Introduction to the EuroDRG project: main research objectives

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on behalf of the EuroDRG team
How I got interested in DRGs (2002)

A policy question in the 6th EU Framework Programme:
Why do costs of health services differ among EU countries at the micro level?

The first nine patients sent to France by the English NHS (not shown: the 40 journalists who accompanied them)

Are these data realistic?
Are they representative?
How can the differences be explained?

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Using 10 “vignettes” across countries (with standardised description of patients)

E.g. Acute myocardial infarction

Why these differences?

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Acute myocardial infarction

patient variables
- gender, age,
- main diagnosis, other diagnoses, severity

medical and management decision variables
- mix and intensity of procedures,
- technologies and human resource use

structural variables on hospital/ regional/ national level
- e.g. size, teaching status;
  urbanity; wage level

(With data points for countries such as Hungary, Poland, Spain, Denmark, Germany, England, France, Netherlands, Italy, showing their respective average in € costs and number of cases, with countries like Poland, Spain, and Denmark having higher costs than others like Hungary.)
Open question 1: How much do these variables contribute to cost variation (and do DRG systems take them into account)?

- **Acute myocardial infarction**
- Patient variables:
  - gender, age, main diagnosis, other diagnoses, severity

- Additional variables:
  - e.g., size, teaching status; urbanity; wage level

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Acute myocardial infarction: Hospitals performing PCI (PTCA/ Stenting)

- **none**
- **mixed**
- **“all”**

> factor 4: value for money?
Acute myocardial infarction: Hospitals performing PCI (PTCA/ Stenting)

Open question 2: If costs differ so much with treatment, what about the quality of care?
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Open question 3: Do costs differ even more (and why) if we include different patient characteristics?
Countries covered by EuroDRG project
What did we do?

• **Phase I – DRG system design and characteristics**
  

• **Phase II – empirical performance evaluation**

• **Phase III – conclusions**

  Conclusions for policy-makers within and beyond European countries ...
Diagnosis Related Group (DRG) systems were introduced in Europe to increase the transparency of services provided by hospitals and to incentivise greater efficiency in the use of resources invested in acute hospitals. In many countries, these systems were also designed to contribute to improving - or at least protecting - the quality of care. After more than a decade of experience with using DRGs in Europe, this book considers whether the extensive use of DRGs has contributed towards achieving these objectives.
What did we do?

• Phase I – DRG system design and characteristics
• Phase II – empirical performance evaluation
  For 10 “episodes of care” cross-country comparisons of
  (1) actual classification, DRG catalogues, DRG patient-level
  (2) reimbursement, databases, reimbursement lists …
  (3) factors explaining cost variation, empirical evaluations
  (4) cost-quality relationship with patient-level data
  bases including costs/ length-of-stay
• Phase III – conclusions
The “episode of care“ approach

**Why?** Evaluation of hospital performance requires to look at a set of comparable/adjustable patients → we chose all patients with a certain diagnosis and/or procedure

**Why not using DRGs directly?** DRG classification differs across countries → to study effects we needed to define “meta-DRGs”

**Selection criteria for episodes of care**
- Relatively frequent (→ we wanted to work with original patient data)
- Representing different medical specialties (internal medicine, surgery, obstetrics and gynaecology etc.)
- Involving diagnostic and/or therapeutic procedures (including the use of innovative technologies)
- Coding within and across countries deep enough to allow for analysis of differences
**Selected episodes of care:**

- Appendectomy
- Cholecystectomy
- AMI
- Bypass (CABG)
- Stroke
- Inguinal hernia
- Hip replacement
- Knee replacement
- Breast cancer
- Childbirth

**Dropped:**

- Colorectal cancer
- Diabetes
- Com.-acq. Pneumonia
- Urolithiasis
- Traumatic brain injury
SHORT LIST

4. AMI
2. STROKE
3. Appendectomy
4. Cholecystectomy
5. Hip replacement
6. Knee replacement
7. Child Birth

INTER M.C.

8. CABG
9. Hernia
    (with Mastectomy)

N O

Breast Cancer

2. Color
3. Diabetes
4. PCI
5. CABG
6. Hernia
7. Uro lithiasis

4. Pneumonia
3. Traumatic Brain
2. New Born
5. TIA
Patient-level data bases used (topics 3 & 4)

### Table III. Databases by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Data sources</th>
<th>Year</th>
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<tbody>
<tr>
<td>Austria</td>
<td>Performance-oriented Hospital Financing Framework Database&lt;br&gt;Private Hospitals Financing Fund Database</td>
<td>2008</td>
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<tr>
<td>England</td>
<td>Hospital Episode Statistics&lt;br&gt;National Health Service Reference Costs</td>
<td>2007/2008</td>
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<tr>
<td>Estonia</td>
<td>Estonian Health Insurance Fund database</td>
<td>2008</td>
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<tr>
<td>Finland</td>
<td>Hospital Discharge Register, hospitals of Helsinki and Uusimaa</td>
<td>2008</td>
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<tr>
<td>France</td>
<td>National hospital cost study (ENCC; representative sample of voluntary hospitals)</td>
<td>2007</td>
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<tr>
<td>Germany</td>
<td>Hospital inpatient activity database (PMSI MCO; exhaustive sample of all hospitals)&lt;br&gt;Research database based on patient-level data according to §21 Hospital Remuneration Act (KHEntG)&lt;br&gt;National G-DRG cost accounting standards by the Institute for the Hospital Remuneration System (InEK)</td>
<td>2008</td>
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<tr>
<td>Ireland</td>
<td>Hospital In-Patient Enquiry</td>
<td>2008</td>
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<tr>
<td>Poland</td>
<td>Central register of healthcare services and reimbursements</td>
<td>2009</td>
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<tr>
<td>Spain (Catalonia)</td>
<td>Public Hospital Network of Catalonia&lt;br&gt;Spanish Network of Hospital Costs</td>
<td>2008/2009</td>
</tr>
<tr>
<td>Sweden</td>
<td>National Case Costing Database</td>
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For further reading (topic 3)

Health Economics

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Diagnosis-Related Groups in Europe (EuroDRG): Do they explain variation in hospital costs and length of stay across patients and hospitals?

Edited by: Reinhard Busse, Alexander Geissler, Anne Mason, Zeynep Or, David Scheller-Kreinsen, Andrew Street

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Editorial

Do Diagnosis-Related Groups Explain Variations in Hospital Costs and Length of Stay? – Analyses from the EURODRG Project for 10 Episodes of Care Across 10 European Countries

Reinhard Busse on behalf of the EURODRG Group

Department of Health Care Management, Berlin University of Technology, Germany

How Well Do Diagnosis-Related Groups Explain Variations in Costs or Length of Stay Among Patients and Across Hospitals? Methods for Analysing Routine Patient Data

Andrew Street, Conrad Kobel, Thomas Renaud, Josselin Thuilliez

On behalf of the EURODRG Group

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<td>Estonia</td>
<td>PRAXIS Center for Policy Studies, Tallinn</td>
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<td>Europe</td>
<td>European Health Management Association, Brussels</td>
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<td>National Institute for Health and Welfare, Helsinki</td>
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<tr>
<td>Portugal</td>
<td>Avisory board member Céu Mateus</td>
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<tr>
<td>Spain</td>
<td>Institut Municipal d’Assistència Sanitària, Barcelona</td>
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<tr>
<td>Sweden</td>
<td>Centre for Patient Classification, National Board of Health and Welfare, Stockholm</td>
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EuroDRG consortium members

Picture: 22nd January 2010, Paris