Patient Classification
A Comparison between Countries

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Euro DRG

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## Outline

1. Introduction
2. Grouping Process
3. Major Diagnostic Categories
4. Split Variables
5. Trends and Harmonization
Patient Classification System

Description

- instrument to divide patients into a manageable number of homogenous groups
- used to describe hospital products
- used for benchmarking or financial aspects
Background

- the most widespread PCS in Europe
- grouping according to
  - principal diagnosis
  - procedures
  - age
  - comorbidities and complications (CC)
## EuroDRG

Countries represented in this research project either use

- a foreign DRG-system without / only minor changes
  - Ireland (AR-DRG), Poland (JGP), Spain and Portugal (AP-DRG)
- a foreign DRG-system with major own developments
  - France (GHM), Germany (G-DRG), Estonia, Finland and Sweden (NordDRG)
- self-developed PCSs
  - Austria (LKF), England (HRG), the Netherlands (DBC)
Historical Development

Figure based on Schreyögg et al. (2006) & http://www.fischer-zim.ch/textk-pcs/index.htm
# Diagnosis-Related Groups (DRG)

## General Description

All adopted DRGs have a *similar* general structure:

1. **Allocation to a Major Diagnostic Category (MDC)**
2. **Partition by type of treatment**
   - operation room / surgical partition
   - medical partition
   - other partition
3. **Split by procedures, age, secondary diagnoses**
HRG and LKF

Description

- procedures as primary grouping criteria
- diagnoses as secondary grouping criteria
- two partitions
  - procedure-driven partition (significant procedures)
  - diagnosis-driven partition (no significant procedures)
- further grouping
- no MDCs
MDC Comparison

Comments

- mutually exclusive categories (approx. 24-28)
- MDCs correspond to single organ system or etiology
- Chapters correspond to medical specialties
- *similar* structure in all countries
## Graphical Representation

| Pre-MDC                  | Nervous System                  | Eye              | Ear, Nose, Mouth And Throat | Respiratory System | Circulatory System | Vascular Diseases (JGP) | Digestive System | Hepatobiliary System And Pancreas | Musculoskeletal System And Connective Tissue | Skin, Subcutaneous Tissue And Breast | Breast Problem (NordDRG) | Burns | Endocrine, Nutritional And Metabolic System | Kidney And Urinary Tract | Male Reproductive System | Female Reproductive System | Pregnancy, Childbirth And Puerperium | Newborn And Other Neonates (Perinatal Period) | Blood and Blood Forming Organs and Immunological Disorders | Myeloproliferative Ds (Poorly Differentiated Neoplasms) | Infectious and Parastic Ds | Human Immunodeficiency Virus Infection | Mental Diseases and Disorders | Alcohol/Drug Use or Induced Mental Disorders | Injuries, Poison And Toxic Effect of Drugs | Multiple Significant Trauma | Factors Influencing Health Status | Other | Error |
|--------------------------|--------------------------------|------------------|-----------------------------|--------------------|-------------------|----------------------|------------------------|-------------------------------------|------------------------------------------|----------------------------------------|-------------------------|---------------------------------|-----------------------------------|---------------------------------|--------------------------------|-------------------------|-------------------------|----------------|-----------------|
|                          |                                |                  |                             |                    |                  |                      |                        |                                     |                                          |                                        |                         |                                 |                                   |                                 |                               |                          |                         |                  |
| AP-DRG                   | AR-DRG                         | G-DRG            | GHM                         | HRG                | JGP               | LKF                  | NordDRG                |                                     |                                          |                                        |                         |                                 |                                   |                                 |                               |                          |                         |                  |
|                          |                                |                  |                             |                    |                  |                      |                        |                                     |                                          |                                        |                         |                                 |                                   |                                 |                               |                          |                         |                  |

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Characteristics used:

- diagnoses
- procedures
- age
- length of stay
- type of discharge
- mechanical ventilation
- weight of newborn
- ...

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Patient Classification
### How split variables are applied (example)

<table>
<thead>
<tr>
<th><strong>AR-DRG and G-DRG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Patient Clinical Complexity Level (PCCL) defined for each BaseDRG</td>
</tr>
<tr>
<td>- PCCL (5 levels) is calculated as the cumulative effect of all secondary diagnoses</td>
</tr>
<tr>
<td>- max. 4 DRGs per BaseDRG in AR-DRG</td>
</tr>
<tr>
<td>- no limit in G-DRG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HRG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- 3 levels of severity defined on (sub)chapter level</td>
</tr>
<tr>
<td>- level corresponds to the most severe complication</td>
</tr>
<tr>
<td>- max. 3 HRGs</td>
</tr>
</tbody>
</table>
### How split variables are applied (example)

#### GHM
- 4 levels of severity
- Age has systematic impact
- > 79 years: increases all levels by one
- > 69 years: increases only levels 1 and 2 by one
- < 2 years: increases level 1 by one

#### Other DRG-systems
- No systematic impact in most systems
- LKF: some groups split by age (e.g. >14, >64)
- NordDRG (Sweden): possible age splits at 18
Trends

Observations

- inclusion of medical innovations
- refinement of severity levels (e.g. GHM, HRG)
- extension of coverage (e.g. outpatients, ambulatory care, mental health care, long-term care)
- most obvious: nr. of groups is increasing
Graphical Representation

Year

LKF
GHM
AR-DRG (Ireland)
AP-DRG (Spain)
HRG
G-DRG
JGP
NordDRG

We have seen that ...

- information used is *similar* across countries
- how information is applied differs
- despite all developments, general structure (on MDC level) unchanged
- differences in coding of diagnoses and procedures
Chances for Harmonization

Diagnoses

- standard: International Statistical Classification of Diseases and Related Health Problems (ICD)
- most countries use ICD-10, with country specific modification
- different coding standards exist
- Spain and Portugal still use ICD-9
Chances for Harmonization

Procedures

- no general standard exist
- most countries have developed an own catalogue of procedures
- major differences in granularity
- LKF (Austria) 1.500 items
- G-DRG (Germany) 30.000 items
Chances for Harmonization

possible steps towards a common European DRG-system

1. harmonization of coding (e.g. diagnosis, procedures)
   - mapping (as a first step)
2. common European discharge dataset
3. limited coverage
Thank you for your Attention!