Measuring, reporting and using quality information in Germany

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Agenda

• Current challenges in Germany

• Perspectives on quality

• Quality initiatives in Germany
  – Measuring
  – Reporting

• What do patients seek and want?
German hospital key figures

Internationally increasing overcapacities...

Source: WHO/Europe, European HFA Database, July 2016
...comparatively high number of hospital cases

Source: WHO/Europe, European HFA Database, July 2016
...comparatively high number of hospital cases

Source: WHO/Europe, European HFA Database, July 2016
Hospital personnel

![Graph showing the ratio of physicians to nurses and midwives per 1,000 cases.]

Werte für die USA von 2010, Japan 2011, Niederlande, Schweiz und Slowakei 2012

Quelle: eigene Darstellung, basierend auf OECD Health Statistics 2016: Datasets: Health Care Resources – Hospital Employment, Health Care Utilisation – Hospital discharges by diagnostic categories (all causes)

International comparison AMI

Mortality following acute myocardial infarction (AMI)

6.17. Thirty-day mortality after admission to hospital for AMI based on unlinked data, 2010 and 2015 (or nearest years)

Note: 95% confidence intervals have been calculated for all countries, represented by grey areas.

1. Three-year average.

Perspectives on quality

Activities of Initiatives

Dimensions of Quality

Quality Measures

Improving

Measuring

Palliative Care

Chronic Care

Safety

Acute Care

Effectiveness

Preventive Care

Reporting

Areas of Care
Measuring quality in Germany
-> The national statutory system

- Alongside with major payment reform, introduction of a national statutory quality assurance system in 2004
- Self-reported and separately collected quality indicators at hospital- and medical department-level
- 25 tracer diagnoses and procedures (groups of indicators)
- 238 Indicators, 68 risk-adjusted
- Clinical data for the inpatient episode (structure, process, outcome)
- 2.5 Mio datasets from 1544 acute hospitals (13% of cases) in 2016
- Peer review in case of irregularities
Number of indicators (2011-2016)

<table>
<thead>
<tr>
<th>Year</th>
<th>Obligatory Reporting</th>
<th>Non-obligatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJ 2011</td>
<td>n = 208 (53.3%)</td>
<td>n = 182 (46.7%)</td>
</tr>
<tr>
<td>EJ 2012</td>
<td>n = 289 (62.3%)</td>
<td>n = 175 (37.7%)</td>
</tr>
<tr>
<td>EJ 2013</td>
<td>n = 295 (68.0%)</td>
<td>n = 139 (32.0%)</td>
</tr>
<tr>
<td>EJ 2014</td>
<td>n = 279 (67.1%)</td>
<td>n = 137 (32.9%)</td>
</tr>
<tr>
<td>EJ 2015</td>
<td>n = 233 (66.4%)</td>
<td>n = 118 (33.6%)</td>
</tr>
<tr>
<td>EJ 2016</td>
<td>n = 216 (90.8%)</td>
<td>n = 22 (9.2%)</td>
</tr>
</tbody>
</table>
Type of indicators

Focus on acute care and procedures

Focus on process indicators

Abb. 5 Schematische Darstellung der Krankheitsbilder/Prozeduren der Ext. Qualitätssicherung nach § 137a SGB V für 2013 entsprechend der Merkmale akut vs. chronisch, operativ vs. konservativ. TX Transplantation, GH Geburtshilfe, TEP Totalendoprothetik, CAP Ambulant erworbene Pneumonie, in Klammern: Zahl der Krankheitsbilder (www.zqe.de)

Abb. 6 Indikatoren und Indikatorengruppen der Ext. Qualitätssicherung nach § 137a SGB V entsprechend der Merkmale akut vs. chronisch und operativ vs. konservativ

Schrappe M (2015): Qualität 2030
Example: timely treatment of hip fracture

*QI-ID 54030: Preoperative length of stay for osteosynthesis treatment of a femur fracture*

- **Tracer:** Osteosynthesis treatment of a femur fracture (9 Indicators)
- **Aim:** Patients should be treated as fast as possible but at least within 24 hours after fracture
- **Reason:** Delayed treatment leads to high risk of immobility and lower survival rates
- **Quality target:** at least 85% of patients
Example: timely treatment of hip fracture -> results for ~60,000 cases in 1212 hospitals in 2016

Hospitals with more than 20 cases

Median: 17 %

Hospitals with less than 20 cases

Median: 25 %
# Overview of data available for research

<table>
<thead>
<tr>
<th></th>
<th>Quality Monitoring System</th>
<th>Hospital billing data (DRG Statistics)</th>
<th>Health insurance data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Clinical</td>
<td>Administrative</td>
<td>Administrative</td>
</tr>
<tr>
<td><strong>Scope</strong></td>
<td>In-patient</td>
<td>In-patient</td>
<td>In- and outpatient</td>
</tr>
<tr>
<td><strong>Patient groups</strong></td>
<td>Selected patient groups (tracer)</td>
<td>All in-patients</td>
<td>All patients of specific insurance</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td>Hospital</td>
<td>Patient</td>
<td>Patient</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Structure</em></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><em>Process</em></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><em>Outcome</em></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><em>Indication</em></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Public Access</strong></td>
<td>Yes (upon request)</td>
<td>Yes (upon request)</td>
<td>No</td>
</tr>
</tbody>
</table>
Scientific use -> Variation in quality

Scientific use -> Variation in quality

Public reporting

- Major platform: *Weisse Liste.de*
- Based on a public mandate; managed by the Bertelsmann foundation
- Provides access to searchable and user-friendly hospital data from the national statutory quality assurance system
- Patient Experience Questionnaire (PEQ) results are integrated
- With medical and geographical input, users can benchmark hospitals on structural data and quality indicators at a medical condition level
- All major sickness funds run individual transparency portals, such as the *TK Klinikführer* (hospital guide), or adapted versions of the WeLi portal.
- These portals publish data from the mandatory quality assurance system, with the *AOK-Krankenhausnavigator* supplemented by QSR results for 8 conditions and selected registry hospital participation information
Finden Sie das passende Krankenhaus
2.000 Krankenhäuser mit 900.000 Bewertungen

Krankheit / Behandlung / Krankenhausname
Operatives Einsetzen eines künstlichen Hüftgelenks
Ort oder Postleitzahl
10115 Berlin (Mitte)
Umkreis
50 km
Krankenhaus suchen

Sicher
Alle Daten geschützt vor Manipulationen.

Informativ
Methodik und Ergebnisse wissenschaftlich fundiert.

Selbstständig
Kosten nie übererfragt. Kein kommerzielles Interesse.

Die Schirmherrschaft

Die Bevollmächtigte der Bundesregierung für Patienten und Pfleger ist die Schirmherrin der Weissen Liste. Sie unterstützt den Ansatz der Weissen Liste, Bürgern im Gesundheitswesen Orientierung zu bieten und fundierte Wahlentscheidungen für Leistungsanbieter zu ermöglichen.

Zum Internetauftritt der Patientenbeauftragten

Elective hip replacement

Berlin
Size of circles: case volume
Color of circles: Recommendation rate
Number of cases

Patient experiences

Recommendation rate

Quality measures
Quality measures details:
- Outcomes
- Process
- Indication
What do patients seek and want?

- Public reporting provides structural, process and outcome information to facilitate hospital choice and strengthen quality competition

- Patients rarely use this information in their decision-making, due to limited awareness of the data and complex and conflicting information

- Almost no study has analyzed how users behave on public reporting portals, therefore we analyze:
  - Regional variations in public reporting usage
  - Usage frequency and intensity of different portal sections
  - If supplied information matches patient demand
  - Key user groups, their characteristics and usage patterns
Analysis of weisse-liste.de user behavior

• Web-usage mining techniques on server log data of 56 million user actions from 2013–2015 from Germany’s premier provider transparency portal weisse-liste.de

• Postal code and ICD search requests facilitate identification of geographical and treatment area usage patterns

• User clustering based on parameters like session length, referrer and page topic visited

• First-level markov chains illustrate common click paths and premature exits
Descriptive figures

In 2015, the *wl.de* had 2,750 daily users, with 25% mobile traffic, a bounce rate of 38% and only 48% actually examining hospital quality information.

From 2013 to 2015, user traffic grew at 38% annually.

On average users spent 7 minutes on the portal, with 7.4 clicks and 54 seconds between clicks.

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique visits per day</td>
<td>1,445</td>
<td>2,122</td>
<td>2,753</td>
</tr>
<tr>
<td>Growth p.a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visits per 1,000 hospital admissions</td>
<td>28</td>
<td>40</td>
<td>52</td>
</tr>
<tr>
<td>Clicks per visit</td>
<td>10.8</td>
<td>8.4</td>
<td>7.4</td>
</tr>
<tr>
<td>Time in sec per visit</td>
<td>566</td>
<td>456</td>
<td>399</td>
</tr>
<tr>
<td>Time in sec per click</td>
<td>52</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td><strong>Bounce visits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Successful visits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mobile visits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Google search engine referrer</strong></td>
<td>23%</td>
<td>42%</td>
<td>38%</td>
</tr>
<tr>
<td><strong>Google AdWords referrer</strong></td>
<td>0%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Direct entry</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **Note**: The number of visits per 1,000 hospital admissions in 2015 may be higher due to the increasing popularity and use of the service.
Heatmap

results list
1.101.711
118 Sek.

detailed results view
565.923
140 Sek.

1. website element/topic
2. Number of clicks
3. Average time on topic area

size of rectangle = number of clicks per website element

Median Seconds per Click

- enter hospital search
  408.317
  39 Sek.

- start hospital search
  339.813
  42 Sek.

- search via body parts
  201.680
  61 Sek.

- gateway WL.de
  158.042
  12 Sek.

- diagnosis translator
  82.851
  81 Sek.

- search assistant
  41.776
  91 Sek.

- benchmarking view
  36.337
  169 Sek.

- news
  17.838
  25 Sek.

- select post code
  22.876
  13 Sek.

- background information
  20.129
  43 Sek.

- other
  14.991
  43 Sek.
Regional user patterns

Demand vs. Supply of information

Information for several requested oncologic and orthopedic conditions is not available

<table>
<thead>
<tr>
<th>Medical condition</th>
<th>ICD code</th>
<th>number searches</th>
<th>Weigh. Score</th>
<th>diagnoses, in 2014</th>
<th>ranking (searches)</th>
<th>quality indicators available</th>
</tr>
</thead>
<tbody>
<tr>
<td>osteoarthritis of hip</td>
<td>M16</td>
<td>52,575</td>
<td>0.31</td>
<td>167,500</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>osteoarthritis of knee</td>
<td>M17</td>
<td>49,460</td>
<td>0.27</td>
<td>185,399</td>
<td>2</td>
<td>✓</td>
</tr>
<tr>
<td>malignant neoplasm of prostate</td>
<td>C61</td>
<td>15,720</td>
<td>0.23</td>
<td>68,522</td>
<td>5</td>
<td>✗</td>
</tr>
<tr>
<td>full-term uncomplicated delivery</td>
<td>O80</td>
<td>19,769</td>
<td>0.22</td>
<td>91,860</td>
<td>3</td>
<td>✓</td>
</tr>
<tr>
<td>cervical disc disorders</td>
<td>M50</td>
<td>5,953</td>
<td>0.20</td>
<td>29,894</td>
<td>26</td>
<td>✗</td>
</tr>
<tr>
<td>Internal derangement of knee</td>
<td>M23</td>
<td>17,525</td>
<td>0.18</td>
<td>97,990</td>
<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>benign prostatic hyperplasia</td>
<td>N40</td>
<td>9,349</td>
<td>0.16</td>
<td>57,947</td>
<td>12</td>
<td>✗</td>
</tr>
<tr>
<td>malignant neoplasm of esophagus</td>
<td>C15</td>
<td>3,661</td>
<td>0.12</td>
<td>29,504</td>
<td>41</td>
<td>✗</td>
</tr>
<tr>
<td>aortic aneurysm and dissection</td>
<td>I71</td>
<td>3,639</td>
<td>0.12</td>
<td>29,451</td>
<td>42</td>
<td>✓</td>
</tr>
<tr>
<td>malignant neoplasm of breast</td>
<td>C50</td>
<td>15,091</td>
<td>0.11</td>
<td>132,926</td>
<td>7</td>
<td>✓</td>
</tr>
<tr>
<td>malignant neoplasm of kidney</td>
<td>C64</td>
<td>2,416</td>
<td>0.10</td>
<td>23,140</td>
<td>59</td>
<td>✓</td>
</tr>
<tr>
<td>malignant neoplasm of colon</td>
<td>C18</td>
<td>8,206</td>
<td>0.10</td>
<td>81,421</td>
<td>15</td>
<td>✗</td>
</tr>
<tr>
<td>other intervertebral disc disorders</td>
<td>M51</td>
<td>15,118</td>
<td>0.10</td>
<td>156,893</td>
<td>6</td>
<td>✗</td>
</tr>
<tr>
<td>acquired deformities of fingers, toes</td>
<td>M20</td>
<td>5,512</td>
<td>0.10</td>
<td>57,542</td>
<td>28</td>
<td>✗</td>
</tr>
<tr>
<td>malignant melanoma of skin</td>
<td>C43</td>
<td>2,307</td>
<td>0.10</td>
<td>24,148</td>
<td>64</td>
<td>✗</td>
</tr>
<tr>
<td>malignant neoplasm of rectum</td>
<td>C20</td>
<td>5,828</td>
<td>0.09</td>
<td>61,420</td>
<td>27</td>
<td>✗</td>
</tr>
<tr>
<td>malignant neoplasm of ovary</td>
<td>C56</td>
<td>2,501</td>
<td>0.09</td>
<td>26,605</td>
<td>58</td>
<td>✓</td>
</tr>
<tr>
<td>malignant neoplasm of pancreas</td>
<td>C25</td>
<td>4,566</td>
<td>0.09</td>
<td>48,645</td>
<td>36</td>
<td>✓</td>
</tr>
<tr>
<td>malignant neoplasm of liver</td>
<td>C22</td>
<td>2,630</td>
<td>0.09</td>
<td>29,218</td>
<td>53</td>
<td>✗</td>
</tr>
<tr>
<td>major depressive disorder,1 episode</td>
<td>F32</td>
<td>11,234</td>
<td>0.09</td>
<td>125,623</td>
<td>10</td>
<td>✗</td>
</tr>
</tbody>
</table>

Note: 1. Number of searches weighted by diagnosis incidence in 2014

User survey on weisse-liste.de

Relevance of information for users (n=595)

- Hygiene: 514 Not important, 440 Less important, 431 Important, 219 Most important
- Personal: 130 Not important, 118 Less important, 83 Important, 41 Most important
- Medizinische Ergebnisqualität: 83 Not important, 118 Less important, 310 Important, 227 Most important
- Apparative Ausstattung: 219 Not important, 209 Less important, 195 Important, 11 Most important
- Patientenerfahrungen: 321 Not important, 333 Less important, 333 Important, 150 Most important
- Zertifizierte Fachzentren: 280 Not important, 176 Less important, 334 Important, 262 Most important
- Behandlungsfallzahlen: 211 Not important, 211 Less important, 211 Important, 211 Most important
- Angaben zu Mindestmengen: 262 Not important, 176 Less important, 334 Important, 204 Most important
- Nicht-medizinische Aspekte: 36 Not important, 121 Less important, 121 Important, 45 Most important
- Gesamtbewertung: 45 Not important, 121 Less important, 121 Important, 204 Most important

User survey on weisse-liste.de

Question: Did you perform a regional search?

<table>
<thead>
<tr>
<th></th>
<th>15-44</th>
<th>45-65</th>
<th>65 and older</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>67,1 % (106)</td>
<td>46,0 % (139)</td>
<td>50,8 % (65)</td>
<td>52,7 % (310)</td>
</tr>
<tr>
<td>No</td>
<td>32,9 % (52)</td>
<td>54,0 % (163)</td>
<td>49,2 % (63)</td>
<td>47,3 % (278)</td>
</tr>
<tr>
<td>total</td>
<td>100 % (158)</td>
<td>100 % (302)</td>
<td>100 % (128)</td>
<td>100 % (588)</td>
</tr>
</tbody>
</table>

Question: What travel time for a really good hospital is acceptable?

<table>
<thead>
<tr>
<th></th>
<th>15-44</th>
<th>45-65</th>
<th>65 and older</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis zu 30 min</td>
<td>22,2 % (26)</td>
<td>6,7 % (17)</td>
<td>9,8 % (12)</td>
<td>11,2 % (55)</td>
</tr>
<tr>
<td>Bis zu 60 min</td>
<td>32,5 % (38)</td>
<td>29,2 % (74)</td>
<td>34,4 % (42)</td>
<td>31,3 % (154)</td>
</tr>
<tr>
<td>Bis zu 120 min</td>
<td>17,9 % (21)</td>
<td>21,3 % (54)</td>
<td>19,7 % (24)</td>
<td>20,1 % (99)</td>
</tr>
<tr>
<td>Längere Reise, evtl. mit Hotel</td>
<td>27,4 % (32)</td>
<td>42,7 % (108)</td>
<td>36,1 % (44)</td>
<td>37,4 % (184)</td>
</tr>
<tr>
<td>total</td>
<td>100 % (117)</td>
<td>100 % (253)</td>
<td>100 % (122)</td>
<td>100 % (492)</td>
</tr>
</tbody>
</table>

Conclusion

• Germany takes huge effort to measure and publish quality data

• Public reporting needs to be oriented on the interests of its users, with more outcome quality information for oncology and orthopedics

• Customized reporting can address different needs and skill levels of professional and non-professional users

• Search engine optimization and hospital quality advocacy can increase website traffic

• Hospital landscape needs to be quality-oriented re-designed; offering services at the most appropriate facilities
Many thanks!

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+49 30 314 21020