary.

Dawson, D., Gravelle, H., O'Mahony, M., Street, A., Weale, M., Castelli, A., et al. (2006, 6-9 July). A new approach to measuring health system outputs and productivity (Presenting author: Castelli). Presented at the 6th European Conference on Health Economics, Budapest, Hungary.

Street, A. (2006, 18-20 October). Do the health economy pieces fit? Invited plenary address at the Community Practitioners and Health Visitors Association annual conference: The health jigsaw – making it fit!, Harrogate.

Street, A. (2006, 30 November). Retos en le medición y valoración de los rendimientos del sistema de salud. Invited seminar at Instituto de Estudios Fiscales, Madrid.

Street, A. (2007, 13 April). Invited presentation on "The contribution of ICT to health care system productivity and efficiency: what do we know?" OECD expert group meeting, Paris.

Street, A. (2007, 23 October). Developing new approaches to measuring NHS output and productivity. Seminar at the DSI Institut for Sundhedsvæsen, Copenhagen, Denmark.

Street, A. (2008, 18 March). Measuring health service productivity. Presentation to the British Medical Association, London.

Street, A. (2008, 8 April). Challenges in measuring health service output growth. Institut d'économie et management de la santé, University of Lausanne, Switzerland.

Street, A. (2008, 26 May). Challenges in measuring health service output growth. Institut d'Economia de Barcelona (IEB) Universitat De Barcelona, Spain.

Street, A. (2008, 3 July). Challenges in measuring health service output growth. Universitat De Pompeu Fabra, Barcelona.

Street, A. (2008, 30 September). Health Expenditure and Health Outcomes. Presentation to the Association of Chartered Certified Accountants (ACCA) and the NHS Confederation Health Research Forum, London.

Sharon Cannaby, Head of Health Sector Policy, ACCA UK-
"Thank you for speaking at the Health Research Forum yesterday. Your presentations helped to stimulate a really interesting debate and we were very grateful for your support."
Email 1/10/08

Street, A. (2008, 17 December). Output measurement: latest estimates. Health Care Analysis Advisory Forum, London School of Economics, London.

Smith, P. C. (2009, 19 March). NHS Productivity: trends, explanations and prospects, Seminar presented at the, Nuffield Trust.

Castelli, A., Laudicella, M., Street, A., & Ward, P. (2009, 22-24 July). Getting out what we put in: how productive is the NHS in England? Presented at the Health Economists' Study Group Meeting, Sheffield.

Street, A. (2009, 20-21 August). Course leader, Workshop on Productivity measurement and health economics, Yrjö Jahnsson Foundation, Helsinki, Finland.

Hannu Vartiainen,
Professor of Economics, Turku School of Economics; Research Director, Yrjö Jahnsson Foundation.
"Thanks again for the excellent summer school."
Email message 1/9/09.

Street, A. (2009, 4 November). Getting out what we put in: how productive is the NHS? Invited presentation at the SIRE Young Researchers Forum University of Dundee.

Street, A. (2010, 7 April). Measuring NHS productivity. British Medical Association, London.

Street, A. (2010, 22 June). Measuring NHS productivity, Health Strategy Forum. York.

Bojke, C., Castelli, A., Laudicella, M., Street, A., & Ward, P. (2010, 23-25 June). Regional variation in the productivity of the English NHS. Presented at the Health Economists' Study Group Meeting, Cork.

Bojke, C., Castelli, A., Laudicella, M., Street, A., & Ward, P. (2010, 7-10 July). Getting out what we put in: how productive is the NHS in England? Presented at the European Conference on Health Economics. Helsinki.

Castelli, A. (2010, 7-10 July). Measuring health and social care output and productivity: a European perspective. Session Chair, ECHE, Helsinki.

Street, A. (2010, 20 October). Will the NHS survive the recession? Seminar at the Universitat De Pompeu Fabra, Barcelona.

Castelli, A. (2010, 26 October). Measuring NHS productivity, Seminar, Bocconi University, Italy.

Goddard, M. (2010, 12 November). How much may be spent on health – experience of the NHS in the UK. Invited keynote presentation, 7th Swiss Congress on Health Economics and Health Sciences. Inselspital Bern, Switzerland.

Bojke C, Castelli A & Nizalova O. (2011) Exploring the concept of 'avoidable mortality' as a quality indicator for NHS hospital output: the case of circulatory diseases in England. Presented at the Health Economists' Study Group Meeting, York, 5-7 January.

Street, A. (2011, 17 February). Meeting the Nicholson challenge - An assessment of NHS productivity & efficiency: past, present and future. Presentation at the School of Health and Related Research, University of Sheffield.

Castelli, A. (2011, 1 March) Measuring NHS outputs, inputs and productivity. Seminar presentation at HERU, University of Aberdeen.

Street, A. (2011, 24 March). Meeting the Nicholson challenge - An assessment of NHS productivity & efficiency: past, present and future. Presentation at the Health Economics Seminar Series University of Birmingham.

Castelli, A. (2011, 14 July) Measuring NHS outputs, inputs and productivity. Seminar presentation at Health Policy Management & Evaluation, Faculty of Medicine, University of Toronto.

Letter 22/6/11 from Sir Richard Thompson, President Royal College of Physicians, London.
"Dear Andrew, I really greatly enjoyed your presentation yesterday! Thank you so much for coming to the RCP."

Street, A. (2011, 21 June). Measuring NHS productivity. Presentation to the Royal College of Physicians' Medical Specialities Board, London.

Theme 2: Payment by Results

Overview

We have undertaken various projects on Payment by Results, by which English hospitals are paid a fixed tariff for each type of patient treated. These projects include the following:

- Evaluating demand management strategies
- Assessing transactions costs
- Paying for mental health care
- Evaluating payment policy for NHS and private providers
- Estimating the costs of specialised care

Hospitals providing care to NHS patients are receiving an increasing proportion of their income under Payment by Results (PbR), which rewards providers for volumes of work adjusted for differences in the type of patients they treat. The key differences to previous contracting arrangements are that prices are fixed nationally, hospital income is related to activity, and activity ceilings have been removed.

PbR should stimulate improved NHS performance. Facing a fixed payment – the national tariff – hospitals have an incentive to cut costs and reduce length of stay in order to free up capacity to accommodate more patients. Access should improve because hospitals have a direct financial incentive to do more work: they receive extra funds for each additional patient treated. And commissioners have the financial means to substitute activity from hospitals to primary and community care settings. PbR also supports and facilitates patient choice, thereby helping to develop a responsive and higher quality NHS.

An article on the demand management study appeared in the HSJ:

"PbR under the microscope", Health Service Journal, 6 April 2006

Demand management

The need for effective demand management has become more transparent following the introduction of Payment by Results. A particular concern is that the incentives for hospitals to do more work may be too strong, the danger being that patients who would be better treated in the community are 'sucked into' hospitals. To resist this, commissioners must manage demand appropriately and effectively if they are to live within their global budgets.

Following our study conducted in South Yorkshire, we conclude that, rather than placing the onus exclusively on commissioners and GPs to exercise expenditure control, consideration should be given to refining the incentive structure underpinning PbR. This might involve the imposition of activity thresholds, the introduction of two-part tariffs, and tariff setting on a basis other than average reference costs.

Administrative costs

We apply a transaction costs approach to quantify and analyse the nature of how contracting costs have changed as a consequence of the change from locally

negotiated block contracting arrangements with a system of national prices to pay for hospital activity. Data collection was based on semi-structured interviews with key stakeholders from hospitals and Primary Care Trusts, which purchase hospital services. Replacing block contracting with activity based funding has led to lower costs of price negotiation, but these are outweighed by higher costs associated with volume control, data collection, contract monitoring, and contract enforcement. There was consensus that the new contractual arrangements were preferable, but the benefits will have to be demonstrated formally in future.

Paying for mental health care

The use of casemix-based funding mechanisms is increasing internationally. This funding approach potentially offers incentives for a range of diverse objectives, including improvements in efficiency, quality of care and patient choice. However, to date, the application of this approach to mental health care has been limited and there is no long-term experience to inform policy and practice.

In England, the Department of Health plans to extend the scope of Payment by Results to mental health. The Care Pathways and Packages Clusters comprise a set of 21 'care clusters' that together form 'currencies', or units for contracting and commissioning mental health services. Each cluster defines a package of care for a group of service users who are relatively similar in their care needs and therefore resource requirements. The currencies are being refined and tested at several sites in England. In addition, costing exercises are underway to investigate the resource implications of the currencies.

Our report examines the international literature on payment mechanisms for mental healthcare services. These approaches are described and critiqued, drawing on relevant theoretical and empirical research to explore the strengths and weaknesses of payment mechanisms. Implications for the proposed Care Pathways and Packages Clusters are explored and recommendations are outlined.

Establishing a fair playing field for the NHS and private sectors

Since 2004 NHS patients have been given the opportunity to be treated by private rather than NHS providers. Most private (or 'independent sector') providers are treatment centres that specialise in one or two high volume procedures, such as hip replacements or cataract removals, and that avoid taking on complex operations.

All providers are remunerated under a prospective payment system (Payment by Results) that offers a price per patient. This payment system presupposes that any remaining cost differentials between providers result from inefficiencies. However, the validity of this assumption is unclear.

We examine the constraints that could cause public and private providers costs to differ for reasons outside their control. These constraints may be regulatory in nature, such as taxes and performance management

Our "Fair Playing Field" This work was commented on in the British Medical Journal (http://www.bmj.com/cgi/content/full/339/nov02_2/b4540) and The Times (http://www.timesonline.co.uk/tol/news/uk/health/article6908935.ece).

Andrew Street was interviewed on the research finding for 'You and Yours' BBC Radio 4 (http://www.bbc.co.uk/iplayer/console/b00nxd7l), November 2009.

regimens, or relate to the production process, such as input costs, the provision of emergency care and case mix issues. Most of these exogenous cost differentials can be rectified by adjustments to either the regulatory system or to the payment method.

We analyse data in the Hospital Episode Statistics (HES) and find that reported activity falls well below contracted levels and that some private companies fail to record the diagnostic information required to determine the patient's payment category, making it impossible to identify what types of patient have been treated. To ensure that private sector providers have a clear incentive to make proper returns, payment for treatment should be contingent upon the quality of data, as it is for NHS providers.

> Anita Charlesworth
> Senior Health Economist,
> Nuffield Trust.
> "Andy Thanks for the really kind message - your PBR session seemed to go really well - I know you've got a huge amount on so I really appreciate your contribution. Very best Anita"
> Email 4/3/2011

There is also evidence that NHS providers are treating patients of greater complexity than private providers. Specifically, patients treated in NHS hospitals are more likely to come from more deprived areas; to have more diagnoses; and to undergo significantly more procedures than patients seen by the private providers. If these differences drive costs, then payments for treatment should be refined to ensure that providers are reimbursed fairly.

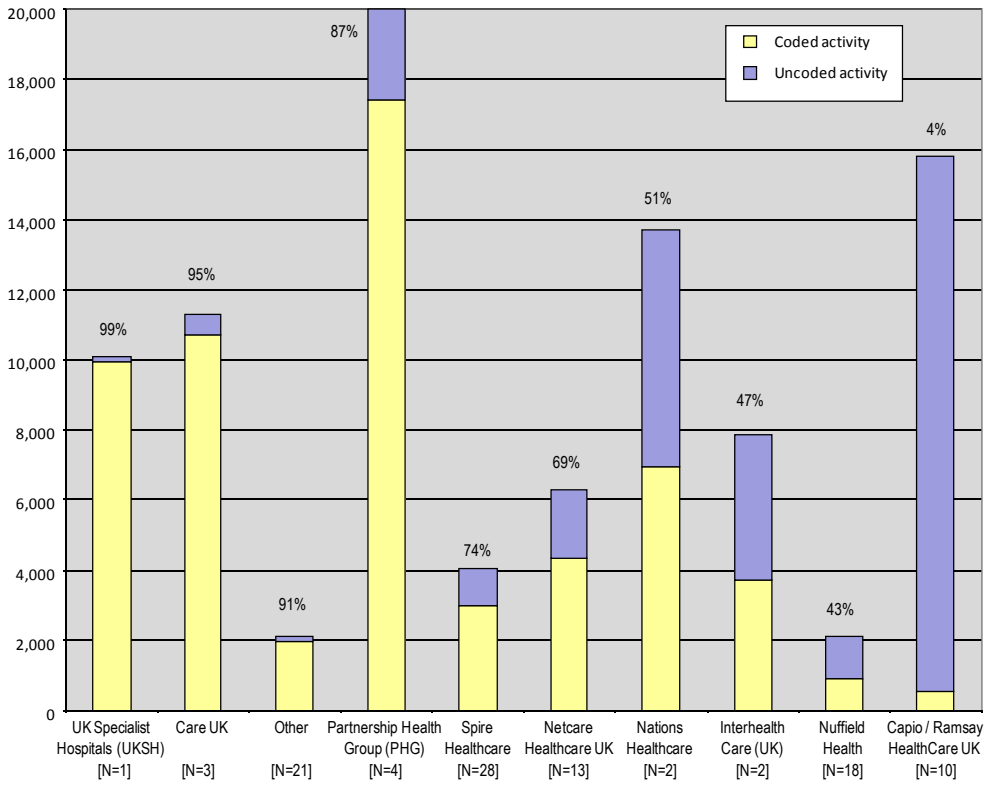


Figure 3: Coded and uncoded activity by Independent Sector Treatment Centre (ISTC) group: 2007/8

Estimating the costs of specialised care

Under Payment by Results, hospitals are paid a national tariff for treating particular types of patients. This project examines whether the tariff fully reflects the costs associated with the provision of specialised care.

We analyse data for more than 12 million patients treated during 2008/9 and find that costs are higher for patients receiving some types of specialised care. For instance, costs are 20% higher if specialised children services are provided and 21% higher for specialised orthopaedic services. Hospitals providing these specialised services might be paid a top-up to the national tariff to reflect these higher costs.

The study also demonstrates large variation in costs among hospitals. This variation cannot be explained by the provision of specialised services, nor to other patient characteristics, nor to differences in factor prices. If hospitals with higher costs fail to improve their efficiency they will struggle financially.

Stephen Fenton
Interface & Governance Section Head
Operations Branch -
Payment by Results

"The changes we are making to top-ups follow a fundamental review by independent academics at the University of York's Centre for Health Economics. We are working closely with children's organisations at the sense check stage to assess the potential impact of the proposed changes. Our focus is on using the tariff to encourage hospitals to deliver the best possible outcomes for patients and to embed efficiency."
Email message 1/10/10

Payment by Results: Dissemination

Publications

Mannion, R., Marini, G., & Street, A. (2006). Demand management and administrative costs under Payment by Results. *Health Policy Matters (12),* 1-8.

Mannion, R., & Street, A. (2006). *Payment by Results and demand management: learning from the South Yorkshire laboratory* (CHE Research Paper RP14). University of York: Centre for Health Economics.

Marini, G., & Street, A. (2006). *The administrative costs of Payment by Results* (CHE Research Paper RP17). University of York: Centre for Health Economics.

Street, A. (2006). Reforma de la financición hospitalaria e introducción de mecanismos de elección en el sistema sanitario británico NHS. [Reform of hospital funding and the introduction of patient choice in England]. *Revista Española de Economía de la Salud, 5*(2), 97-102.

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

Street, A., & Maynard, A. (2007). Activity based financing in England: the need for continual refinement of Payment by Results. *Health Economics, Policy and Law, 2*(4), 419-427.

Street, A., & Maynard, A. (2007). Payment by Results: qualified ambition? (Reply). *Health Economics, Policy and Law, 2*(4), 445-448.

Mannion, R., Marini, G., & Street, A. (2008). Implementing Payment by Results in the English NHS: changing incentives and the role of information. *Journal of Health Organization and Management, 22*(1), 79-88.

Mason, A., Miraldo, M., Siciliani, L., Sivey, P., & Street, A. (2008). *Establishing a fair playing field for Payment by Results.* (CHE

Research Paper RP39) Centre for Health Economics, University of York.

Miraldo, M., Siciliani, L., & Street, A. (2008). *Price adjustment in the hospital sector* (CHE Research Paper RP41): Centre for Health Economics, University of York.

Goddard, M., & Mason, A. (2009). Mental Health Learning Points. *Healthcare Finance*, 39 & 41.

Mannion, R., & Street, A. (2009). Managing activity and expenditure in the new NHS market: evidence from South Yorkshire. *Public Money and Management, 29*(1), 27-34.

Mason, A., & Goddard, M. (2009). *Payment by Results in Mental Health: A review of the international literature and an economic assessment of the approach in the English NHS* (CHE Research Paper RP50): Centre for Health Economics: University of York.

Mason A, Street A, Miraldo M, Siciliani L (2009). Should prospective payments be differentiated for public and private healthcare providers? *Health Economics, Policy and Law: 4*(4), 383-403.

Mason A, Street A, Verzulli R. (2010). Private sector treatment centres are treating less complex patients than the NHS. *Journal of the Royal Society of Medicine;103*:322-331.

Street A, Sivey P, Mason A, Miraldo M, Siciliani L (2010). Are English treatment centres treating less complex patients? *Health Policy, 94*, 150-157.

Daidone, S., & Street, A. (2011). *Estimating the costs of specialised care* (CHE Research Paper 61): University of York: Centre for Health Economics.

Mason, A., Goddard, M., Myers, L., & Verzulli, R. (2011) Navigating uncharted waters? How international experience can inform the funding of mental health care in England. *Journal of Mental Health, 20*(3), 234-248.

Miraldo, M., Siciliani, L., & Street, A. D. (2011). Price adjustment in the hospital sector. *Journal of Health Economics*, 30, 112-125.

Daidone, S., & Street, A. (submitted). How much should be paid for specialised treatment? *Journal of Health Economics*.

Presentations

Street, A. (2006, 19 May). The administrative costs of Payment by Results. Presented at the South Yorkshire Strategic Health Authority, Sheffield.

Street, A. (2006, 6-9 July). Expenditure control under DRG-based financing in the English NHS. Presented at the 6th European Conference on Health Economics, Budapest, Hungary.

Street, A. (2006, 27 September). Demand management: lessons from South Yorkshire. Presented at Payment by Results: underpinning patient choice in the NHS, London.

Street, A., & Miraldo, M. (2006, 23-24 November). Reform of hospital funding and the introduction of patient choice in England. Presented at the Workshop on "Design and evaluation of incentives for health care providers", Norges Handelshøyskole, Bergen, Norway.

Marini, G., & Street, A. (2007, 8-11 July). Changing Contractual Relations in the English NHS - Transaction Costs Analysis. Poster presentation. Presenting Author: Giorgia Marini. Presented at the iHEA (International Health Economics Association) 6th World Congress, Copenhagen.

Miraldo, M., & Galizzi, M. (2007, 8-11 July). Hospital Financing: a Bargaining Approach. Presenting Author: Marisa Miraldo. Presented at the iHEA (International Health Economics Association) 6th World Congress, Copenhagen.

Street, A., & Miraldo, M. (2007, 20 September). The impact of reform of hospital funding in England. Presented at the ESRC/CMPO/York conference: Evaluating Health Policy, York.

Street, A. (2007, 13 November). Conference on introducing DRG-based hospital funding. Keynote speaker. Landspítali University Hospital, Reykjavik, Iceland.

Street, A. (2007, 22 November). Conference on introducing yardstick competition for Dutch hospitals, Keynote speaker. Erasmus University & Dutch Health Care Authority, Rotterdam, The Netherlands.

Miraldo, M., & Galizzi, M. (2007, 22-24 November). Hospital Financing: a bargaining approach. Presented at the 10th National Conference of the Portuguese Health Economics Association, Lisbon, Portugal.

Street, A., & Miraldo, M. (2007). The impact of the reform of hospital funding in England. New Evidence from administrative Data. Presented at the 10th National Conference of the Portuguese Health Economics Association, Lisbon, Portugal.

Street, A. (2009, 1 April). Establishing a fair playing field for payment by results. Presented to the External Advisory Group on Payment by Results, Department of Health.

Goddard, M. (2010, 8-9 April). Overcoming the Challenges of Policy Evaluation: Health Economics Research and UK System Reform Mental Health Learning Points. Presented at the Working Conference Health Services Research (HSR) Europe, The Hague, The Netherlands.

Goddard, M. (2009, 22 April). Healthcare for People with Mental Health Disorders: barriers and policy initiatives, European Health Management Association (EHMA) Seminar. Brussels.

Smith, P. C. (2009, 16 June). Provider competition and efficiency in health care, Presented at the WHO Conference on Health Care Systems in Europe, Kranjska Gora, Slovenia.

Street, A., Siciliani, L., & Miraldo, M. (2009, 13-15 July). Price adjustment in the hospital sector. Presented at the International Health Economics conference, Beijing, China.

Smith, P. C., & Goddard, M. (2009, 6 November). Payment systems in English healthcare: effects on quality, efficiency and coordination. Paper for the Commonwealth Fund International Symposium on Health Policy, Washington DC, USA.

Mason, A. (2010, 14 April). Payment by Results (PbR): Panacea or Spanner in the works? Presented at the University of York to students on the Executive Master's Program in Health Administration based at the Department of Health Management and Health Economics, University of Oslo, Norway.

Street, A. (2010, 24 May). Overview of CHE Research on Payment by Results. Department of Health.

Mason, A., Street, A., & Verzulli, R. (2010, June). Private sector treatment centres are treating less complex patients than the NHS. Presenting author: Verzulli R. 9th Milan European Workshop. Milan.

Mason, A., Verzulli, R., & Goddard, M. (2010, 7-10 July). Paying for mental health care: what are the problems, what are the solutions? 8th European Conference on Health Economics, Helsinki, Finland.

Street, A. (2010, 15 September). Applying PbR in health care and lessons for drug treatment and recovery services. Presented at conference on Utilising PbR in drug treatment and recovery services, UK Drug Policy Commission, London.

Street, A. (2010, 13 October). Introducing DRG based funding of hospitals: theory, practice and evidence. Keynote speaker, Polish DRG (JGP system) conference in Warsaw, Poland.

Hi Andrew, A big thank-you for joining us yesterday and giving what I am sure will prove to be a very prescient presentation. As ever in the area, I can see the devil really is going to be in the detail. So I think your 'expose' of some of the critical thinking underpinning the application of PbR in health was masterful!

Best wishes

Roger

Roger Howard, Chief Executive
UKDPC (UK Drug Policy Commission)

Daidone, S., & Street, A. (2010, 28 November). How much should be paid for specialised treatment? Department of Health seminar. Leeds.

Street, A. (2011, 3 March). The future of Payment by Results. Presentation at the Nuffield Health Summit, Dorking, UK.

Street, A. (2011, 26 May). How much should be paid for specialised treatment? Department of Health seminar. Leeds.

Theme 3: Performance and efficiency analysis

Overview

Research under this theme is designed to identify variations in performance and strategies to secure better value for money from the healthcare system. Projects cover a wide range of topics including measurement issues, efficiency analyses of health care organisations, and evaluation of the impact of performance management systems on organisations and individuals. As well as numerous projects, we have written a book on the subject and we run a regular workshop covering techniques of efficiency analysis. Workshop link: http://www.york.ac.uk/che/courses/short/measuring-efficiency/

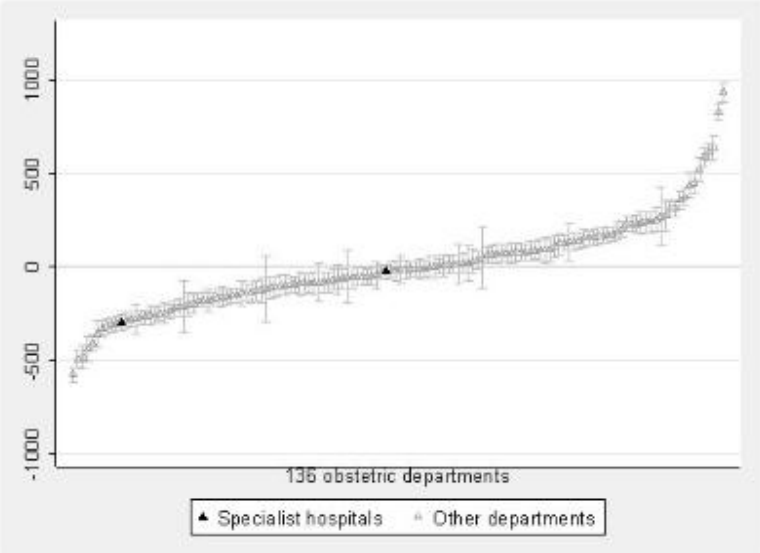
Performance analysis of the NHS hospital sector

With NHS funding becoming tighter it is imperative to identify inefficient practice in the hospital sector. We argue that specialty-level analysis is preferable to hospital-level analysis when assessing hospital efficiency. This is because each particular specialty is more likely to be undertaking comparable activities, treating similar types of patients and, hence, applying a production technology similar to that in the same specialty in other hospitals. Comparing the same specialty across hospitals is more appropriate for both analytical purposes and for informing policy-makers and practitioners about how to respond to the findings.

We have developed robust methods to compare hospital costs based on analysis of each patient treated. We exploit the patient-level data in the Hospital Episode Statistics, which we have mapped to the Reference Cost data provided on a mandatory basis by every English hospital. We are able to determine what factors drive differences in costs between patients within specialties and across hospitals and we can identify high cost hospitals that need to take action.

Variation in costs across obstetrics specialities

Studies of hospital efficiency seldom lead to changes in practice, partly because recommendations are unspecific or results are not seen as robust. We describe a method to compare hospital costs that utilises patient-level data. We perform a two-stage analysis in which we first consider factors that explain costs among patients and then across hospital departments. We illustrate our approach by examining the costs and characteristics of almost one million patients admitted to 136 English obstetrics departments in 2005/6. We identify those departments with significantly higher costs. The graph shows that the average cost of treatment in obstetrics departments ranges from £500 below to £1000 above the national average.



Cost variation in diabetes care delivered in English hospitals

We analyse the in-hospital costs of 31,371 diabetic patients admitted to 148 hospitals admitted to English hospitals. We apply a multilevel econometric approach to analyse the relationship between patient costs and patient characteristics. We estimate the average cost of being treated in each hospital after controlling for patient characteristics and explore why these average costs vary across hospitals. Much of the variation in the costs of controlling diabetes is driven by the Healthcare Resource Group to which the patient is allocated, but costs are also higher for patients who are transferred between hospitals, suffer infections and other complications, or for those who die in hospital. Even so, around 8-9% of the variation in costs is related to the hospital in which the patient is treated, with geographical variation in factor prices being the prime reason for this variation. The volume of patients, and the number and diversity of specialties involved in caring for diabetic patients do not explain variation in the cost of treating diabetic patients across hospitals.

Ben Strange, Financial Benchmarking and Productivity Officer, Treasury Unit, Metropolitan Police Authority –

"All – big thanks for putting on a great and at times extremely challenging workshop. I never knew we could construct expressions to deal with the issues and debates we have here in London all the time - this was exactly what I was hoping for."
Email message 14/03/11

Daisy McLachlan, National Audit Office

"Thanks again for giving the seminar last week, I had lots of positive feedback."
20 January 2008.

Costs and quality

The economic downtown makes it even more important that NHS resources are used to their best effect. There is a danger that efforts to reduce costs have an adverse effect on patient outcomes. Our research provides a better understanding of the inter-relationship between costs and health outcomes.

Measuring health outcomes is fundamental to the delivery and evaluation of health care, as has been recognised in the routine collection of patient reported outcomes in the English NHS from April 2009.

Building on this, our research explores the relationship between quality and cost. Analysing this relationship is not straightforward largely because 'quality' is multi-dimensional and these dimensions may interact with each other and with costs in different ways. Our research is designed to conceptualise the relationship between costs and quality; to evaluate different measures of quality; and to assess empirically the nature of the cost-quality relationship.

Conceptual work

It has long been standard practice to ask patients in clinical trials about their health status, but the practice is now being extended to patients receiving treatment on a routine basis. We examine four types of analyses that these health data might inform: comparisons of alternative treatments for the same condition; of health care providers; of changes in performance over time; and of treatments of different types of condition. Analytical challenges arise because counterfactuals cannot be observed and because health status cannot be measured continuously. The implications of these challenges and the ability to meet them vary according to the comparative exercise. We argue that, provided with a sufficient number of health status measures for each patient and proper risk adjustment, health status

measurement has great potential to inform the first three types of comparison. However, we believe that it is not possible to use such data to make secure comparative judgments about the outcomes from treatment for different types of condition.

Costs and PROMs

Most studies of hospital efficiency account for provider heterogeneity with respect to case-mix and production constraints. However, these studies have not convincingly addressed the issue of variations in quality and, particularly, in health outcome as a potential explanation for observed costs. We identify cost variations across hospital departments that remain after accounting for 'justifiable' sources of heterogeneity, namely differences in case-mix, production constraints and health outcome.

> Alistair Rose, Head of OCA projects, Department of Health.
> "Thanks very much for coming to the meeting yesterday and giving an excellent presentation."
> Email message 1/10/09.

Since April 2009, all providers of NHS-funded care are required to collect patient-reported outcome measures (PROMs) for four surgical procedures (hip and knee replacement, hernia repair, varicose vein surgery) using generic and disease-specific instruments. We combine information on the average health gain experienced by patients at each hospital with Hospital Episode Statistics and Reference Costs data for the financial year 2009/10. We estimate multilevel regression models with patients clustered in hospital departments, estimated separately for each surgical procedure. We compare estimated department effects and rankings across model specifications with and without health outcome information.

Our analysis suggests that some of the variation in costs is indeed due to differences in quality of care as measured by health outcomes. For a small number of departments, the impact of adding health outcome information is quite substantial. Results vary by surgical procedure and by how health outcomes are measured. We conclude that PROM data provide insight into why costs of care vary across hospital providers and our analysis shows that it is important to account for this information in comparative analyses.

Performance and efficiency analysis: Dissemination

Publications

Hauck, K., & Street, A. (2006). Performance assessment in the context of multiple objectives: a multivariate multilevel analysis. *Journal of Health Economics, 25*(6), 1029-1048.

Hollingsworth, B., & Street, A. (2006). The market for efficiency analysis of health care organisations. *Health Economics, 15*, 1055-1059.

Jacobs, R., Smith, P. C., & Street, A. (2006). *Measuring efficiency in health care: analytic techniques and health policy* (First ed.). Cambridge: Cambridge University Press. http://www.york.ac.uk/che/publications/books/measuring-efficiency/

Smith, P. C., & Street, A. (2006). Concepts and challenges in measuring the performance of health care organisations. In A. Jones (Ed.), *The Elgar Companion to Health Economics* (part VI, chapter 30, 317-325). Cheltenham: Edward Elgar.

Street, A. (2006). The future of quality measurement in the NHS. *Expert Reviews of Pharmacoeconomics and Outcomes Research, 6*(3), 245-248.

Laudicella, M., Olsen, K. R., & Street, A. (2009). *What explains variation in the costs of treating patients in English obstetrics specialties?* (CHE Research Paper 49): University of York: Centre for Health Economics.

Kristensen, T., Laudicella, M., Ejersted, C., & Street, A. (2010). Cost variation in diabetes care delivered in English hospitals. *Diabetic Medicine, 27*(8), 949-957.

Laudicella, M., Olsen, K. R., & Street, A. (2010). Examining cost variation across hospital departments - a two-stage multilevel approach using patient level data. *Social Science and Medicine;71*(10)1872-81.

Burgess, J. F., & Street, A. (2011). Measuring organisational performance. In P. C. Smith & S. A. Glied (Eds.), *The Oxford Handbook of Health Economics* (pp. 688-706). Oxford: Oxford University Press.

Bojke, C., & Goddard, M. (2010). *Foundation Trusts: a retrospective review.* (CHE Research Paper RP58). University of York: Centre for Health Economics.

Gutacker N, Bojke C, Daidone S, Devlin N, Parkin D, Street A (2011). *Truly inefficient or providing better quality of care? Analysing the relationship between risk-adjusted hospital costs and patients' health outcomes.* Report to Department of Health.

Smith PC, Street A (submitted). On the uses of routine patient reported health outcome data. (*Health Economics*)

Presentations

Smith, P. C. (2006, 7 March). Can the market have a role in health care? Presented at the debate with Julian Le Grand, King's College, London.

Smith, P. C. (2006, 8 March). Efficiency and productivity in the public services. Presented at the Public Services Roundtable, Cranfield University.

Smith, P. C. (2006, 7 April). Some Key Issues in Performance Management in the Public Services. Presented at the Government Operational Research Service awayday, London.

Street, A. (2006, 27 April). Measuring and comparing efficiency in health care, DSI Institut for Sundhedsvæsen, Copenhagen.

Street, A. (2006, 6-9 July). Unresolved issues and challenges in efficiency measurement. Presented at the 6th European Conference on Health Economics, Budapest, Hungary.

Olsen, K. R., & Street, A. (2006, 17-18 August). The analysis of efficiency among a small number of organisations: how inferences can be improved by exploiting patient-level data. Presented at the Nordic Health Economists' Study Group, Copenhagen, Denmark.

Smith, P. C. (2006, 6 October). Health targets, incentives and local focus: the English experience - workshop presentation. Presented at the 9th European Health Forum, Gastein, Austria.

Smith, P. C. (2006, 11 October). Seminar: Health system reform in Europe: lessons for health policy, National Health Research Institutes, Taiwan.

Jacobs, R. (2006, 2 November). Performance measurement in mental health care services. Presented at the Institute of Psychiatry and London School of Economics Joint Seminar, London School of Economics, London.

Mannion, R., Goddard, M., & Bate, A. (2007, 16-19 May). Managing incentives and motivations in public management: the case of earned autonomy. Presented at the EURAM: European Academy of Management, Paris.

Jacobs, R., Mannion, R., Davies, H. T. O., Harrison, S., & Konteh, F. (2007, 8-11 July). Is there a link between organisational culture and hospital performance? Evidence from the English NHS. Presenting Author: Rowena Jacobs. (Won best poster prize out of 400 posters.). Presented at the iHEA (International Health Economics

Association) 6th World Congress, Copenhagen.

Olsen, K. R., & Street, A. (2007, 8-11 July). The analysis of efficiency among a small number of organisations: how inferences can be improved by exploiting patient-level data. Presented at the iHEA (International Health Economics Association) 6th World Congress, Copenhagen.

Marini, G., & Miraldo, M. (2007, 22nd - 24th November). Measuring Economies of Scale and Scope in the English Secondary Care. Presenting Author: Giorgia Marini. Presented at the 10th Portuguese Conference on Health Economics, Lisbon, Portugal.

Jacobs, R. (2007, 12 October). Patient outcome measures in mental health. Presented at the OHE Commission on NHS Productivity Workshop, OHE, London.

Smith, P. C. (2008, 12 February). Statistical approaches towards measuring organizational efficiency. Presented at the Seminar on public service efficiency measurement, European Commission, Brussels.

Smith, P. C. (2008, 7 March). Strategic performance measurement in government: experience with the English Public Service Agreements. Presented at the Seminar on performance budgeting, International Monetary Fund, Paris.

Smith, P. C. (2008, 4 April). Governance, performance assessment and accountability: closing the circle. Presented at the World Health Organization Conference on Health System Governance, Rome.

Smith, P. C. (2008, 11 April). Health system performance assessment. Presented at the Research conference on Global Health Metrics and Evaluation, Institute for Health Metrics and Evaluation, Seattle.

Smith, P. C. (2008, 16 May). Priority setting in health care: a political economy perspective. Presented at the Seminar on priority setting in health care, Senate of French Parliament, Paris.

Smith, P. C. (2008, 25 June). Health system performance assessment, Plenary Speech. Presented at the WHO European Ministerial Conference on Health Systems, Tallinn.

Street, A. (2008, 30 June-2 July). Evaluation of the effectiveness and efficiency of public policies. Summer School On Public Economics: Institut d'Economia de Barcelona (IEB) Barcelona, Spain.

The Organizing Committee Universitat de Barcelona –
"We would like to thank your participation in the first course of the IEB Summer School in Public Economics held in Barcelona three weeks ago. We consider this event has been very successful in providing a very good knowledge by means of the lectures on efficiency analysis of the public sector, but also promoting the exchange of research on this field."
Email message 21/07/2008

Marini, G., & Miraldo, M. (2008, 23-26 July). Measuring Economies of Scale and Scope in the English Secondary Care. Presented at the 7th European Conference on Health Economics, Rome.

Street, A., Miraldo, M., & Laudicella, M. (2008, 23-26 July). Reducing waiting times in the English NHS. Presented at the 7th European Conference on Health Economics, University of Rome.

Street, A. (2008). Measuring and comparing efficiency in health care, International Doctoral Courses in Health Economics and Policy: Analysis of Efficiency and Consumer Choice, Airolo, Switzerland.

Street, A. (2008). Measuring and comparing efficiency in health care. Keynote speaker. Dansk Forum for Sundhedsøkonomi 2008 Enheden for

Sundhedsøkonomi, Institut for Sundhedstjenesteforskning, Syddansk Universitet Odense.

> Jacob Nielsen Arendt, Associate Professor, Health Economics, University of Southern Denmark –
> "thank you for your fantastic and enthusiastic presentation on efficiency and participation in the conference."
> Email 10/06/2008

Laudicella, M., Olsen, K. R., & Street, A. (2009, 7-9 January). Efficiency analysis of English obstetrics specialties. Presented at the Health Economists' Study Group Meeting, Manchester.

Street, A. (2009, 15 January). Recent developments and future directions in efficiency measurement. Presented at the National Audit Office, London.

Smith, P. C. (2009, 5 February). Health system performance: how does the UK shape up? Presented at the Lancet Health of the Nation Summit. London.

Laudicella, M. (2009, 3 March) Efficiency Analysis of English Obstetrics Specialties. Seminar, Institute for Public Health, University of Southern Denmark, Odense.

Smith, P. C. (2009, 3 March). Does performance measurement improve the quality of care? Presented at the 23rd Annual Health Services Research Lecture. London School of Hygiene & Tropical Medicine, London.

Smith, P. C. (2009, 27 May). Paying for performance in health services: lessons from the UK experience, Seminar, World Bank, Washington DC, USA.

Street, A. (2009, 22 June). Analysing hospital performance using patient-level data. Presented at the National Audit Office, London.

Kristensen, T., Laudicella, M., Ejersted, C., & Street, A. (2009, 22-24 July). Cost variation in diabetes care delivered in English hospitals. Presented at the Health Economists' Study Group Meeting, Sheffield.

Street, A. (2009, 30 September). Understanding the variation in patient-level costs across hospitals – results of an investigation of diabetes care and patients admitted to obstetrics specialties, Presented to the SHA Analytical Network, Department of Health.

Goddard, M. (2009, 17 November). Paying for Performance: The UK Experience. Invited presentation to the First International Symposium on "Pay for Performance" in Sao Paulo, Brazil.

Street, A., O'Reilly, J., Ward, P., & Mason, A. (2010, 23-25 June). Hospital Funding and Efficiency: Evidence on DRG-based reimbursement. Presented at the Health Economists Study Group, Cork, Republic of Ireland.

Mason, A., Street, A., & Ward, P. (2010, 7-10 July). Why do hospital costs vary? An evaluation of hospital efficiency and quality of care in England using Diagnostic Related Groups (DRGs). Presented at the 8th European Conference on Health Economics, Helsinki, Finland.

Daidone, S., & Street, A. (2011, 5-7 January). How much should be paid for specialised treatment? Presented at the Health Economists' Study Group, York.

Gutacker, N., Bojke, C., Daidone, S., Devlin, N., Parkin, D., & Street, A. (2011, 29 June-1 July). Measuring variations in hospital cost while accounting for differences in patient-reported health outcomes: a multilevel approach, Presented at the Health Economists' Study Group, Bangor, Wales.

Theme 4: Commissioning

Overview

The purchasing and commissioning of health care services is of relevance nationally and internationally and many health care reforms have addressed alternative designs for the mechanisms through which commissioning is organised.

In England over the past 20 years there have been major changes in the organisation, budgetary arrangements and provider environment for health care commissioners. The introduction of the purchaser/provider separation started in the early 1990s with the creation of GP fund holders alongside health authority purchasers and the introduction (in a limited way) of devolved budgets for purchasers at a local level. The late 1990s saw the introduction of unified budgets in Primary Care Trusts. Many subsequent changes have altered the number, size and budgetary responsibilities of commissioners and the most recent reforms devolve commissioning to GP consortia.

CHE's research in this area has a long history, going back to the introduction of GP fund holding and most recently assessing the impact of Practice Based Commissioning. Our focus has been on the incentives produced by alternative organisational forms of commissioning and the impact on health care activity and outcomes. Many other health care reforms (such as Payment by Results, patient choice, waiting times targets) have an impact on the commissioning function and our research has taken account of the changing policy landscape.

Health care delivery is characterised by a substantial degree of geographical monopoly. Previous research has often focused on measuring market concentration and the scope for competition amongst providers. However, even where the potential for competition exists on the supply-side, the role of the purchaser is vital in the assessment of market conditions because unless purchasers use their leverage, there will be little incentive for providers to respond. Economic theory suggests that the size and concentration of purchasers may affect bargaining power and can provide a countervailing force against monopolistic providers in some circumstances.

Commissioning trends

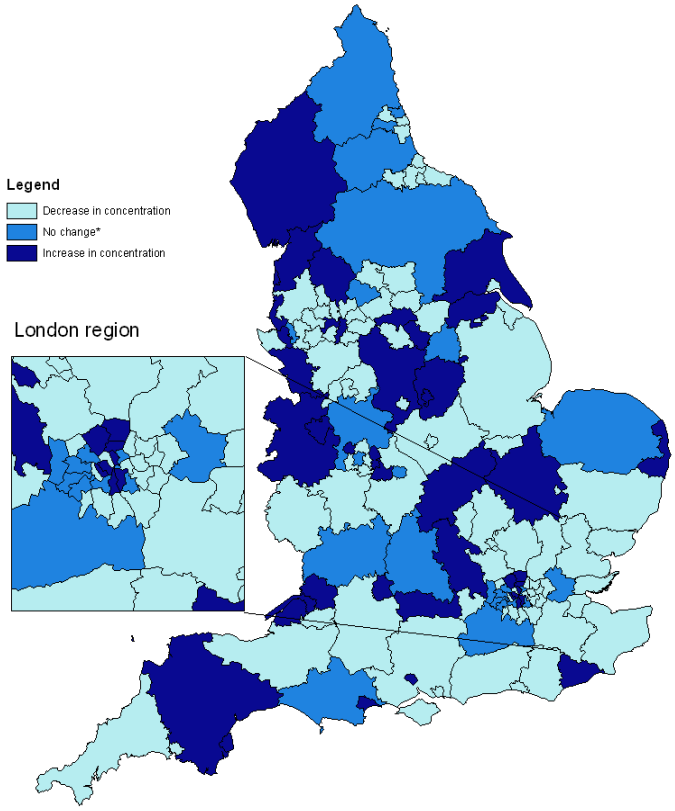
Our research has addressed the trends over time in the commissioning patterns of PCTs and practices, using a variety of linked databases, in order to examine the extent to which English NHS purchasers of elective hospital care concentrate their admissions amongst providers. We provided the first systematic description of the concentration of the use of hospitals by the patients of general practices and primary care organisations, reflecting commissioning decisions of purchasers.

We have investigated trends in concentration between 1997/8 and 2007/08, considering changes in admissions over time; across geographical areas; and by type of condition. Over the period there were major changes in the organisation of the NHS and we investigated the extent to which changes in concentration of purchasing were due to policy shifts that changed the number of purchasing organisations, alterations in the financing mechanisms (i.e. the abolition of devolved, practice level budgets), and mergers amongst hospitals. We concluded that elective admissions became significantly more concentrated among hospitals: the average number of hospitals used by commissioners declined, the share of admissions going to the main hospital increased and the index of concentration also increased.

The map shows the change in concentration between 2002/03 and 2007/08 by PCT. Many areas have experienced a reduction in concentration, whilst parts of the North West, Midlands, East Anglia and South West have experienced an increase.

Whatever the measures of concentration, a pattern emerges which, although not very pronounced, suggests that commissioning has generally become less concentrated over the last few years, more providers are used, and the dependence of PCTs on their main hospital has declined, although there have been increases in concentration in the earlier years of policy reform. There are variations across the country and by type of condition. Those HRGs chosen for the early operation of the national tariff appear to have generated greater shifts in commissioning, albeit with a time lag, perhaps as the supply side of the system responded.

In recent work we have applied econometric analysis to isolate the impact of a range of reforms that affected commissioning behaviour, including diversity in supply and the greater role of the private sector, Payment by Results, patient choice, foundation trusts and practice based commissioning.



* No change means that the difference in concentration between 2002/3 and 2007/8 is more than -100 and less than 100

Commissioning: Dissemination

Publications

Dusheiko, M., Goddard, M., Gravelle, H., & Jacobs, R. (2006). Trends in Health Care Commissioning in the English NHS: an empirical analysis (CHE Research Paper RP11). University of York: Centre for Health Economics.

Dusheiko, M., Goddard, M., Gravelle, H., & Jacobs, R. (2008). Explaining Trends in Concentration of Healthcare Commissioning in the English NHS. *Health Economics, 17*(8), 907-926.

Hole, A., Marini, G., Goddard, M., & Gravelle, H. (2008). Fairness in Primary Care Procurement Measures of Under-Doctoredness: Sensitivity Analysis and Trends (CHE Research Paper RP35): University of York: Centre for Health Economics.

Dusheiko M, Goddard M, Gravelle H, Verzulli R (2009). Commissioning and system reform: New research results. Policy Briefing, Centre for Health Economics, University of York 2009.

Goddard, M., Gravelle, H., Hole, A., & Marini, G. (2010). Where did all the GPs go? *Journal of Health Service Research and Policy, 15*(1), 28-35.

Dusheiko, M. A., Gravelle, H. S. E., Goddard, M. K., & Verzulli, R. (submitted). The impact of pro-market reforms on

commissioner behaviour in the English NHS. *Journal of Health Economics.*

Presentations

Dusheiko, M., Goddard, M., Gravelle, H., & Verzulli, R. (2009, 22-24 July). Commissioning and system reform: New research results. Presented at the Health Economists' Study Group Meeting, Sheffield.

Dusheiko, M., Verzulli, R., Goddard, M., & Gravelle, H. (2009, 9 - 10 November). Impact of system reform on PCT commissioning patterns. Presenter: Dusheiko. Health Reforms Evaluation Programme meeting and seminar. London.

Theme 5: Responsive work

Almost all of our projects are initiated following requests from DH customers, and all are subject to DH approval. Most of these projects fall under our main programme themes. However, there have been occasional requests for work that do not fall naturally under our themes. These projects are summarised here.

Appropriate perspectives for health care decisions

If NICE were to adopt a broader 'societal perspective', then wider economic effects would be formally incorporated. This poses difficult questions of how to account for fixed NHS budgets, how the trade-offs between health, economic effects and other social considerations should be made, and how a range of activities ought to be valued. We assess the implications of alternative policies and undertake a series of case studies to inform decisions about the appropriate perspective for NICE.

Alternative polices

A. Ignore the wider costs outside the health sector. The post 2008 NICE position, which is restricted to costs and cost savings for the NHS and personal social services, except in exceptional circumstances.

B. Treat any wider costs as if they fall on the budget constraint. All costs are included but decisions assume all wider economic costs or benefits accrue to the NHS.

C. Ignore the budget constraint. All costs are considered but it is assumed that all costs or economic benefits fall on the wider economy rather than a fixed NHS budget.

D. Take account of where the costs fall. A formalisation of the pre 2008 NICE position: all costs and economic benefits may be given some weight in decision making. The appropriate weight for non NHS costs depends on the cost-effectiveness threshold and some estimate of a consumption value of health.

Each of the first three policies (A, B, and C) creates biases depending on particular circumstances (Table 1).

	A. Ignore wider costs		B. Costs on budget		C. Ignore constraint	
Type of Technology	Bias	Decision	Bias	Decision	Bias	Decision
More effective						
Net consumption costs						
Positive costs (NHS)	+	FP	-	FN	+	FP
Cost saving (NHS)	+	FP	-	FN	-	FN
Net consumption benefits						
Positive costs (NHS)	-	FN	+	FP	+	FP
Cost saving (NHS)	-	D	+	D	-	D
Less effective						
Net consumption costs						
Positive costs (NHS)	+	D	-	D	+	D
Cost saving (NHS)	+	FP	-	FN	-	FN
Net consumption benefits						
Positive costs (NHS)	-	FN	+	FP	+	FP
Cost saving (NHS)	-	FN	+	FP	-	FN

Table 1: Bias and potential for decision error (marginal changes)

Policy D would be unbiased if the impact on the NHS budget were marginal (sufficiently small that the cost-effectiveness threshold does not change). However, the repeated application of this policy to a sequence of decisions will ultimately have non-marginal impacts with increasingly valuable health care tending to be displaced.

Implications for policy

- Adopting a wider perspective without taking proper account of the implications of a fixed NHS budget has little to commend it.
- The current NICE perspective is likely to be sufficient 'on average'.
- A return to NICE's 2004-2008 policy would impose additional costs and time pressures on the appraisal process with a possibility of bias if the economic benefits forgone elsewhere are more difficult to identify.
- The repeated application of this policy will lead to non marginal impacts on the NHS and a positive bias in favour of new technologies.

Publications

Claxton, K., Walker, S., Palmer, S., & Sculpher, M. (2010) Appropriate perspectives for heath care decisions. CHE Newsletter No. 8, March

Claxton, K., Walker, S., Palmer, S., & Sculpher, M. (2010). *Appropriate perspectives for heath care decisions* (CHE Research Paper 54): University of York: Centre for Health Economics.

Review of the performance of foundation trusts

Our research identified some key messages about FTs.

Corporate governance/accountability

It is difficult to determine to what extent the aims of 'social ownership' have been achieved. Evidence suggests that more experienced governors are more actively engaged with FT business but there is little evidence that FTs are more democratic and more accountable to local people.

Finance

FTs have been successful in generating and accumulating financial surpluses. However, accumulation has been uneven across FTs. Limited investment has been mostly funded from existing surpluses. This has led to stockpiled and unused surplus held by FTs.

Quality

FTs generally score more highly in quality dimensions than non-FTs. However, this is likely to be a function of the self-selection of the best-performing trusts to FT status. There have been a number of high-profile quality failures, some of which occurred sometime after FT status had been achieved.

Regulation

When all trusts become FTs, the regulatory landscape will need to be clarified as separate regulators may be expensive and give rise to a lack of coherence. Evidence suggests that the lack of clarity about roles and responsibilities has played a part in the failure to address serious performance issues in a timely fashion.

Publications

Bojke, C., & Goddard, M. (2010). *Foundation Trusts: a retrospective review.* (CHE Research Paper RP58). University of York: Centre for Health Economics.

Presentations

Verzulli, R., Jacobs, R., & Goddard, M. (2010, 23-25 June). Hospital reform in the NHS: Evaluating the impact of Foundation Trusts, Presented at the Health Economists' Study Group, Cork, Republic of Ireland.

Review of the impact of car parking charges and access costs on hospital utilisation

NHS Trusts have statutory powers to raise income, which allow them to decide whether to charge, and how much to charge, for hospital car parking. Trusts are not obliged to provide parking facilities on their premises, but provision will inevitably incur costs in the form of maintenance, security and staffing. The government offers financial support to people on low incomes who incur travel expenses when accessing health care.

We undertook two rapid literature reviews to help inform government policy on hospital car parking charges. The first looked at the monetary costs of access and considered their impact on patients and on visitors. The second considered access costs in terms of travel time or distance, and examined UK evidence on the impact of these costs on the use of secondary care services.

There is growing evidence that higher access cost is negatively related to utilisation for some services. Most patients use cars to access the hospital. In England, parking charges vary geographically and the parking experience can be an additional source of financial pressure, worry and stress. Hospitals should be encouraged to reduce stresses by, for example, providing clear information on parking charges and policy, sources of financial support; and ensuring that permits or season tickets are available for those who regularly attend hospital.

Publications

Mason, A. (2010). *Hospital Car Parking: the Impact of Access Costs* (CHE Research Paper RP59). University of York: Centre for Health Economics.

Brief update since last progress report

Theme 1: Measuring NHS productivity

The following milestones were listed in our previous interim report:

- Calculation of national productivity figures based on 2008/9 data (to Dec 2010)
- Calculation of regional productivity figures based on 2008/9 data (to Feb 2010)
- Completion of report on amenable mortality (to Spring 2011)
- Calculation of national productivity figures based on 2009/10 data (to Jul 2011)
- Evaluation of measures derived from HES (to Jul 2011)
- Commencement of work on hospital productivity

These milestones have all been met. We also reached agreement with the Department of Health about continuation of work on NHS productivity, under a separate three-year contract.

Theme 2: Payment by Results

The following milestone was listed in our previous interim report:

- Continuation of project assessing specialist top-ups

We completed this work, published a CHE Research paper and have submitted a journal article for publication.

Daidone, S., & Street, A. (2011). *Estimating the costs of specialised care* (CHE Research Paper 61): University of York: Centre for Health Economics.

Daidone, S., & Street, A. (submitted). How much should be paid for specialised treatment*?* Journal of Health Economics.

In April 2011, the Department of Health requested updated analysis on the most recent data to inform the PbR tariffs. This work is still underway, and will need to be incorporated as part of the work programme funded through the grant awarded to CHE by the Department of Health: Policy Research Unit in Economics of Health and Social Care Systems.

Theme 3: Performance and efficiency analysis

The following milestone was listed in our previous interim report:

- Evaluation of the relationship between PROMs and measures of hospital efficiency (to Jul 2011).

This work has been completed, with a report provided to the Department of Health and two journal articles submitted.

Gutacker N, Bojke C, Daidone S, Devlin N. Parkin D, Street A (2011) Truly inefficient or providing better quality of care? Analysing the relationship between risk-adjusted hospital costs and patients' health outcomes. Report to Department of Health and submitted to *Health Economics*.

Smith PC, Street A (2011) On the uses of routine patient reported health outcome data. Submitted to *Health Economics*.

Theme 4: Commissioning

The following milestone was listed in our previous interim report:

- Continuation of evaluation of trends in health care commissioning (to Jul 2011)

This work has been completed and the following article has been submitted for publication:

Dusheiko, M. A., Gravelle, H. S. E., Goddard, M. K., & Verzulli, R. (submitted). The impact of pro-market reforms on commissioner behaviour in the English NHS. *Journal of Health Economics.*

Key achievements from 2006 to 2011:

Examples of work that have influenced policy/practice

Full details of how our work has influenced policy and practice, as well as our contribution to the wider community, are provided in the appendix.

Theme 1: Measuring NHS productivity

Our work on productivity has generated wide-ranging interest among academics, national statisticians and policy makers throughout the world. Thanks to our methodological advances, the Centre for Health Economics is at the forefront of international efforts to measure health service productivity. The Office of National Statistics (ONS) relies on our methods and data analyses in constructing its measure of health care productivity for the UK. The DH has used our work directly to:

- Provide numerical answers and context for Health Select Committees and the Public Accounts Committee, the chair of the PAC requesting a copy of our report.
- The National Audit Office report on Agenda for Change asks a specific question about quality adjusting NHS output and the DH answered by referring to the CHE work programme.
- The 2008/9 Public Expenditure Inquiry asked for a progress report on the CHE work and the DH responded to the Inquiry's request that we produce Strategic Health Authority estimates of NHS productivity.
- The DH also uses the work less publicly to challenge ONS and, in briefing, the DH never quotes ONS measures of productivity without referring to the York work.
- DH analysts use the York measure of productivity to identify trends, test hypotheses and to triangulate internal estimates of productivity with the York measure.

We have disseminated our research widely and subjected it to critical appraisal:

- We have given invited talks on the subject for the Association of Chartered Certified Accountants (ACCA), British Medical Association, National Audit Office, NHS Confederation, Nuffield Trust and Royal College of Physicians.
- We have held workshops and seminars on productivity measurement for policy makers and academics in Canada, Denmark, Finland, Italy, Norway, Scotland, Spain and Switzerland.
- We have presented our research at conferences including the UK Health Economists' Study Group (Sheffield 2009; Cork 2010; York 2011); European Conference on Health Economics (Helsinki 2010); and the International Health Economics Association (Toronto 2011).
- Our work has been covered by the Health Service Journal (7 May 2009; 14 October 2010); Healthcare Finance (March 2009); and various national and local media.
- Our work on regional productivity led to radio interviews by Midwest Radio, BBC Radio Somerset and BBC Radio York and newspaper articles in The York Press, Northern Echo, Western Daily Press, Express and Echo, Gazette & Herald and South West Business.

Theme 2: Payment by Results

Establishing a fair playing field

Our research into Independent Sector Treatment Centres (ISTCs) shows that they are delivering less activity than they are being paid for; provide poor quality data about patients they do treat; and treat less complex patients than NHS. This implies that this flagship policy has not delivered value for taxpayers' money and that ISTCs should be paid less than NHS hospitals. The research has been covered by the British Medical Journal (http://www.bmj.com/cgi/content/full/339/nov02_2/b4540) The Times (http://www.timesonline.co.uk/tol/news/uk/health/article6908935.ece) and on Radio 4's 'You & Yours' programme on 26 November 2009 (http://www.bbc.co.uk/iplayer/console/b00nxd7l)

Specialist top-ups

Our report on specialist top-ups has been used to underpin hospital funding policy by Department of Health. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_124356
As would be expected, this work has proved highly controversial, stimulating debate in the House of Commons:

The Secretary of State for Health (Mr Andrew Lansley): *the Department has acted on the basis of a review conducted by the University of York which was initiated by the Opposition Front Bench team's predecessors when they were in government. They set up a review on specialist top-ups which said that the payments should go down from 78% to 25%, not that they should be withdrawn completely.*
http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm101102/debtext/101102-0001.htm

The research has also received regular coverage in the Health Service Journal, articles appearing under the following headlines:

- "Big income drop likely for children's services" (7 October 2010)
- "Healey attacks cuts to children's care top-ups" (4 November 2010)
- "Specialist units spared swingeing funding cuts" (17 December 2010)
- "DH ignored advice to cut children's acute top-ups", 17 March 2011.
- "Newham comes top in efficiency league" (19 May 2011)

Theme 3: Performance and efficiency analysis

We are recognised as world leaders in applying and developing techniques of efficiency and performance analysis to the public sector. Our workshop on efficiency analysis has attracted more than 140 participants from 30 countries, representing organisations as diverse as the Metropolitan Police Authority, the Scottish Office and the World Bank.

We have been invited to give presentations and provide advice on this area of work to individual hospitals and Strategic Health Authorities, as well as national and international bodies including:

- Audit Commission, National Audit Office, Nuffield Trust, International Monetary Fund, Organisation of Economic Co-ordination and Development (OECD), World Bank and World Health Organisation.

Following an invited presentation on the subject in 2009 to the SHA Analytical Network, the Department of Health encouraged us to develop a 2-day workshop on how to analyse the Hospital Episode Statistics, tailored specifically for people working in the hospitals and primary care trusts. The workshop is now offered on a six-monthly basis.

Theme 4: Commissioning

Andrew Street gave written evidence to the House of Commons Health Committee on commissioning (Fourth Report of Session 2009-10, HC 268-II); Ev 135.

Andrew also gave written evidence to the House of Commons Health Committee on commissioning: further issues (Fifth Report of Session 2010-11, HC 796-II); Ev w75.

Andrew Street gave oral evidence before the House of Commons Health Committee on commissioning on Thursday 14 January 2010 http://www.parliamentlive.tv/Main/Player.aspx?meetingId=5561 and was quoted at length in the Committee´s report HC 268-1.

Andrew's evidence was reported in the British Medical Journal ("MPs hear that PCTs may benefit from losing commissioning role". 18 January 2010), and the Health Service Journal ("MPs told to 'free' PCs of acute commissioning", 21 January 2010).

References of published outputs

The following three published papers are annexed for special mention.

- Castelli, A., Laudicella, M., Street, A., & Ward, P. (2011). Getting out what we put in: productivity of the English National Health Service. *Health Economics, Policy and Law, 6*(3), 313-335.
- Street A, Sivey P, Mason A, Miraldo M, Siciliani L (2010). Are English treatment centres treating less complex patients? *Health Policy, 94*, 150-157.
- Dusheiko, M., Goddard, M., Gravelle, H., & Jacobs, R. (2008). Explaining Trends in Concentration of Healthcare Commissioning in the English NHS. *Health Economics, 17*(8), 907-926.

Measurement of NHS Productivity

Castelli, A., & Smith, P. C. (2006). *Circulatory disease in the NHS: Measuring trends in hospital costs and output* (CHE Research Paper RP21). University of York: Centre for Health Economics. http://www.york.ac.uk/media/che/documents/papers/researchpapers/rp21_circulatory_disease_in_the_NHS.pdf

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Castelli, A., & Nizalova, O. (2011). *Avoidable mortality: what it means and how it is measured?* (CHE Research Paper RP63): University of York: Centre for Health Economics. http://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP63.pdf

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Payment by Results

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Health care commissioning

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Responsive work

Claxton, K., Walker, S., Palmer, S., & Sculpher, M. (2010). *Appropriate perspectives for heath care decisions* (CHE Research Paper 54): University of York: Centre for Health Economics. http://www.york.ac.uk/che/pdf/rp54.pdf

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Conclusion

The programme grant has been critical to our ability to undertake research of high scientific quality that addresses pressing policy concerns:

- It has allowed us to develop a long-term relationship with the Department of Health, giving us an unrivalled understanding of how the policy environment has evolved over time and of the immediate and longer term challenges faced by the NHS;
- We have been able to develop critical mass, both of staff with expertise in applying the tools of economics to address policy concerns and in establishing the research infrastructure and datasets that underpin our empirical analyses;
- We have been able to respond to the Department's short, medium and long-term research needs, and provide an independent and scientific critique of changing policy priorities;
- It allows us to engage on a regular basis with policy makers and staff at international, national and local levels, to whom we are able to offer evidence-based policy advice and disseminate the findings of our research.

Appendix

Proposal / Fellowship / studentship reviewing

United Kingdom

- Chief Scientist Office Healthcare Improvement Committee
- Chief Scientist Office, Scottish Executive
- Economic and Social Research Council (ESRC)
- ESRC/MRC/NIHR Early Career Postdoctoral Fellowship
- German Federal Ministry for Education and Research (BMBF)
- Medical Research Council (MRC)
- National Awareness and Early Diagnosis Initiative (NAEDI) Scientific Committee
- National Clinical Assessment Service (NCAS)
- National Institute of Health Research (Programme Grants for Applied Research)
- NHS SDO Commissioning Group
- NIHR HSR board

Overseas

- National Health and Medical Research Council, Australia
- Netherlands Organisation for Health Research and Development (ZonMw)
- Netherlands Organisation for Scientific Research
- Nova Scotia Health Research Foundation
- Research Council for Health of the Academy of Finland
- Riksbankens Jubileumsfond, Sweden
- Standard Research Grants Program, Social Sciences and Humanities Research Council of Canada
- Swedish Council for Working Life & Research
- Swedish Research Council, collaborating with Swedish Council for Working Life & Research
- Swiss National Science Foundation (SNSF)

Editorial duties

Name	Date	Journal	Role
Goddard, M.	2001-present	Journal of Health Services Research and Policy	Associate Editor
	2010-2011	BMC (BioMed Central) Health Services Research	Associate Editor
Jacobs, R.	2008-present	The Open Health Services and Policy Journal	Editorial Board Member
Street, A.	2006-2008	Bulletin of Economic Research	Associate Editor
	2006-present	Journal of Health Economics	Co-editor
	2006-present	Revista Española de Economía de la Salud (Spanish Journal of Health Economics).	Editorial committee member

Journal reviewing

Applied Economics
Applied Health Economics and Health Policy
BMC (BioMed Central) Health Services Research
British Journal of Cancer
British Journal of Psychiatry
British Medical Journal (BMJ)
Bulletin of Economic Research
Canadian Journal of Economics
Clinical Therapeutics
Cost Effectiveness and Resource Allocation
Critical Public Health
Eastern Africa Social Science Research Review
Economic Journal
Economic Record
Empirical Economics
European Journal of General Practice
European Journal of Health Economics
Family Practice
Fundamental and Clinical Pharmacology
Geneva Papers Insurance Series
Health Economics
Health Economics, Policy & Law
Health Policy
Health Services Research
International Journal for Quality in Health Care
International Journal of Business Performance Management
International Journal of Public Sector Management
International Journal of Technology Assessment in Health Care
International Review of Administrative Sciences
Journal of Economic Surveys
Journal of General Internal Medicine
Journal of Health Economics
Journal of Health Organization and Management
Journal of Health Services Research and Policy
Journal of Medical Systems
Journal of Mental Health Policy and Economics
Journal of Productivity Analysis
Journal of Public Health
Journal of Risk and Insurance
Journal of the Chilean Medical Association
Journal of the Royal Statistical Society
Labour
Long Range Planning
Medical Care
Mental Health Policy and Economics
Oxford Bulletin of Economics and Statistics
Portuguese Economic Journal
Public Money and Management
Revista Espanol de Economia de la Salud
Social Science and Medicine
South African Journal of Economics
The Open Health Services and Policy Journal
Value in Health

Board membership: funding application bodies

Name	Date	Funding body
Goddard, M.	2007, 2009	Swedish Council for Working Life & Research
Goddard, M.	2010	German Federal Ministry for Education and Research (BMBF)
Mason, A.	(2010)	NIHR HSR board, associate member
Street, A.	(2010)	NIHR HSR board, full member

Committee work

Name	Date	Body	Role
Goddard, M.	2009 onwards	Health Inequalities Forum (LSE/DoH Group), which met on 17 December 2009 and 25 March 2010.	Member
	2009 onwards	Health Leadership Steering Group (Richard Cookson).From July 2009.	Member
	2009 onwards	Health Strategy Forum. From October 2009.	Steering group member
	2010	Health Economics Research Unit (HERU), University of Aberdeen.	Invited member, Advisory Group
	2010	Value Based Leadership Framework.	Member of University of York Steering Group
	2011, May onwards	2011 NIHR (National Institute for Health Research) Clinical Scientist panel.	Member
	2011 ongoing	CSO-funded Health Economics Research Unit (HERU), University of Aberdeen.	Member of the Advisory Group
	2011 ongoing)	Alcuin Research Resource Centre (ARRC) Steering Group.	Member
Gravelle, H.	2011	Scientific Committee, IRDES Health Economics Workshop, Paris 23-24 June 2011.	Member
Miraldo, M.	2007 onwards	Scientific Committee of the Portuguese Conference of Health Economics	member
	2008	24th PCS International Working Conference	committee member
Smith, P. C.	2007 onwards	Health England	Appointed Member, Advisory Group to Minister for Public Health

Name	Date	Body	Role
	2007	Independent Inquiry into Modernising Medical Careers	Appointed Member
	2007	Global Development Network annual conference, Beijing.	chair, Panel for Medals in Health Development Research
	2007	Secretary of State's Health Inequalities Strategy Group.	member
	2008	ESRC Review Panel, Centre for Market and Public Organisation, University of Bristol	Appointed Chair
	2008, Summer	Global Agenda Council on Healthcare Systems, World Economic Forum.	Appointed Member
	2008	Nuffield Council on Bioethics, Working Party on Personalised Healthcare.	Appointed member
	2008	Royal College of Physicians Working Party on the Future Doctor and Patient	Appointed member
	2008	Scientific Oversight Group, Institute for Health Metrics and Evaluation, University of Washington.	Appointed member
	2008	Independent Commission on Inequalities in Health.	Chair, Economics Task Group
	2008	Panel on Official Statistics, ESRC Festival of Social Sciences, Oxford.	Member
	2008	Nuffield Trust.	Appointed Senior Associate
	2009	NHS Co-operation and Competition Panel.	Appointed Member
	2009	World Health Organization Expert Advisory Panel on Health Promotion.	Appointed Member
Street, A.	2006, Spring	ONS	Steering Group member Project to Review Data Sources used to Measure NHS Output
	2009	E-Health Records Research Board, Office for Strategic Coordination of Health Research.	Appointed Member
	2009	External Reference Group Research Capability Programme, NHS Connecting for Health.	Appointed Member

Name	Date	Body	Role
	2009	NIHR Health Services Research Commissioning Board.	Member
	2009	Department of Health Payment by Results Analytical sub-group.	Member

Oral and written advice / evidence

Name	Date	Body	Role
Castelli, A.	ongoing	Office for National Statistics (ONS)	Advice on how to measure NHS output growth.
Daidone, S.	2010	Department of Health, Leeds.	Advice to specialist trusts
Goddard, M.	2008, 4 April	Select Committee on Health Inequalities	Written evidence inequities of access
	2009	Department of Health	Written evidence National review of age discrimination in health and social care
	2010	National Audit Office, London	Oral advice and guidance on local devolution
Jacobs, R.	2007	Sheffield Care Trust	advice outcome measures and indicators of quality of care in mental health
	2010, 21 January	North Yorkshire and York Community and Mental Health Services	Invited meeting between University of York and PCT Mental Health common interests.
	2010, 16 February	Health Care Analysis Advisory Forum, Department of Health, London.	Invited participant
Smith, P. C.	2007	House of Commons Health Select Committee	oral evidence, National Institute for Health and Clinical Excellence enquiry
Smith, P. C.	2008	House of Commons Health Committee enquiry into Health Inequalities, 23 October.	Oral evidence
Smith, P. C.	2008	WHO European Ministerial Conference on	Organized workshop Performance measurement for health system improvement,

Name	Date	Body	Role
		Health Systems, Tallinn.	
Smith, P. C.	2008	Health Systems Council, World Economic Forum Summit on the Global Agenda, Dubai, 7-9 November	Rapporteur
Smith, P. C.	2008, 18-20 July	Joint Commonwealth Fund and Nuffield Trust symposium	Invited participant, Strategies for Improving Transition and Coordination of Care for People with Chronic Illness, Boston.
Smith, P. C.	2009	Nuffield Trust Health Strategy Summit, London, 24 March.	Invited panelist
Smith, P. C.	2009	Royal College of Physicians' consultation on the 'Future Doctor', Highclere Castle, 24 June 2009.	Invited participant
Smith, P. C.	2009	WHO Consultation on Non-communicable Diseases, Poverty and Development, Geneva, 31 March-1 April.	Invited participant
Street, A.	2006	Audit Commission	Written advice on use of mortality as an outcome indicators for PCTs
Street, A.	2006	ONS	Written advice Health consultation document proposals for inclusion of quality change in the National Accounts
Street, A.	2007, 4 April	Audit Commission	Advice on project into Payment by Results
Street, A.	2010, 14 January	Health Committee inquiry into Commissioning (4th Report)	Oral and written evidence on PbR