Diagnosis Related Groups (in Europe): Moving towards transparency, efficiency and quality in hospitals

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Department of Health Care Management, Berlin University of Technology
(WHO Collaborating Centre for Health Systems Research and Management)
&
European Observatory on Health Systems and Policies
Incentives linked to different forms of hospital payment

<table>
<thead>
<tr>
<th></th>
<th>Productivity and number of services</th>
<th>Patient needs (risk acceptance)</th>
<th>Appropriateness and adherence to evidence-based medicine (quality of processes)</th>
<th>Quality of outcomes</th>
<th>Administrative simplicity and ease of financial sustainability</th>
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<tbody>
<tr>
<td>Global budget</td>
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<td>🟪</td>
<td>Cheap and bad → Undertreatment</td>
<td>🟦</td>
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<tr>
<td>Per diems</td>
<td>(+)</td>
<td>O</td>
<td>Inappropriate treatment</td>
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<tr>
<td>FFS</td>
<td>+</td>
<td>(+)</td>
<td>Expensive and bad → Overtreatment</td>
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2DRGs in Europe: Moving towards transparency, efficiency and quality in hospitals

8 November 2011
Incentives linked to different forms of hospital payment

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<td>(—)</td>
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<tr>
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<td>O</td>
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<td>+ [cases]</td>
<td>(—) [if insufficient consideration of severity]</td>
<td>(—) [if insufficient consideration of necessary services]</td>
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Incentives linked to different forms of hospital payment (DRGs in Europe: Moving towards transparency, efficiency and quality in hospitals)
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<td>(−)</td>
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<tr>
<td><strong>Per diems</strong></td>
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<td>O</td>
<td>(−)</td>
<td>(−)</td>
<td>(+) / O</td>
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<td>+ [cases]</td>
<td>(−) [if insufficient consideration of severity]</td>
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<td>(−) / O</td>
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<tr>
<td>FFS</td>
<td>+</td>
<td>(+)</td>
<td>(−)</td>
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**European countries 1990s/2000s**

**USA 1980s**

→ “dumping“ (avoidance), “creaming“ (selection) and “skimping“ (undertreatment)
→ up/wrong-coding, gaming
Empirical evidence (I):
hospital activity and length-of-stay under DRGs

<table>
<thead>
<tr>
<th>Country</th>
<th>Study</th>
<th>Activity</th>
<th>ALoS</th>
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<td></td>
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<td>Davis and Rhodes, 1988</td>
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<td>Kahn et al., 1990</td>
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<td>Rosenberg and Browne, 2001</td>
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USA 1980s
## Empirical evidence (II)

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<td></td>
<td>Kastberg and Siverbo, 2007</td>
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<td>Italy, 1995</td>
<td>Louis et al., 1999</td>
<td>▼</td>
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<td></td>
<td>Ettelt et al., 2006</td>
<td>▲</td>
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<td>Spain, 1996</td>
<td>Ellis/ Vidal-Fernández, 2007</td>
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<td>Norway, 1997</td>
<td>Biørn et al., 2003</td>
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<td></td>
<td>Kjerstad, 2003</td>
<td>▲</td>
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<td></td>
<td>Hagen et al., 2006</td>
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<td></td>
<td>Magnussen et al., 2007</td>
<td>▲</td>
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<tr>
<td>Austria, 1997</td>
<td>Theurl and Winner, 2007</td>
<td>▼</td>
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<td>Denmark, 2002</td>
<td>Street et al., 2007</td>
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<td></td>
<td>Schreyögg et al., 2005</td>
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<tr>
<td></td>
<td>Hensen et al., 2008</td>
<td>▲</td>
<td>▼</td>
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<tr>
<td>England, 2003/4</td>
<td>Farrar et al., 2007</td>
<td>▲</td>
<td>▼</td>
</tr>
<tr>
<td></td>
<td>Audit Commission, 2008</td>
<td>▲</td>
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<tr>
<td></td>
<td>Farrar et al., 2009</td>
<td>▲</td>
<td>▼</td>
</tr>
<tr>
<td>France, 2004/5</td>
<td>Or, 2009</td>
<td>▲</td>
<td></td>
</tr>
</tbody>
</table>
So then, why DRGs?

To get a common “currency” of hospital activity for

- transparency → performance measurement
  → efficiency benchmarking,
- budget allocation (or division among purchasers),
- planning of capacities,
- payment (→ efficiency)
Payments for infrastructure (e.g. buildings, expensive equipment)

Payments for non-patient care activities (e.g. teaching, research, emergency availability)

Payments for patients not classified into DRG system (e.g. outpatients, day cases, psychiatry, rehabilitation)

Additional payments for specific activities for DRG-classified patients (e.g. expensive drugs, innovations), possibly listed in DRG catalogues

Other types of payments for DRG-classified patients (e.g. global budgets, fee-for-service)

**DRG-based case payments, DRG-based budget allocation** (possibly adjusted for outliers, quality etc.)
For what types of activities? Scope of DRGs (II)

DRGs in Europe: Moving towards transparency, efficiency and quality in hospitals

Psychiatry  Day cases  Acute inpatient care  Outpatient care  Rehabilitation

DRG system (included in or separate from original DRGs)
DRG system (identical or different to original DRGs)
Original DRG systems
DRG system (included in or separate from original DRGs)
DRG system (included in or separate from original DRGs)
The growing scope of DRGs in Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>Inpatient</th>
<th>Outpatients</th>
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<th>Rehabilitation</th>
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<td>?</td>
<td>?</td>
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<tr>
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<td>X</td>
<td>X</td>
<td>starting 2012</td>
<td>?</td>
</tr>
<tr>
<td>Estonia</td>
<td>X</td>
<td>starting 20xx</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Finland</td>
<td>X</td>
<td>X</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>France</td>
<td>X</td>
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<td>starting 20xx</td>
<td>starting 20xx</td>
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<tr>
<td>Germany</td>
<td>X</td>
<td>-</td>
<td>starting 2013</td>
<td>-</td>
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<tr>
<td>The Netherlands</td>
<td>X</td>
<td>X</td>
<td>?</td>
<td>?</td>
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<tr>
<td>Ireland</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>?</td>
</tr>
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<td>Poland</td>
<td>X</td>
<td>started 2011</td>
<td>starting 20xx</td>
<td>starting 20xx</td>
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<tr>
<td>Portugal</td>
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<td>Spain</td>
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<td>starting 20xx</td>
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<td>?</td>
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<tr>
<td>Sweden</td>
<td>X</td>
<td>X</td>
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<td>?</td>
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</table>
Scope in the Netherlands:

DBCs (diagnosis-treatment combinations); examples

Inpatient acute care incl. ICU

Ambulatory specialist care

Hospitalisation

DBC 1

DBC 2

DBC 3

DBC 4

DBC 5

DBC 6

Ambulatory specialist care

Discharge

1117 October 2011 DRGs in Europe: Moving towards transparency, efficiency and quality in hospitals
**Essential building blocks of DRG systems**

1. **Import**
   - Patient classification system
   - Diagnoses
   - Procedures
   - Severity
   - Frequency of revisions

2. **Data collection**
   - Demographic data
   - Clinical data
   - Cost data
   - Sample size, regularity

3. **Price setting**
   - Cost weights
   - Base rate(s)
   - Prices/tariffs
   - Average vs. “best”

4. **Actual reimbursement**
   - Volume limits
   - Outliers
   - High cost cases
   - Quality
   - Negotiations

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DRGs in Europe: Moving towards transparency, efficiency and quality in hospitals
Choosing a PCS: copied, further developed or self-developed?

Patient classification system
- Diagnoses
- Procedures
- Severity
- Frequency of revisions

The great-grandfather
The grandfathers
The fathers
# Classification variables and severity levels in European DRG-like PCS

## Classification Variables

### Patient characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>AP-DRG</th>
<th>AR-DRG</th>
<th>G-DRG</th>
<th>GHM</th>
<th>NordDRG</th>
<th>HRG</th>
<th>JGP</th>
<th>LKF</th>
<th>DBC</th>
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<tbody>
<tr>
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### Medical and management decision variables

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### Structural characteristics

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<th>JGP</th>
<th>LKF</th>
<th>DBC</th>
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<tr>
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### Severity / Complexity Levels

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</table>

**PCCL = Patient Clinical Complexity level**

* not explicitly mentioned (Major CCs at MDC level plus 2 levels of severity at DRG level)
** 4 levels of severity plus one GHM for short stays or outpatient care
PCS: the German approach

Error DRG

Major diagnosis

Pre-MDC

MDC 1  MDC 2  MDC 3  ...  ...  ...  MDC 23

Major diagnosis

+ at least one surgical procedure

Surgical Partition

Other Partition

Medical Partition

Basis DRGs
(G-DRG Version 2010: n=594)

No significant differences in the resource consumption

n=294

Co-morbidity, medical procedures, age, clinical severity, complication, cause of hospital discharge

n=300

Significant differences in the resource consumption

50% unsplit

unsplit DRGs (n=294)

split DRGs (n=906)

On average 3 levels (but up to ca. 10)

Patient classification system

- Diagnoses
- Procedures
- Severity
- Frequency of revisions

NB: Three partitions → one for non-surgical procedures!

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Basic characteristics of DRG-like PCS in Europe

**Patient classification system**
- Diagnoses
- Procedures
- Severity
- Frequency of revisions

**Basic characteristics of DRG-like PCS in Europe**

<table>
<thead>
<tr>
<th></th>
<th>AP-DRG</th>
<th>AR-DRG</th>
<th>G-DRG</th>
<th>GHM</th>
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<th>JGP</th>
<th>LKF</th>
<th>DBC</th>
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<tr>
<td>DRGs / DRG-like groups</td>
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<td>665</td>
<td>1,200</td>
<td>2,297</td>
<td>794</td>
<td>1,389</td>
<td>518</td>
<td>979</td>
<td>≈30,000</td>
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MDC differences across DRG systems

Patient classification system
- Diagnoses
- Procedures
- Severity
- Frequency of revisions

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Main questions relating to data collection

Clinical data
→ classification system for diagnoses and
→ classification system for procedures

Cost data
→ imported (not good but easy) or
→ collected within country (better but needs standardised cost accounting)

Sample size
→ entire patient population or
→ a smaller sample

Many countries: clinical data = all patients;
cost data = hospital sample with standardised cost accounting system
### Diagnosis and procedure coding across Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>Diagnosis Coding</th>
<th>Procedure Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>ICD-10-AT</td>
<td>Leistungskatalog</td>
</tr>
<tr>
<td>England</td>
<td>ICD-10</td>
<td>OPCS - Office of Population Censuses and Surveys</td>
</tr>
<tr>
<td>Estonia</td>
<td>ICD-10</td>
<td>NCSP - Nomesco Classification of Surgical Procedures</td>
</tr>
<tr>
<td>Finland</td>
<td>ICD-10</td>
<td>NCSP - Nomesco Classification of Surgical Procedures</td>
</tr>
<tr>
<td>France</td>
<td>ICD-10</td>
<td>CCAM - Classification Commune des Actes Médicaux</td>
</tr>
<tr>
<td>Germany</td>
<td>ICD-10-GM</td>
<td>OPS - Operationen- und Prozedurenschlüssel</td>
</tr>
<tr>
<td>Ireland</td>
<td>ICD-10-AM</td>
<td>ACHI - Australian Classification of Health Interventions</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>ICD-10</td>
<td>Elektronische DBC Typeringslijst</td>
</tr>
<tr>
<td>Poland</td>
<td>ICD-10</td>
<td>ICD-9-CM</td>
</tr>
<tr>
<td>Portugal</td>
<td>ICD-9-CM</td>
<td>ICD-9-CM</td>
</tr>
<tr>
<td>Spain</td>
<td>ICD-9-CM</td>
<td>ICD-9-CM</td>
</tr>
<tr>
<td>Sweden</td>
<td>ICD-10</td>
<td>NCSP - Nomesco Classification of Surgical Procedures</td>
</tr>
</tbody>
</table>

*Almost standardised, no uniform standard available*
# Cost accounting in hospitals: how Germany does it

## Data collection
- Demographic data
- Clinical data
- Cost data
- Sample size, regularity

## Cost-Element Groups

<table>
<thead>
<tr>
<th>Labour Costs</th>
<th>Material Costs</th>
<th>Infrastructure Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Labour costs of the other medical staff</td>
<td>4a. Drug costs</td>
<td>1.7</td>
</tr>
<tr>
<td>2. Labour costs of the nursing staff</td>
<td>4b. Drug costs (individual costs/actual consumption)</td>
<td>1.6b</td>
</tr>
<tr>
<td>3. Labour costs of the administrative and technical staff</td>
<td>6a: Material costs (without drugs, implants and grafts)</td>
<td>2.7</td>
</tr>
<tr>
<td>4. Drug costs</td>
<td>6b: Material costs (individual costs/actual consumption, without drugs, implants and grafts)</td>
<td>2.8</td>
</tr>
<tr>
<td>5. Drug costs (individual costs/actual consumption)</td>
<td>7: Medical infrastructure costs</td>
<td>3.6b</td>
</tr>
<tr>
<td>6. Costs of implants and grafts</td>
<td>8: Non-medical infrastructure costs</td>
<td>3.7</td>
</tr>
<tr>
<td>7: Medical infrastructure costs</td>
<td>8: Non-medical infrastructure costs</td>
<td>3.8</td>
</tr>
</tbody>
</table>

## Cost Centre Groups

<table>
<thead>
<tr>
<th>Hospital units with beds</th>
<th>Diagnostic and treatment areas</th>
<th>Labour</th>
<th>Material</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Normal ward</td>
<td>4.1</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>2: Intensive care unit</td>
<td>2.1</td>
<td>2.2</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>3: Dialysis unit</td>
<td>3.1</td>
<td>2.3</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>4: Operating room</td>
<td>4.1</td>
<td>4.1</td>
<td>4.2</td>
<td>4.5</td>
</tr>
<tr>
<td>5: Anaesthesia</td>
<td>5.1</td>
<td>5.2</td>
<td>5.4</td>
<td>5.6</td>
</tr>
<tr>
<td>6: Maternity room</td>
<td>6.1</td>
<td>6.2</td>
<td>6.4</td>
<td>6.5</td>
</tr>
<tr>
<td>7: Cardiac diagnostics/therapy</td>
<td>7.1</td>
<td>7.3</td>
<td>7.4</td>
<td>7.6</td>
</tr>
<tr>
<td>8: Endoscopic diagnostics/therapy</td>
<td>8.1</td>
<td>8.2</td>
<td>8.4</td>
<td>8.5</td>
</tr>
<tr>
<td>9: Radiology</td>
<td>9.1</td>
<td>9.2</td>
<td>9.4</td>
<td>9.6</td>
</tr>
<tr>
<td>10: Laboratories</td>
<td>10.1</td>
<td>10.2</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td>11: Other diagnostic and therapeutic areas</td>
<td>11.1</td>
<td>11.2</td>
<td>11.4</td>
<td>11.5</td>
</tr>
</tbody>
</table>

## 99 cost categories!
InEK cost data browser: Average costs for normal birth without co-morbidities or complications in German cost calculating hospitals
How to calculate costs and set prices fairly

- Based on good quality data (not possible if cost weights imported)
- Average costs vs. “best practice”
- “Cost weights x base rate” vs. “Tariff + adjustment”
## How to calculate costs and set prices fairly

<table>
<thead>
<tr>
<th>Country</th>
<th>“cost weight“ (varies by DRG)</th>
<th>“base rate“ or adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>£ 3000</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.0 – 1.32 (varies by hospital)</td>
</tr>
<tr>
<td>France</td>
<td>€ 3000</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.0 (+/-) (varies by region and hospital)</td>
</tr>
<tr>
<td>Germany</td>
<td>1.0</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€ 3000 (+/-) (varies slightly by state)</td>
</tr>
</tbody>
</table>
## Cost calculation and price setting – country experience

<table>
<thead>
<tr>
<th>England</th>
<th>France</th>
<th>Germany</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost data collection methodology to determine payment rate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample size (% of all hospitals)</td>
<td>All NHS hospitals</td>
<td>99 hospitals (5%)</td>
<td>253 hospitals (13%)</td>
</tr>
<tr>
<td>Cost accounting methodology</td>
<td>Top down</td>
<td>Mix of top-down and bottom-up</td>
<td>Mainly bottom-up</td>
</tr>
<tr>
<td><strong>Calculation of hospital payment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment calculation</td>
<td>Direct (price)</td>
<td>Indirect (cost-weight)</td>
<td>Indirect (cost-weight)</td>
</tr>
<tr>
<td>Applicability</td>
<td>Nationwide (but adjusted for market-forces-factor)</td>
<td>Nationwide (with adjustments and separate for public and private hospitals)</td>
<td>Cost-weights nationwide; monetary conversion statewide</td>
</tr>
<tr>
<td>Volume/expenditure limits</td>
<td>No (plans exist for volume cap)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Options to avoid deficits under activity based payments

- Increase revenues (right-/ up-coding; negotiate extra payments)
- Reduce costs (personnel, cheaper technologies)
- Reduce LOS

8 November 2011
How DRG systems try to counter-act such behaviour:

1. long- and short-stay adjustments

- Long- and short-stay adjustments
  - Short-stay outliers
  - Inliers
  - Long-stay outliers

<table>
<thead>
<tr>
<th>Revenues</th>
<th>Deductions (per day)</th>
<th>Surcharges (per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower LOS threshold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper LOS threshold</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Actual reimbursement
  - Volume limits
  - Outliers
  - High cost cases
  - Quality
  - Negotiations

8 November 2011

DRGs in Europe: Moving towards transparency, efficiency and quality in hospitals
How DRG systems try to counter-act such behaviour:

2. Fee-for-service-type additional payments

<table>
<thead>
<tr>
<th>Actual reimbursement</th>
<th>England</th>
<th>France</th>
<th>Germany</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments per hospital stay</td>
<td>One</td>
<td>One</td>
<td>One</td>
<td>Several possible</td>
</tr>
<tr>
<td>Payments for specific high-cost services</td>
<td>Unbundled HRGs for e.g.: • Chemotherapy • Radiotherapy • Renal dialysis • Diagnostic imaging • High-cost drugs</td>
<td>Séances GHM for e.g.: • Chemotherapy • Radiotherapy • Renal dialysis • Additional payments: • ICU • Emergency care • High-cost drugs</td>
<td>Supplementary payments for e.g.: • Chemotherapy • Radiotherapy • Renal dialysis • Diagnostic imaging • High-cost drugs</td>
<td>No</td>
</tr>
<tr>
<td>Innovation-related add’l payments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (for drugs)</td>
</tr>
</tbody>
</table>
How DRG systems try to counter-act such behaviour:

3. adjustments for quality

- England & Germany: no extra payment if patient readmitted within 30 days
- Germany: deduction for not submitting quality data
- England: up 1.5% reduction if quality standards are not met
- France: extra payments for quality improvement (e.g. regarding MRSA)
List B–DBCs as basis for price negotiations in the Netherlands

Table 1 Negotiated prices in 2007 and 2004 for seven list B DBCs at four health insurers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip replacement</td>
<td>8571</td>
<td>7603</td>
<td>11370</td>
<td>9097</td>
<td>6.3</td>
</tr>
<tr>
<td>Knee replacement</td>
<td>10228</td>
<td>9097</td>
<td>13000</td>
<td>10746</td>
<td>5.1</td>
</tr>
<tr>
<td>Inguinal hernia repair</td>
<td>2163</td>
<td>1529</td>
<td>3088</td>
<td>2254</td>
<td>4.2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>409</td>
<td>385</td>
<td>1027</td>
<td>483</td>
<td>18.1</td>
</tr>
<tr>
<td>Tonsillectomy</td>
<td>740</td>
<td>433</td>
<td>1498</td>
<td>800</td>
<td>8.1</td>
</tr>
<tr>
<td>Cataract</td>
<td>1317</td>
<td>1044</td>
<td>1599</td>
<td>1381</td>
<td>4.8</td>
</tr>
<tr>
<td>Spinal disc herniation</td>
<td>3046</td>
<td>2413</td>
<td>5778</td>
<td>3308</td>
<td>8.6</td>
</tr>
</tbody>
</table>
Implementation: Not from one day to the next -
the long way of DRG introduction in Germany

<table>
<thead>
<tr>
<th>1) Phase of preparation</th>
<th>2) Budget-neutral phase</th>
<th>3) Phase of convergence to state-wide base rates</th>
<th>4) Discussion on future policy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Historical Budget (2003)</td>
<td>Hospital specific base rate</td>
<td>• Nationwide base rate</td>
</tr>
<tr>
<td></td>
<td>Transformation</td>
<td>Statewide base rate</td>
<td>• Fixed or maximum prices</td>
</tr>
<tr>
<td></td>
<td>DRG-Budget (2004)</td>
<td>15%</td>
<td>• Selective or uniform negotiations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20%</td>
<td>• Quality Assurance (adjustments)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20%</td>
<td>• Budgeting (amount of services)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25%</td>
<td>• Dual Financing or Monistic</td>
</tr>
</tbody>
</table>

15 % 20 % 20 % 20 % 25 % 25 %


Hospital specific base rate

Statewide base rate


Hospital specific base rate


Hospital specific base rate
European countries have developed – and are continuously modifying – their own DRG systems, which
• classify patients into more groups,
• give a higher weight to procedures and to setting,
• base payment rates on actual average (or best-practice) costs,
• pay separately for high-cost and innovative technologies,
• are implemented in a step-wise manner, and thus reduce, or even avoid, the potential of risk selection and under-provision of services.
Final conference regarding policy conclusions on 17 November 2011 in Berlin:

• Are hospital services and costs across European countries really so different to justify different systems for patient classification and cost weights? Could cost differences not be handled through base rate adjustments (as in the US)?

• What do we know regarding the effects on hospital efficiency and quality of service delivery under DRGs?

www.eurodrg.eu
Diagnosis Related Groups in Europe: Moving towards transparency, efficiency and quality in hospitals

Reinhard Busse, Alexander Geissler, Wilm Quenin, Miriam Willey
(European Observatory on Health Care Systems, Berlin Technical University, Berlin Technical University, Economic Social Research Institute)

About the book | About the authors | Table of contents

About the book

DRG systems were introduced in Europe for similar reasons: first, they should increase the transparency of services which are effectively provided in hospitals and second, DRG-based payment systems should give incentives for the efficient use of resources. In addition, the combination of increased transparency and efficient use of resources was assumed to contribute to improving "or at least assuring " the level of quality of care. After more than a decade of experience with using DRGs in Europe, it's time to consider whether the extensive use of DRGs has contributed to achieving these aims.

This book is a result of the EuroDRG project. It includes chapters on the key issues of DRGs (efficiency, quality, unintended effects, and technological innovation) and 12 country chapters (Austria, England, Estonia, Finland, France, Germany, Ireland, the Netherlands, Poland, Portugal, Spain, Sweden) that provide clearly structured and detailed information about the most important DRG system characteristics in each of the countries which take part in the EuroDRG project.
Figure 3.1 Framework for navigating through the book
Countries covered by EuroDRG project
## EuroDRG project partners

<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Department for Medical Statistics, Informatics and Health Economics, Innsbruck Medical University</td>
</tr>
<tr>
<td>England/ UK</td>
<td>Centre for Health Economics, University of York</td>
</tr>
<tr>
<td>Estonia</td>
<td>PRAXIS Center for Policy Studies, Tallinn</td>
</tr>
<tr>
<td>Europe</td>
<td>European Health Management Association, Brussels</td>
</tr>
<tr>
<td>Finland</td>
<td>National Institute for Health and Welfare, Helsinki</td>
</tr>
<tr>
<td>France</td>
<td>École des hautes études en santé publique, Rennes &amp; Institut de recherche et documentation en économie de la santé, Paris</td>
</tr>
<tr>
<td>Germany</td>
<td>Department of Health Care Management, Technische Universität Berlin</td>
</tr>
<tr>
<td>Ireland</td>
<td>Economic and Social Research Institute, Dublin</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Institute for Health Policy &amp; Management, Erasmus Universitair Medisch Centrum Rotterdam</td>
</tr>
<tr>
<td>Poland</td>
<td>National Health Fund, Warsaw</td>
</tr>
<tr>
<td>Portugal</td>
<td>Avisory board member Céu Mateus</td>
</tr>
<tr>
<td>Spain</td>
<td>Institut Municipal d’Assistència Sanitària, Barcelona</td>
</tr>
<tr>
<td>Sweden</td>
<td>Centre for Patient Classification, National Board of Health and Welfare, Stockholm</td>
</tr>
</tbody>
</table>