

DRGs in Europe and beyond: Are we moving in the same direction?

Conrad Kobel¹, Wilm Quentin², Josselin Thuilliez³

¹ Innsbruck Medical University, Innsbruck, Austria; ² Berlin University of Technology, Berlin, Germany; ³ CNRS-University Paris 1, Paris, France

Introduction

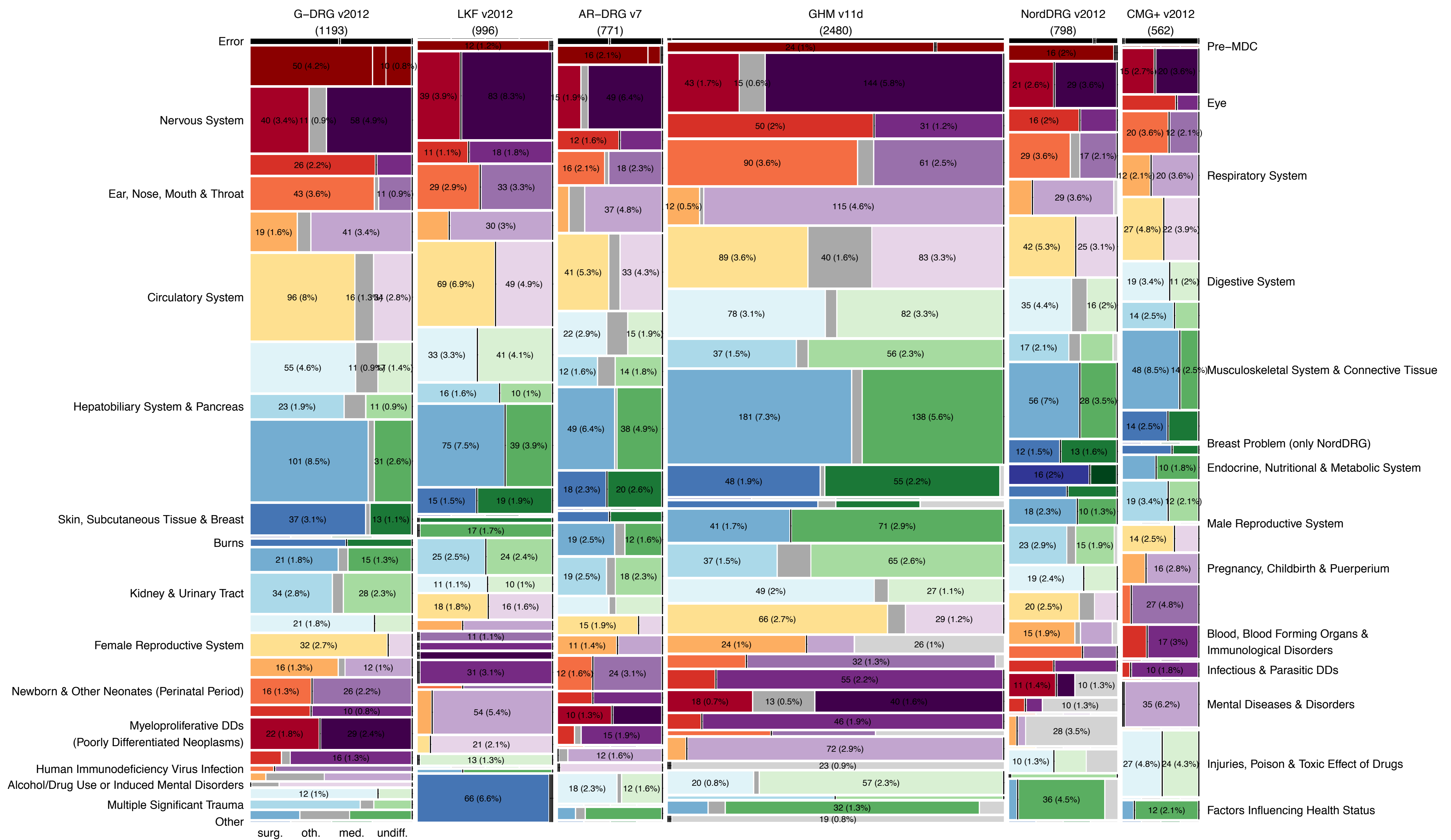
Case-based hospital financing systems have been adopted in an increasingly large number of countries around the world. They are built around patient classification systems – i.e. Diagnosis-related group (DRG) systems – which classify hospital cases into DRGs on the basis of classification variables such as diagnoses, treatments and demographic characteristics. DRGs condense the confusingly large number of different (individual) patients treated in hospitals into a manageable number of (a) clinically meaningful and (b) economically homogenous groups.

In all systems, DRGs are organised into Major Diagnostic Categories (MDCs or similar categories), and a distinction is made between surgical and medical cases, which are separated into different partitions. In addition, most systems attempt to distinguish between patients with different levels of complexity or severity by further subdividing (splitting) DRGs. However, the specific design features of different countries' systems as well as the dynamics of change remain relatively poorly understood. Therefore, this study aimed to do both: compare similarities and differences across systems and illustrate developments over time.

Methods

We reviewed manuals of European and international DRG systems, including the Australian Refined (AR)-DRGs, the Austrian Leistungsorientierte Diagnosen-Fallgruppen (LDF), the Canadian Case Mix Groups Plus (CMG+), the French Groupes Homogènes de Malades (GHM), the German G-DRGs, and the Scandinavian NordDRGs. We extracted information about (1) the total number of DRGs, (2) the distribution of DRGs across MDCs, (3) the distribution of DRGs in surgical, medical, and – if applicable – other partitions, and (4) the percentage of DRGs distinguishing complex and less complex cases (split and unsplit DRGs).

Finally, we analysed our data, including information from multiple versions of the same DRG system (from the introduction in the country to the most recent version) using standard regression techniques to identify those MDCs, which were modified the most, and to identify the years, in which the greatest changes were taking place. Since MDCs are not used in the Austrian system, LDF groups were mapped to MDCs on the basis of the LDF group names.



Results

The figure is a graphical illustration of the distribution of DRGs into MDCs and partitions in different systems. The columns represent the DRG systems. The wider a column is, the higher the total number of groups of this DRG system in comparison to the others. The rows represent the MDCs, labelled alternately on both sides of the figure. Medicare Severity (MS)-DRGs served as the reference for this comparison. The higher a cell is, the higher the share of groups in this system's MDC. For example, the column representing the GHM system is more than three times wider than the column representing the AR-DRG system. In addition, the differently coloured parts within MDCs of every system show the distribution of cases into medical, surgical and other partitions.

Comparing the height of the cells shows that the distribution of DRGs into MDCs is similar across all DRG systems. This illustrates that all systems need similar shares of their total groups to define cases within a specific category of diseases. However, looking at the distribution of DRGs across partitions demonstrates that systems differ considerably in the number (and proportion) of medical and surgical DRGs.

This finding is also evident in the table, which summarizes some key characteristics of DRG systems and developments over time. The table shows that the number of groups has increased in all DRG systems although the size of the increase varies greatly. Similarly, in most DRG systems (except for the French GHM and the

Scandinavian NordDRG system) the number of surgical DRGs has increased stronger than the number of medical DRGs. Furthermore, all systems show increased numbers of split DRGs, which distinguish between different levels of complexity. The Canadian CMG+ system is an exception, as these splits are not part of the grouping to but incorporated as adjustments to the DRG weights.

The regression analyses (not shown on the poster) revealed that in all systems revisions were focused most on those DRGs that group patients with nervous system diseases (MDC 1), circulatory diseases (MDC 5), and musculoskeletal system diseases (MDC 8). However, the years, when the most important changes were implemented differed greatly across countries.

Conclusions

DRG systems require broadly similar proportions of their groups for the classification of patients belonging to one MDC. However, important differences exist in the number of groups defined by different systems, in the proportion of surgical and medical DRGs and in the proportion of split and unsplit DRGs, distinguishing between complex and less complex cases. Refinement of DRG systems over the past decade or so has led to DRG systems with more DRGs, better distinction between complex and less complex cases, and a slightly higher proportion of surgical DRGs.

	G-DRG		LDF		AR-DRG		GHM		NordDRG		CMG+	
	2003	2012	1997	2012	1998	2012	1992	2012	2006 ¹	2012	2007	2012
Groups	664	1193	916	996	661	771	519	2480	744	798	558	562
MDCs/MCCs	25	27	–	–	25	25	26	28	27	27	–	21
Partitions	3	–	2 ²	–	3	–	2	4	4 ³	–	2	–
- Proportion in surgical	42%	59%	35%	44%	42%	44%	43%	39%	53%	52%	47%	48%
- Proportion in medical	53%	35%	65%	56%	53%	50%	54%	53%	35%	37%	53%	52%
Severity/complexity levels	4	not limited	not limited	–	4	–	5 ⁴ 5	–	2	–	–	–
- Split DRGs	68%	76%	86%	87%	68%	83%	59% ⁵	86%	7	–	98% ⁶	98% ⁶
Aggregate case complexity measure	PCCL ⁸		–	–	PCCL ⁸		–	–	–	–	+ ⁶	

¹ Earliest version of NordDRG available. ² LDFs do not define partitions per se, but distinguish between treatment- and diagnosis-driven episodes. ³ NordDRG distinguishes partitions based on the setting (inpatient or outpatient). ⁴ Up to 4 levels of severity plus one GHM for short stays or outpatient care. ⁵ Figures based on 2004. ⁶ The Resource Intensity Level is determined separately from the CMG assignment. It measures the multiplicative effect of up to 9 age categories and 5 comorbidity levels. ⁷ Information not available. ⁸ The Patient Clinical Complexity Level (PCCL) measures the cumulative effect of all secondary diagnoses. ⁹ Age, death, and length of stay contribute to the severity level.

References:

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Contact:

Dipl.-Math. Conrad Kobel
Department of Medical Statistics, Informatics and Health Economics
Innsbruck Medical University
Schöpfstraße 41/1, 6020 Innsbruck, Austria
Tel +43 (0) 512 9003-70905
Mail conrad.kobel@i-med.ac.at
Homepage <http://www.i-med.ac.at/msig/>