Hospital payment and Diagnosis-Related Groups in Germany

Boone or Bane?

Dr. Alexander Geissler, Dipl.-Ing.
Department of Health Care Management (MiG)
Berlin University of Technology
European Observatory on Health Systems and Policies
WHO Collaborating Centre for Health Systems, Research and Management
Agenda

a. Hospital landscape of Germany
b. DRGs in Germany
c. Issues, challenges and reforms
Range of activities and services

Pre-hospital care (GPs, Specialists)
Referral by GP or specialist

Hospital Treatment
Inpatient care
Day-surgery

Post-hospital care (GPs, Specialists, Rehabilitation)
Discharge to GP, specialist or rehabilitation

Highly specialized care on in-and outpatient basis (e.g. Cystic fibrosis)
The Hospital Financing Act (KHG) of 1972 introduced the “principle of duality”

- State governments plan hospital capacities and finance investments
- Sickness funds and private insurance reimburse operating costs

**Diagram:**

- **Taxes** → **States** → **Infrastructure investments**
- **Tax payers** → **States**
- **Patients** → **Hospital services** → **Hospitals**
- **Contributions** → **Sickness funds**
- **Premiums** → **Private insurance** → **Operating costs**
Share of state subsidies on total cost

Quelle: Leber, Wolff: Wer bestellt, muss bezahlen, in f&W 03/2012
Origin of investment funds (2009)

- Bank credit ~ 10%
- Other resources ~ 1%
- State subsidies ~ 27%
- Own resources of hospital ~ 36%
- Third-party payments ~ 3%
- Resources of owner ~ 4%
- State lump-sum payments ~ 19%
Operating costs

- Sickness funds negotiate activity based DRG budgets every year with every “planned” Hospital

\[
\text{Casemix} \times \text{Base rate} \quad + \quad \text{Supplementary fees} \quad + \quad \text{Surcharges} \quad = \quad \text{Hospital budget}
\]

- Budget over-run adjustment (hospital pays back):
  - 65% (standard DRGs), 25% (drugs, medical, polytrauma and burns DRGs), Negotiations for certain DRGs (those that are difficult to predict)

- Budget under-run adjustment (hospital receives compensation):
  - 20% (standard DRGs)
Hospital beds in Europe

Acute care hospital beds per 100000

Source: WHO European health for all database (HFA-DB)
Beds vs. cases

More beds, more cases than EU15 average

Less beds, more cases

Less beds, less cases

Source: WHO European health for all database (HFA-DB)
Length of stay vs. cases

More cases, longer LOS than EU15 average

Less cases, shorter LOS

More cases, shorter LOS

Source: WHO European health for all database (HFA-DB)
Agenda

a. Hospital landscape of Germany
b. DRGs in Germany
c. Issues and challenges and reforms
A DRG is a group of patients with similar clinical conditions which is treated with a comparable resource utilisation in terms of cost.

DRG-systems are medical-economic patient classification systems where a given patient is exactly assigned to one specific group.
### Timelines /purposes of introduction

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<td>Budgetary allocation</td>
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<td>Portugal</td>
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<td>Payment</td>
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</table>

Notes: The name of the DRG system used in countries is shown in **bold**, in brackets is the *origin of a national DRG system*: LKF= leistungsorientierte Krankenanstaltenfinanzierung; HRG= Healthcare Resource Groups; NordDRG= common DRG system of the nordic countries; HCFA= Health Care Financing Administration; GHM= Groupes Homogènes de Maladie; G-DRG= German-DRG; AR-DRG= Australian Refined-DRG; DBC= Diagnose Behandlung Combinaties; JGP= Jednorodne Grupy Pacjentów; AP-DRG= All Patient-DRG. * Between 1996 and 2004, DRGs had only a limited role for budget allocation.
Copied, further or self-developed?
Classification Example: Appendectomy

<table>
<thead>
<tr>
<th>Country</th>
<th>DRG (Diagnostic)</th>
<th>Partition</th>
<th>Procedure</th>
<th>Setting</th>
<th>Primary Diagnosis</th>
<th>Complications of Comorbidities (CC)</th>
<th>Age</th>
<th>Death</th>
<th>Length of stay (LOS)</th>
<th>DRG</th>
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<td>Austria (LKF 2008)</td>
<td>MEL06.01A</td>
<td>relevant procedure</td>
<td>appendectomy</td>
<td>&gt;69 years</td>
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<td>relevant procedure</td>
<td>appendectomy</td>
<td>&gt;18 years</td>
<td>with major cc</td>
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<td></td>
<td>F220B</td>
<td>digestive system procedure</td>
<td>appendectomy</td>
<td>without major cc</td>
<td>Without cc, With cc</td>
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<td>≤18 years</td>
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<td>surgery</td>
<td>appendectomy</td>
<td>complicated appendicitis (K35.0, K35.1 – ICD10)</td>
<td>with cc, without cc</td>
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<td>Germany (G-DRG V2008)</td>
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<td>adhesiolysis or other small intestinal surgery</td>
<td>complicated appendicitis (K35.0, K35.1 – ICD10)</td>
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Classification Example: Appendectomy
G-DRGs 2003-2014

- Early years: Major revisions to increase precision
- Later years: development has stabilized

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<td><strong>DRGs total</strong></td>
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<td>824</td>
<td>878</td>
<td>954</td>
<td>1137</td>
<td>1200</td>
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<td>578</td>
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<td>9</td>
<td>9</td>
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<td><strong>Inpatient DRGs total</strong></td>
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<td>824</td>
<td>878</td>
<td>952</td>
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<td>1154</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<td>1</td>
<td>4</td>
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<td><strong>R² all cases</strong></td>
<td>0.4556</td>
<td>0.5577</td>
<td>0.6388</td>
<td>0.6805</td>
<td>0.7209</td>
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<td><strong>R² inlier</strong></td>
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<td>0.8166</td>
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Actual hospital payment

Relative cost weight

Patient characteristics
Gender, Age, Diagnoses, Severity

Treatment options
Procedures, Technologies, Intensity

Base rate
Hospital individual until 2009; Uniform statewide from 2010

G-DRG payment

Payment example: Normal birth without cc in Berlin in 2010

Relative cost weight
0.541

Base rate
2927.5 €

Payment
1584 €
# Actual hospital payment II: details

The calculation of the G-DRG payment involves multiplying the relative cost weight by the base rate, adding the LOS adjustment, and then adding any supplementary fees.

\[
\text{G-DRG payment} = \text{Relative cost weight} \times \text{Base rate} + \text{LOS adjustment} + \text{Supplementary fees}
\]

### Year Range of cost weights: min.-max. (rounded) Supplementary fees

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<td>0.12-57.63</td>
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<td>115</td>
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<td>36</td>
<td>42</td>
<td>51</td>
<td>62</td>
<td>64</td>
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</table>
Hospital behaviour and strategy

- **Revenues/Costs**
  - Increase revenues/Volumes (right-/up-coding; negotiate extra payments)
  - Reduce costs (personnel, cheaper technologies)

- **Total cost**
- **DRG-based payment**
- **Length of stay (LoS)**
Agenda

a. Hospital landscape of Germany
b. DRGs in Germany
c. Issues, challenges and reforms
German hospital key figures development

- Cases per 100,000
- Beds per 100,000
- Length of stay
- Diseases of the musculoskeletal system and connective tissue
- Neoplasms
- CT-Scans
- MRI-Scans
- Musculoskeletal surgery
- Nervous system surgery

13 November 2014
International Association of Mutual Benefit Societies | Annual Conference
Cases vs. Hospital expenditure

Cases per 100 inhabitants

Hospital expenditure per capita
Cases and population

Hospital cases 2007 and 2011

Population 2007 and 2011

Age

Hospital cases 2007 and 2011

Population 2007 and 2011

Age
Increase of cases with LOS < 6 days

![Graph showing relative change of case numbers for different lengths of stay (LOS) with 0-23 hours and 24-47 hours as categories. The graph indicates a decrease in relative case numbers with increasing length of stay.]
Strongest increase in MDC 08 and 05

- MDC 08: Diseases and disorders of the musculoskeletal system and connective tissue
- MDC 18b: Infectious and parasitic diseases
- MDC 05: Diseases and disorders of the circulatory system

Relative change of case numbers vs. Absolute change of case numbers
Regional differences

Average annual change of case numbers
Demand for and supply of hospital services

Supply

Prices

Change of case numbers in hospitals

Mortality

Close to death: More admissions to hospital in order to safe lives

Morbidity

Morbidity change leads to change in number of cases

Population

Change of Population: More citizens – more cases

Age

Remaining impact of age

(Proxy for other determinants)

Not measurable, not age-related determinants

Getting neutralized, e.g. changed preferences or lifestyles of population
Demand: Morbidity, Mortality, Population

Change due to mortality
Change due to population
Change of case numbers
Change due to morbidity
Total demand factors

Relative change of case numbers

Age groups

13 November 2014
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Summary – demand side

• Variation of the population age structure seems to have the biggest effect on the demand side resulting in a slight increase of numbers.

• Age is after controlling for all other demand factors associated with case numbers but not linear increasing (maybe due to age-related treatment options) and distribution of age-effect between supply and demand remains unclear.

• Regional distribution shows that after controlling for other demand factors, increasing case numbers are clustered within regions

• Relatively and absolute strong growing MDCs have a below average influence on demand
Supply: LOS

![Graph showing the relative change of case numbers and ALOS]
Supply: DRG-weight

Relative change of DRG-weights

Relative change of case numbers
Summary - demand side

- A 1% change of DRG-weights leads to a 0.2% increase of case numbers, hospitals respond on price changes which is a usual economic reaction.

- A statement on the medical appropriateness of increasing numbers is not possible (yet)

- Infrastructural overcapacities might have a huge influence on increasing case numbers

- Effect of other revenue components (e.g. supplementary fees) can’t be estimated

- First evidence on supply behaviour of hospitals in the DRG-era in Germany, more research necessary
Implications and considerations for service steering

- Constant and representative peer group for calculation of cost weights
- More diagnosis orientation
- Mandatory and interdisciplinary medical second opinion for selected diagnoses
- More weight on reimbursement components for maintenance
- Reform of hospital planning and investment financing mechanisms
- Redefinition of budget overrun regulation
- More collaboration ambulatory and hospital sector -> overcome borders
- More evaluation and scientific competition -> better data
Implications and considerations for quality improvement

- Minimum quantities regulation
- Better measurement of indication quality
- More specification of structural quality
- Broader publication of quality data
- Quality agreements with hospitals during budget negotiation or hospital planning
- Early assessment of hospital services
- Pay-for-performance
## Possible P4P options in Germany

<table>
<thead>
<tr>
<th>Quality Type</th>
<th>Single case</th>
<th>All cases with same diagnosis/DRG</th>
<th>All cases within one hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indication Quality</strong></td>
<td>No payment if no indication</td>
<td>Deduction per DRG and share on case without indication; no payment if minimum quantity for specific treatments is not reached</td>
<td></td>
</tr>
<tr>
<td><strong>Structural Quality</strong></td>
<td>Unverified procedure codes are neglected by grouping algorithm</td>
<td>Certain DRGs are not billable if specific structures are not in place (e.g. Stroke Unit DRG)</td>
<td>Budget deduction if structural deviation from hospital plan</td>
</tr>
<tr>
<td><strong>Process Quality</strong></td>
<td>Hospital acquired infections are neglected by grouping algorithm</td>
<td>„Best practice“ DRG-weights if costs for better quality are proven to be higher</td>
<td></td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Payment rules for unplanned readmissions</td>
<td>Surcharge for significant above average quality</td>
<td></td>
</tr>
<tr>
<td><strong>Reporting of Quality</strong></td>
<td>No payment if quality data is not available</td>
<td>Deductions if quality data is not available for numerous cases</td>
<td>Base rate deduction if quality data is wrong or incomplete</td>
</tr>
</tbody>
</table>
# G-DRG-based hospital payment: Conclusion

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Weaknesses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency and improved documentation</td>
<td>No system to reward/penalize hospitals for quality</td>
</tr>
<tr>
<td>Fair (uniform) reimbursement</td>
<td>Minimal (only state-based) adjustment for different input prices</td>
</tr>
<tr>
<td>Precision of DRG system</td>
<td>Increasing complexity with number of DRGs</td>
</tr>
<tr>
<td>Precision of cost weight calculation</td>
<td>Uniform accounting system but no full sample of hospitals</td>
</tr>
<tr>
<td>Transparent methodology of developing and updating the system</td>
<td>Weak instruments to manage hospital volumes</td>
</tr>
</tbody>
</table>
Thank you!

Slides und more material available at:
www.mig.tu-berlin.de  AND  www.eurodrg.eu

Contact:
a.geissler@tu-berlin.de
+49 30 314 21020