Implementation of DRGs in Germany

Are there any effects on outcomes?

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Introduction: The G-DRG system

- 2003/2004 – Introduction as a patient classification system
- 2004 – 2011 – Implementation as payment mechanism

**Aims of DRG introduction in Germany**

- Facilitating a precise and transparent measurement of the case mix and the level of services delivered by hospitals
- Achieving a more appropriate and fair allocation of resources by utilising DRGs instead of per diem charges
- Increasing efficiency and quality of service delivery due to the improved documentation of internal processes and increased managerial capacity
- Cost containment based on LOS and bed capacity reduction
Experiences with DRGs in other countries

- experiences of countries which had DRGs in place before brought some fears and concerns...

- cream-skimming,
- „bloody discharges“; and
- shifts of activities and costs to the ambulatory sector

Different work environments for health professionals

Higher workloads for staff, especially nurses
Mandatory evaluation of effects

- Though not much empirical evidence of effects on outcomes available was available on parliamentary decision
- foreign experiences were taken into careful consideration

Need to scientifically evaluating the effects acknowledged from the beginning by putting a mandate into the law

- The first results were, however, only published in 2010 – and not in 2005 as stipulated
- According to the latest report (IGES 2011) the inpatient mortality (up to 365 days) significantly decreased from 2004 to 2008 (though patients are in worse conditions)
- Dissatisfaction decreased of staff
- It did not come to decreases in quality as feared
Additionally, various data sources in Germany tried to capture consequences:

- **Pflegethermometer**: Perceived nursing **staff shortage**
  → **increasing workloads**, extra hours and **deficits in patient care**
  → As well as **dissatisfaction** and **intent to leave** (Isfort et al. 2010)

- **ArbiK-study**: **Worsening collaboration** between nurses and physicians
  → distinct influence on **quality** (Schmidt et al. 2008)

- **NEXT-study**: a considerable amount of German hospital nurses is **emotionally exhausted**
  → which might lead to decreases in quality of care and dissatisfaction and burnout as a consequence of decreased work ability (Simon et al. 2005; Li et al. 2010).

- **WAMP**: DRGs indeed caused a perceived deterioration regarding the **general working conditions, satisfaction** and **motivation** (Braun et al. 2011)

- **REDia**: considerable changes in the length of stay of patients in acute hospitals as well as deteriorated conditions at admission to rehabilitation (Eiff et al. 2011)

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**Note:** not longitudinal, restricted to certain types of hospitals, not take account of the working conditions and the quality of care of all labour groups
to contribute to current discussion on the potential influence of the DRGs; data of IHOS and RN4CAST were analyzed
## Baseline data

<table>
<thead>
<tr>
<th></th>
<th>IHOS 1998/99</th>
<th>RN4CAST 2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of respondents N</td>
<td>2,681</td>
<td>1,511</td>
</tr>
<tr>
<td>Male</td>
<td>15,4%</td>
<td>10,7%</td>
</tr>
<tr>
<td>Nurses with professional</td>
<td>55,6%</td>
<td>68,6%</td>
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<tr>
<td>experience over 10 years</td>
<td></td>
<td></td>
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<tr>
<td>Part time</td>
<td>28,2%</td>
<td>33,9%</td>
</tr>
<tr>
<td>General medical ward</td>
<td>43,9%</td>
<td>49,7%</td>
</tr>
<tr>
<td>Surgical ward or others</td>
<td>43,8%</td>
<td>47,7%</td>
</tr>
<tr>
<td>Mixed wards</td>
<td>12,3%</td>
<td>2,6%</td>
</tr>
<tr>
<td>Number of hospitals</td>
<td>29</td>
<td>49</td>
</tr>
<tr>
<td>Public</td>
<td>59%</td>
<td>41%</td>
</tr>
<tr>
<td>Non-profit</td>
<td>34%</td>
<td>57%</td>
</tr>
<tr>
<td>Privat</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td>Avarage numbers of beds</td>
<td>387</td>
<td>585</td>
</tr>
</tbody>
</table>
Objective

Aim

**Step 1:** Did the changes over the 10-year period in German acute hospitals have measurable effects on the nurse work environment?

**Step 2:** Are there perceived effects on the quality of patient care and safety?

**Step 3:** Did the effects from (1) and (2) – if any – have measurable impact on the nurses themselves in terms of Dissatisfaction and Burnout?
## Structural and process parameters in German acute and psychiatric hospitals, 1999 and 2009

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital beds (x 1,000)</td>
<td>565.3</td>
<td>503.3</td>
<td>-11%</td>
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<tr>
<td>Patient days per nurse</td>
<td>408</td>
<td>355</td>
<td>-13%</td>
</tr>
<tr>
<td>Ratio nurses : physicians</td>
<td>3.4 : 1</td>
<td>2.8 : 1</td>
<td>-19%</td>
</tr>
<tr>
<td>Average length of stay (days)</td>
<td>9.9</td>
<td>8.0</td>
<td>-19%</td>
</tr>
<tr>
<td>Patient days (x 1,000,000)</td>
<td>169.7</td>
<td>142.4</td>
<td>-16%</td>
</tr>
<tr>
<td>Patient days per physician</td>
<td>1407</td>
<td>989</td>
<td>-30%</td>
</tr>
<tr>
<td>Patient admissions per physician</td>
<td>141.7</td>
<td>123.8</td>
<td>-13%</td>
</tr>
<tr>
<td>Nurses (x 1,000)</td>
<td>415.9</td>
<td>401.6</td>
<td>-3%</td>
</tr>
<tr>
<td>Physicians (x 1,000)</td>
<td>120.6</td>
<td>144.0</td>
<td>+19%</td>
</tr>
<tr>
<td>Patient admissions per nurse</td>
<td>41.1</td>
<td>44.4</td>
<td>+8%</td>
</tr>
<tr>
<td>Patient admissions (x 1,000,000)</td>
<td>17.1</td>
<td>17.8</td>
<td>+4%</td>
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<tr>
<td>Patient admissions per bed</td>
<td>30.2</td>
<td>35.4</td>
<td>+17%</td>
</tr>
<tr>
<td>Country</td>
<td>Study</td>
<td>Activity</td>
<td>ALoS</td>
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<td>--------------------------------------------</td>
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<td>Sweden, early 1990s</td>
<td>Anell, 2005</td>
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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>
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<td></td>
<td>Ettelt et al., 2006</td>
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<td>Spain, 1996</td>
<td>Ellis/Vidal-Fernández, 2007</td>
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<tr>
<td>Norway, 1997</td>
<td>Biørn et al., 2003</td>
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<td></td>
<td>Kjerstad, 2003</td>
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<td>Hagen et al., 2006</td>
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<td>Magnussen et al., 2007</td>
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<td>Austria, 1997</td>
<td>Theurl and Winner, 2007</td>
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<td>Denmark, 2002</td>
<td>Street et al., 2007</td>
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<td>Germany, 2003</td>
<td>Böcking et al., 2005</td>
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<td></td>
<td>Schreyögg et al., 2005</td>
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<td></td>
<td>Hensen et al., 2008</td>
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<tr>
<td>England, 2003/4</td>
<td>Farrar et al., 2007</td>
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<td>Audit Commission, 2008</td>
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<td></td>
<td>Farrar et al., 2009</td>
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<tr>
<td>France, 2004/5</td>
<td>Or, 2009</td>
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</table>
Step 1: Changes over the 10-year time span on **practice environment** were tested first.
Working environment

- Adequacy of nursing staff: 37% (1998/99) vs. 18% (2009/10), OR: .405***
- Collaboration between nurses: 72% vs. 61%, OR: .648***
- Working climate: 83% vs. 63%, OR: .365***
- Participation in hospital affairs: 65% vs. 54%, OR: .583***
- The administration supports their staff: 45% vs. 42%, OR: .977
- Patient documentation is continuously updated: 66% vs. 63%, OR: .782**

✓ deteriorated significantly
Step 1: Did the changes over the 10-year period in German acute hospitals have measurable effects on the *nurse work environment*? √

Step 2: Are there perceived effects on the *quality of patient care and safety*?

Step 3: Did the effects from (1) and (2) – if any – have measurable impact on the *nurses* themselves in terms of Dissatisfaction and Burnout?
Step 2: Potential effects on perceived quality on wards were tested next:

- **Quality and Safety**
  - Quality patient care
  - Quality improved within the last year
  - Patient safety on ward
  - Psychosocial attention
  - Patient’s ability to manage care after discharge
Quality of care and patient safety

√ deteriorated significantly
(except patient safety, which increased)
Prioritizing tasks

Tasks left undone in most recent shift (due to lacking time etc.)?

- **Comfort/talk with patients**: 81.5%
- **Develop or update nursing care plans**: 53.9%
- **Educating patients and family**: 53.7%
- **Planning care**: 42.7%
- **Adequately document**: 39.5%
- **Adequate patient surveillance**: 37.3%
- **Oral hygiene**: 29.4%
- **Skincare**: 27.9%
- **Prepare patients and families for discharge**: 23.8%
- **Frequent changing of patient position**: 22.0%
- **Administer medications on time**: 20.6%
- **Pain management**: 19.4%
- **Treatment/Procedures**: 14.8%

Results suggest that nurses seem to compensate (perceived) decreases in quality of care by prioritising „necessary“ tasks (e.g. procedures, pain management, skin care) over tasks which can be delayed (e.g. talks with patients, educating them or their families) without negative immediate impact on patients' safety.
Protective Factors - What influences quality and safety:

*Quality of care on wards*: adequate staffing, written, up-to-date patient care plans, good collaboration and a supportive management (2009/10).

*Quality improvement within the last year*: adequate staffing, a supportive management and up-to-date patient care plans were again most strongly and significantly associated with quality improvements.

*Patient safety on the ward*: adequate staffing, up-to-date patient care plans, supportive management and good working relationships.

*Lack of psychosocial attention*: adequate staffing was yet again the most protective factor, followed to a lesser extent by a supportive management.

Manage care when discharged: all have significant influence on the confidence that patients can manage (except for participation in hospital affairs).
Step 1: Did the changes over the 10-year period in German acute hospitals have measurable effects on the **nurse work environment**?

√

Step 2: Are there perceived effects on the **quality of patient care and safety**?

√

Step 3: Did the effects from (1) and (2) – if any – have measurable impact on the **nurses** themselves in terms of Dissatisfaction and Burnout?
Step 3: Are there effects on satisfaction and emotional exhaustion?
What is influencing?

**Satisfaction with current job:**
- almost all tested explanatory variables from the first and second step regressions are protective (mostly significant) factors with distinct influence of
  - staffing, working climate, supportive management, recognition, good quality and patient safety

**Emotional Exhaustion:**
- the working environment did not influence
- only the factors from the second step impacted significantly on the emotional exhaustion
- also nurses working in part time models are – different from satisfaction – less likely to be affected by emotional exhaustion.
- praise and recognition for the nursing work – either from physicians or patients – have great impact on the motivation and helps preventing emotional exhaustion and dissatisfaction
Conclusions I

How much of the effects found can be explained through the introduction of DRGs?

- demonstrates significant changes in the practice environment, the quality of care as well as the satisfaction and emotional exhaustion of nurses in the 10-year period
- the design of our study does not allow attributing these changes to the DRG introduction directly (no DRG-related questions // 2 cross-sectional surveys)

By comparing our results with WAMP allows us to draw some conclusions regarding DRGs as a considerable cause for following observed changes (found in both studies!):

- Situation worsened more on medical than surgical wards
- Poor staffing situation → caution: DRGs cannot blamed solely
- Perceived decrease in quality // Poor discharge management
- Deteriorating collaboration
- Importance of Supportive nurse management
- Prioritizing nursing tasks
- Documentation effort → also positive outcome of DRG introduction
- Decreased satisfaction
Conclusions II

Working environment!

„Business“ culture!

Respect

Collaborations

Recognition
• Enhancing the nurse-to-patient ratio is **not a feasible short-term-task, different than the nurse work environment in hospitals!**

→ Therefore, in order to prevent nurses from leaving due to dissatisfaction or burnout and also to create an environment which supports the delivery of good quality, the introduction of a „**business culture**“ in hospitals based on respect, fruitful relationships between nurses and physicians and recognition of the work could magnetically affect nurse and patient outcomes
The introduction of DRG funding and hospital nurses’ changing perceptions of their practice environment, quality of care and satisfaction: Comparison of cross-sectional surveys over a 10-year period

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ABSTRACT

Background: As other countries which have introduced diagnosis-related groups (DRGs) to pay their hospitals, Germany initially expected that quality of care could deteriorate. Less discussed were potential implications for nurses, who might feel the efficiency-increasing effects of DRGs on their daily work, which in turn may lead to an actual worsening of care quality.

Objective: To analyze whether the DRG implementation in German acute hospitals (as well as other changes over the 10-year period) had measurable effects on (1) the nurse work environment (including e.g. an adequate number of nursing staff to provide quality patient care), (2) quality of patient care and safety (incl. confidence into patients’ ability to manage care when discharged), and (3) whether the effects from (1) and (2) – if any – impacted on the nurses themselves (satisfaction with their current job and their choice of profession as well as emotional exhaustion).
Thank you!

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