How much should be paid for specialised treatment?

Silvio Daidone & Andrew Street

Frank Dobson Labour MP for Holborn and St Pancras

How can it possibly be right that the Great Ormond Street hospital in my constituency faces a reduction of £16 million?

Andrew Lansley Conservative MP Secretary of State for Health

The Department of Health has acted on the basis of a review conducted by the University of York

- Specialisation is supposed to reduce costs
- Why pay more to specialist hospitals?
  - Specialist hospitals exert greater bargaining power
  - Specialist hospitals attract patients with more complex care requirements

THE UNIVERSITY *of York*

- How much extra should be paid for a patient receiving specialised care?

- Are some hospitals more efficient than others?

- Analysis of routine patient-level data for 2008/9 and 2009/10
  - 12m patients each year
  - Identify whether patient received specialised care on basis of diagnosis and procedure codes
  - Identify other characteristics that might explain costs (DRG, age, SES, diagnostic markers, etc)
  - Consider the hospital in which the patient is treated

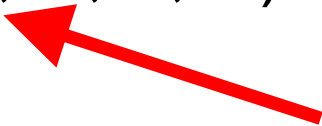| Service	2009/10
Total	1,311,536
Renal	510,847
Children	131,657
Respiratory	68,374
Women	24,389
Cancer	11,907
Orthopaedic	4,207
Spinal	2,507
Rheumatology	338

Hospital	% SPEC
Great Ormond Street Hospital For Children	71.4
Central Manchester and Manchester Children's University	40.9
Birmingham Women's	1.5
Liverpool Women's	0.6
Royal National Hospital for Rheumatic Diseases	0.1

	Not specialised	Specialised
Costs	£1,365	£1,931 ***

- What explains why costs differ across patients?
  - They are in different DRGs
  - Some patients receive specialised care, others don't
  - Patients are treated in different hospitals
  - Patients differ in other respects that influence costs
  - Some cost variation is simply random

Cost = f(DRG, Specialised services, Hospital, Patient characteristics)+random variation

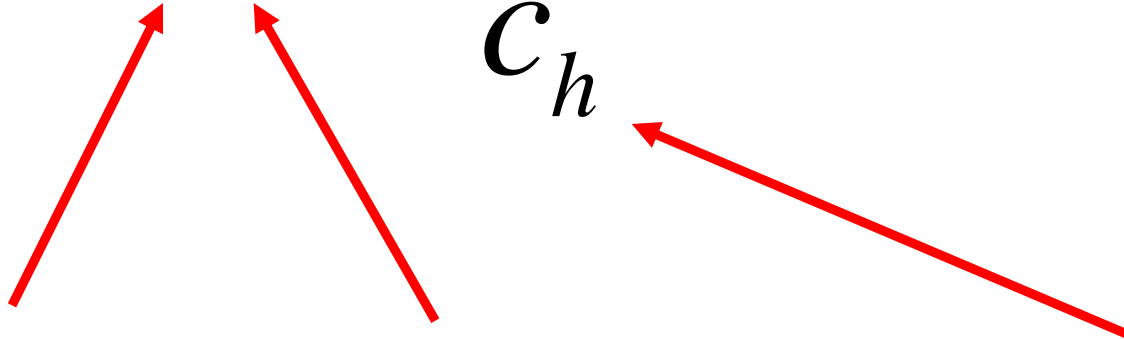c = f(h, S, u, X)+v

DRGs

Dependent variable - standardised costs

c/h = f(S, u, X)+v

$$\tilde{C}_{ik} = \frac{c_{ihk}}{\hat{c}_h}$$

Patients

Hospital

DRG

■ How much extra should be paid for a patient receiving specialised care?

Model 1   c/h   =   f(S,u)+v

$$\tilde{C}_{ik} = \alpha + \sum_{n=1}^{N} \beta_n S_{nik} + u_k + v_{ik}$$

Specialist markers   Hospital effect

Childrens		M1
2008/9	OLS	**0.20**
	GLM	**0.19**
	Log	**0.15**
2009/10	OLS	**0.22**
	GLM	**0.20**

- Setting top-up payments:

  - Prior to our work, a 78% top-up was paid for specialised services for Children

  - We recommend reduction to 20%

  - Policy of phased reduction: initially 60%, now 50%

Model 2   c/h   =   f(S,u,X)+v

$$\tilde{C}_{ik} = \alpha + \sum_{n=1}^{N} \beta_n S_{nik} + \sum_{m=1}^{M} \gamma_m X_{mik} + u_k + v_{ik}$$

Patient characteristics

Purged hospital effect

- Age and gender

- Indices of multiple deprivation score

- Type of admission (emergency)

- Whether transferred to/from hospital

- Multi-episodes

- Counts of diagnoses and procedures

- Specific diagnoses and procedures (obesity, smoker, allergy, diabetes, hypertension …)

- How much extra should be paid for a patient receiving specialised care?

- Are some hospitals more efficient than others?

$$\tilde{C}_{ik} = \alpha + \sum_{n=1}^{N} \beta_n S_{nik} + \sum_{m=1}^{M} \gamma_m X_{mik} + u_k + v_{ik}$$

Purged hospital effect

	2008/9	2009/10
Central Manchester and Manchester Children's University Hospitals	145	127
Great Ormond Street Hospital For Children	162	97

- Specialisation is supposed to reduce costs
- Why pay more to specialist hospitals?
  - Specialist hospitals exert greater bargaining power
  - Specialist hospitals attract patients with more complex care requirements

Daidone S, Street AD. How much should be paid for specialised treatment?

http://tinyurl.com/ohdwkvn