Diagnosis Related Groups (in Europe): Moving towards transparency, efficiency and quality in hospitals

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Incentives linked to different forms of hospital payment

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	Productivity and number of services	Patient needs (risk acceptance)	Appropriateness and adherence to evidence-based medicine (quality of processes)	Quality of outcomes	Administrative simplicity and ease of financial sustainability
Global budget	–	(–)	–	O	+
Per diems	(+)	O	O	–	–
FFS	+	(+)	+	(–)	–

Cheap and bad → Undertreatment

→ Inappropriate treatment

Expensive and bad → Overtreatment

Incentives linked to different forms of hospital payment

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	Productivity and number of services	Patient needs (risk acceptance)	Appropriateness and adherence to evidence-based medicine (quality of processes)	Quality of outcomes	Administrative simplicity and ease of financial sustainability
Global budget	–	(–)	(–)	O	+
Per diems	(+)	O	O	(–)	(+) / O
Simple DRGs (based on diagnosis)	+ [cases] – [services/ case]	(–) [if insufficient consideration of severity]	(–) [if insufficient consideration of necessary services]	(–) / O	(–) / O
FFS	+	(+)	(–)	(–)	–

Incentives linked to different forms of hospital payment

	Productivity and number of services	Patient needs (risk acceptance)	Appropriateness and adherence to evidence-based medicine (quality of processes)	Quality of outcomes	Administrative simplicity and ease of financial sustainability
Global budget	—	(—)			+
Per diems	(+)	O		(—)	(+) / O
Simple DRGs (based on diagnosis)	+ [cases] — [services/ case]	(—) [if insufficient consideration of severity]	(—) [if insufficient consideration of needs]	(—) / O	(—) / O
FFS	+	(+)		(—)	—

European countries 1990s/2000s

USA 1980s

→ "dumping" (avoidance), "creaming" (selection) and "skimping" (undertreatment)
→ up/wrong-coding, gaming

Empirical evidence (I): hospital activity and length-of-stay under DRGs

Country	Study	Activity	ALoS
US, 1983	US Congress - Office of Technology Assessment, 1985	▼	▼
	Guterman et al., 1988	▼	▼
	Davis and Rhodes, 1988	▼	▼
	Kahn et al., 1990		▼
	Manton et al., 1993	▼	▼
	Muller, 1993	▼	▼
	Rosenberg and Browne, 2001	▼	▼

Empirical evidence (II)

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European countries 1990s/ 2000s

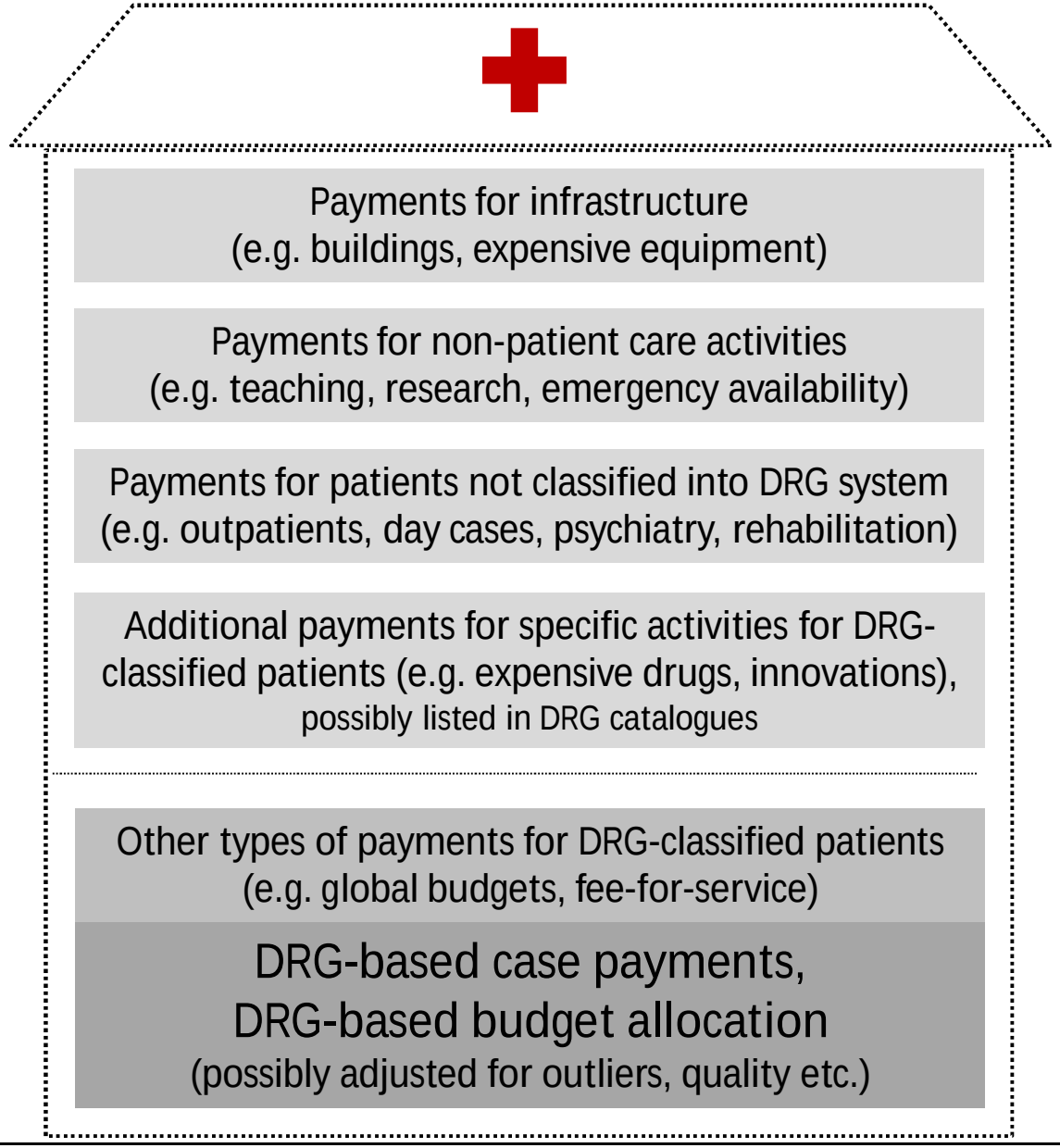
Country	Study	Activity	ALoS
Sweden, early 1990s	Anell, 2005	▲	▼
	Kastberg and Siverbo, 2007	▲	▼
Italy, 1995	Louis et al., 1999	▼	▼
	Ettelt et al., 2006	▲	
Spain, 1996	Ellis/ Vidal-Fernández, 2007	▲	
Norway, 1997	Biørn et al., 2003	▲	
	Kjerstad, 2003	▲	
	Hagen et al., 2006	▲	
	Magnussen et al., 2007	▲	
Austria, 1997	Theurl and Winner, 2007		▼
Denmark, 2002	Street et al., 2007	▲	
Germany, 2003	Böcking et al., 2005	▲	▼
	Schreyögg et al., 2005		▼
	Hensen et al., 2008	▲	▼
England, 2003/4	Farrar et al., 2007	▲	▼
	Audit Commission, 2008	▲	▼
	Farrar et al., 2009	▲	▼
France, 2004/5	Or, 2009	▲	

So then, why DRGs?

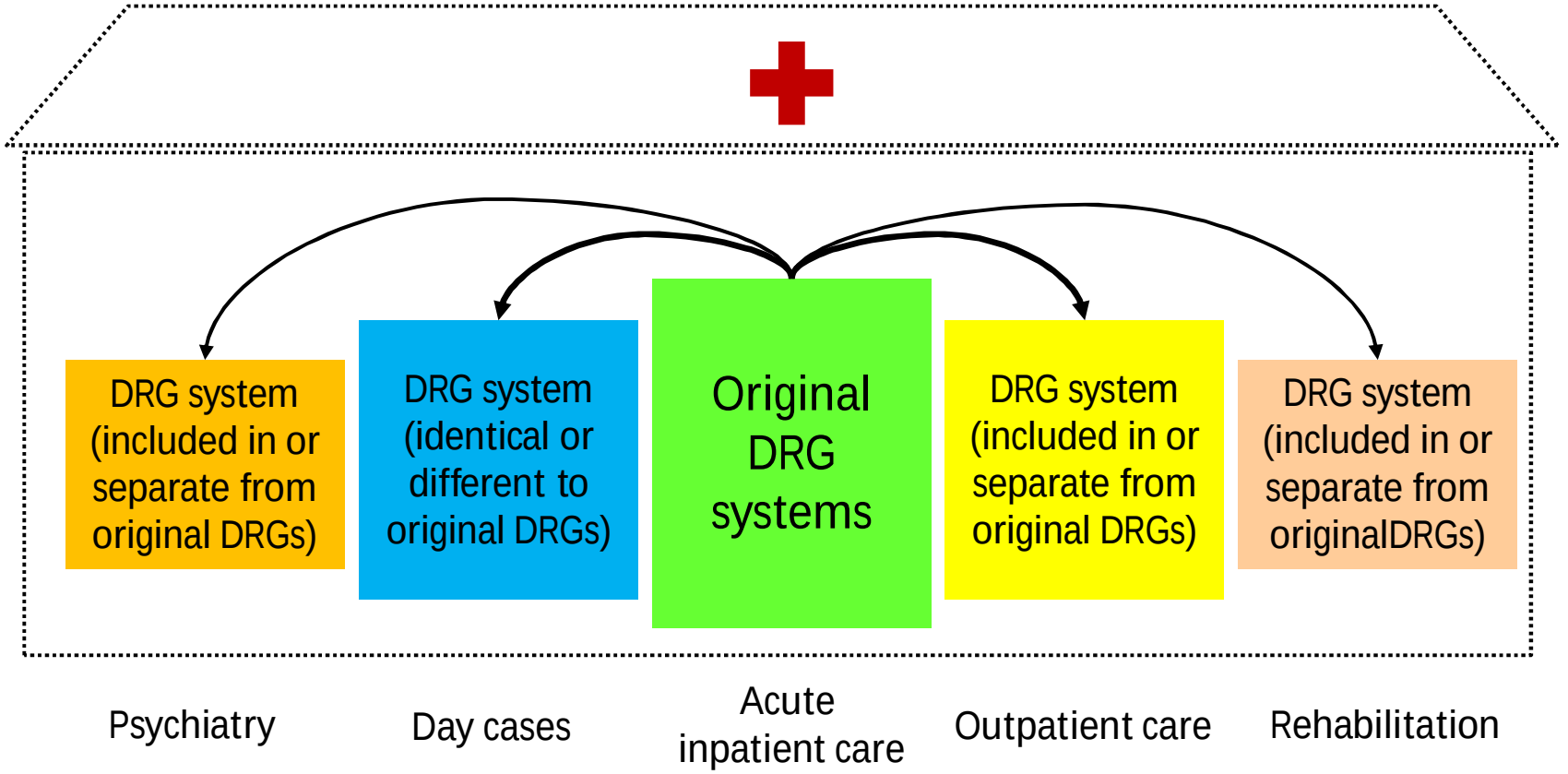
To get a common “currency” of hospital activity for

- transparency → performance measurement → efficiency benchmarking,
- budget allocation (or division among purchasers),
- planning of capacities,
- payment (→ efficiency)

For what types of activities? Scope of DRGs (I)



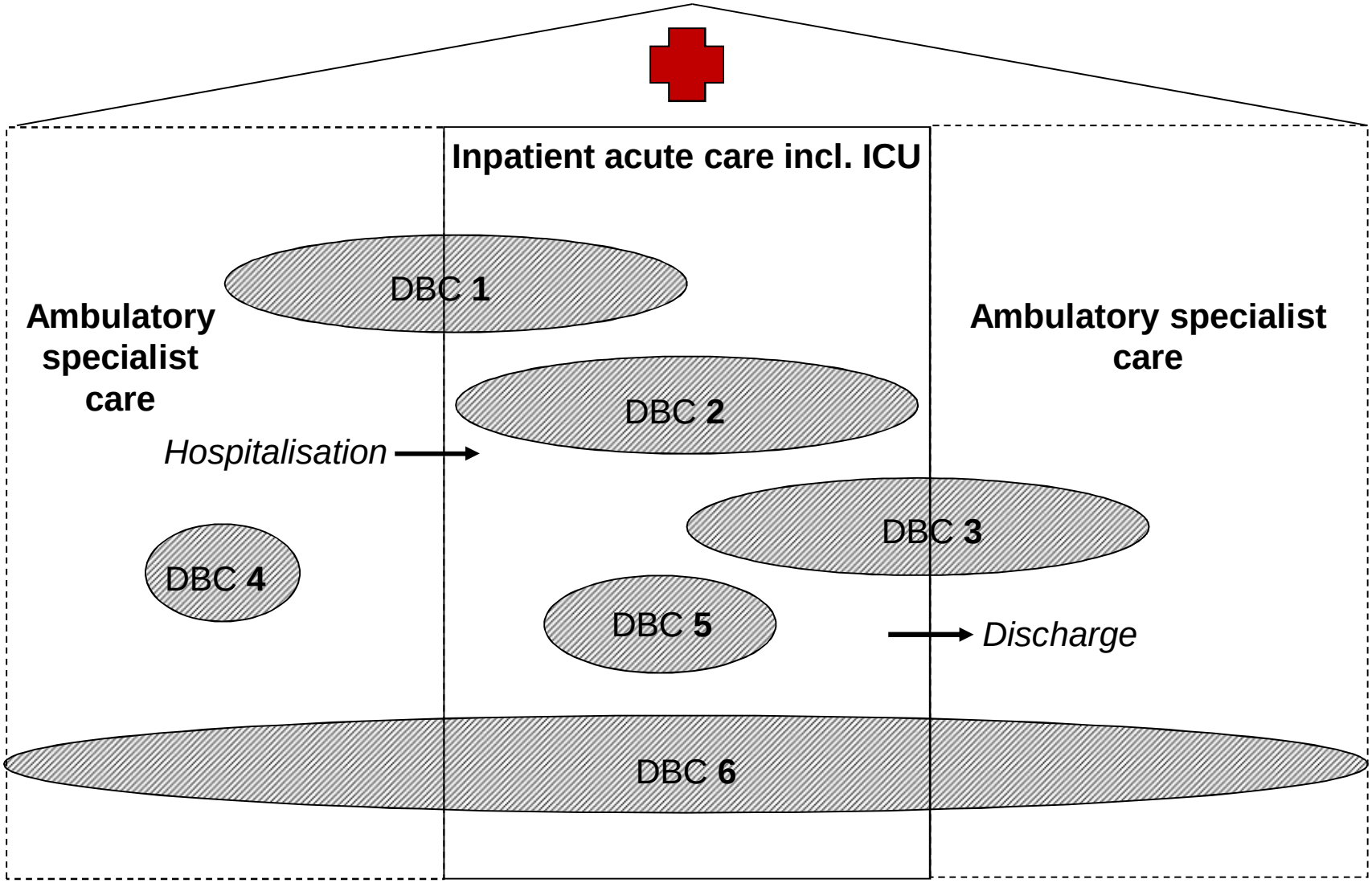
For what types of activities? Scope of DRGs (II)



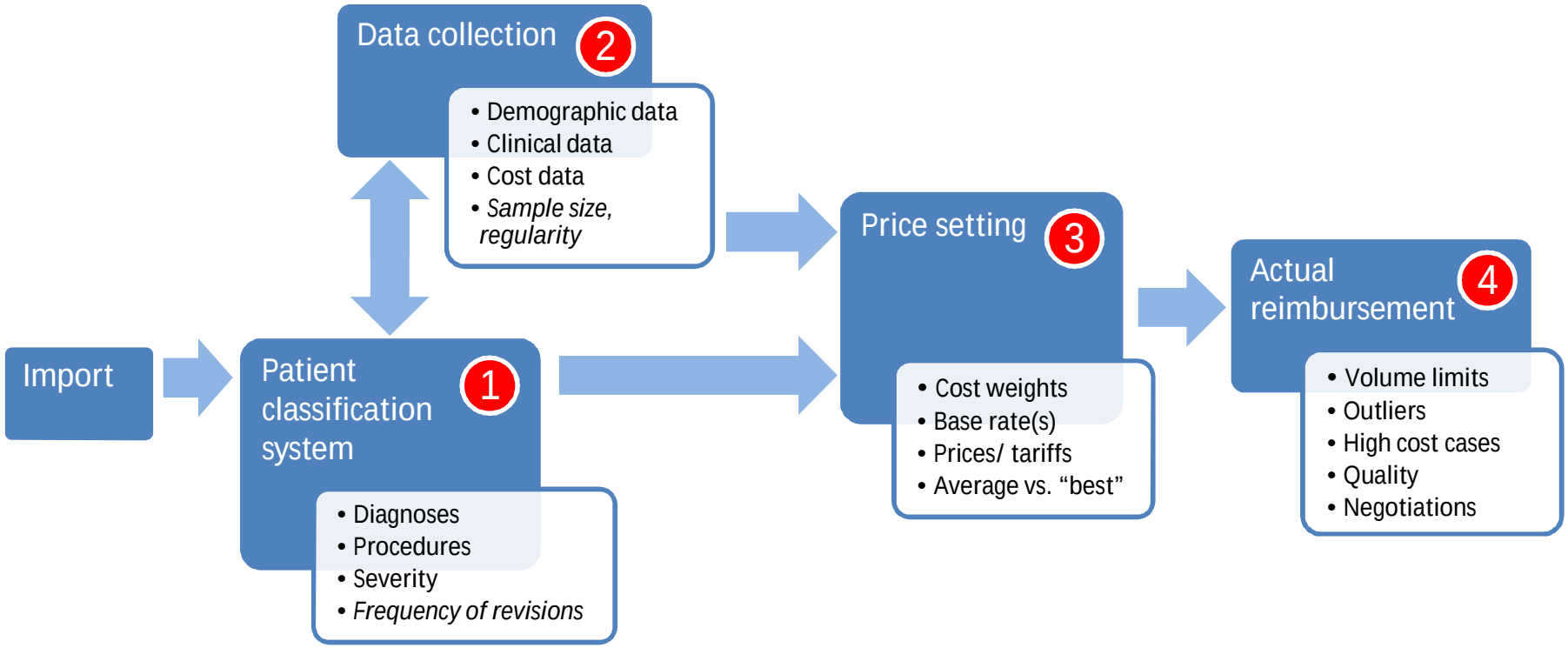
The growing scope of DRGs in Europe

Country	Inpatient	Outpatients	Psychiatry	Rehabilitation
Austria	X	?	?	?
England	X	X	starting 2012	?
Estonia	X	starting 20xx	?	?
Finland	X	X	?	?
France	X	X	starting 20xx	starting 20xx
Germany	X	-	starting 2013	-
The Netherlands	X	X	?	?
Ireland	X	X	-	?
Poland	X	started 2011	starting 20xx	starting 20xx
Portugal	X	?	starting 20xx	?
Spain	X	starting 20xx	?	?
Sweden	X	X	?	?

Scope in the Netherlands: DBCs (diagnosis-treatment combinations); *examples*



Essential building blocks of DRG systems



Choosing a PCS: copied, further developed or self-developed?

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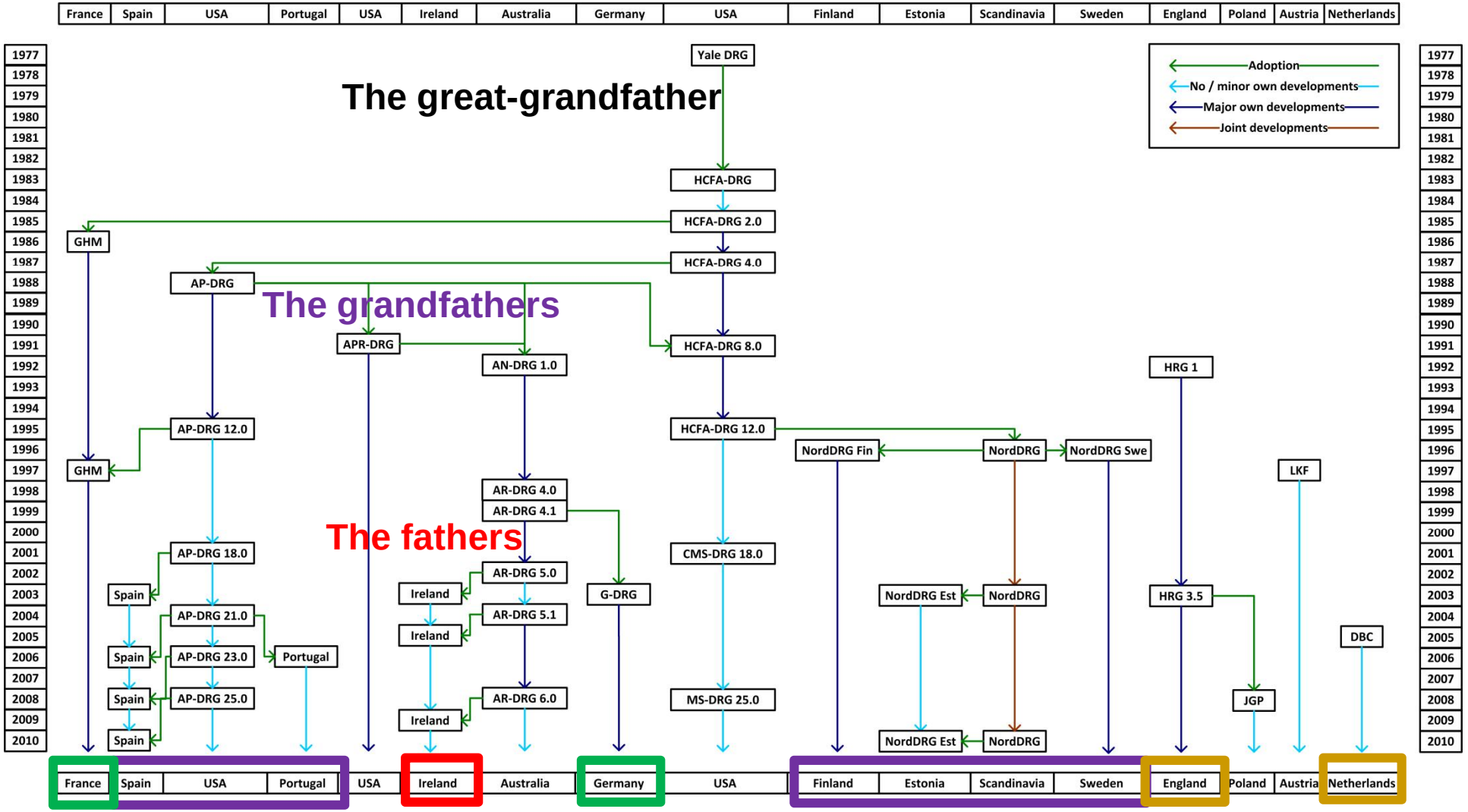
Patient classification system

- Diagnoses
- Procedures
- Severity
- *Frequency of revisions*



Classification variables and severity levels in European DRG-like PCS

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Patient classification system

- Diagnoses
- Procedures
- Severity
- *Frequency of revisions*

	AP-DRG	AR-DRG	G-DRG	GHM	NordDRG	HRG	JGP	LKF	DBC
Classification Variables									
Patient characteristics									
Age	x	x	x	x	x	x	x	x	-
Gender	-	-	-	-	x	-	-	-	-
Diagnoses	x	x	x	x	x	x	x	x	x
Neoplasms / Malignancy	x	x	x	-	-	-	-	-	-
Body Weight (Newborn)	x	x	x	x	-	-	-	-	-
Mental Health Legal Status	-	x	x	-	-	-	-	-	-
Medical and management decision variables									
Admission Type			-	-	-	x	x	-	-
Procedures			x	x	x	x	x	x	x
Mechanical Ventilation			x	x	-	-	-	-	-
Discharge Type				x	x	x	x	-	-
LOS / Same Day Status		x	x	x	x	x	x	-	-
Structural characteristics									
Setting (inpatient, outpatient, ICU etc.)	-	-	-	x	-	-	-	-	x
Stay at Specialist Departments	-	-	-	-	-	-	-	x	-
Medical Specialty	-	-	-	-	-	-	-	-	x
Demands for Care	-	-	-	-	-	-	-	-	x
Severity / Complexity Levels	3*	4	unlimited	5**	2	3	3	unlimited	-
Aggregate case complexity measure	-	PCCL	PCCL	x	-	-	-	-	-

More emphasis on procedures and length-of-stay than in US

PCCL = Patient Clinical Complexity level

* not explicitly mentioned (Major CCs at MDC level plus 2 levels of severity at DRG level)
** 4 levels of severity plus one GHM for short stays or outpatient care

PCS: the German approach

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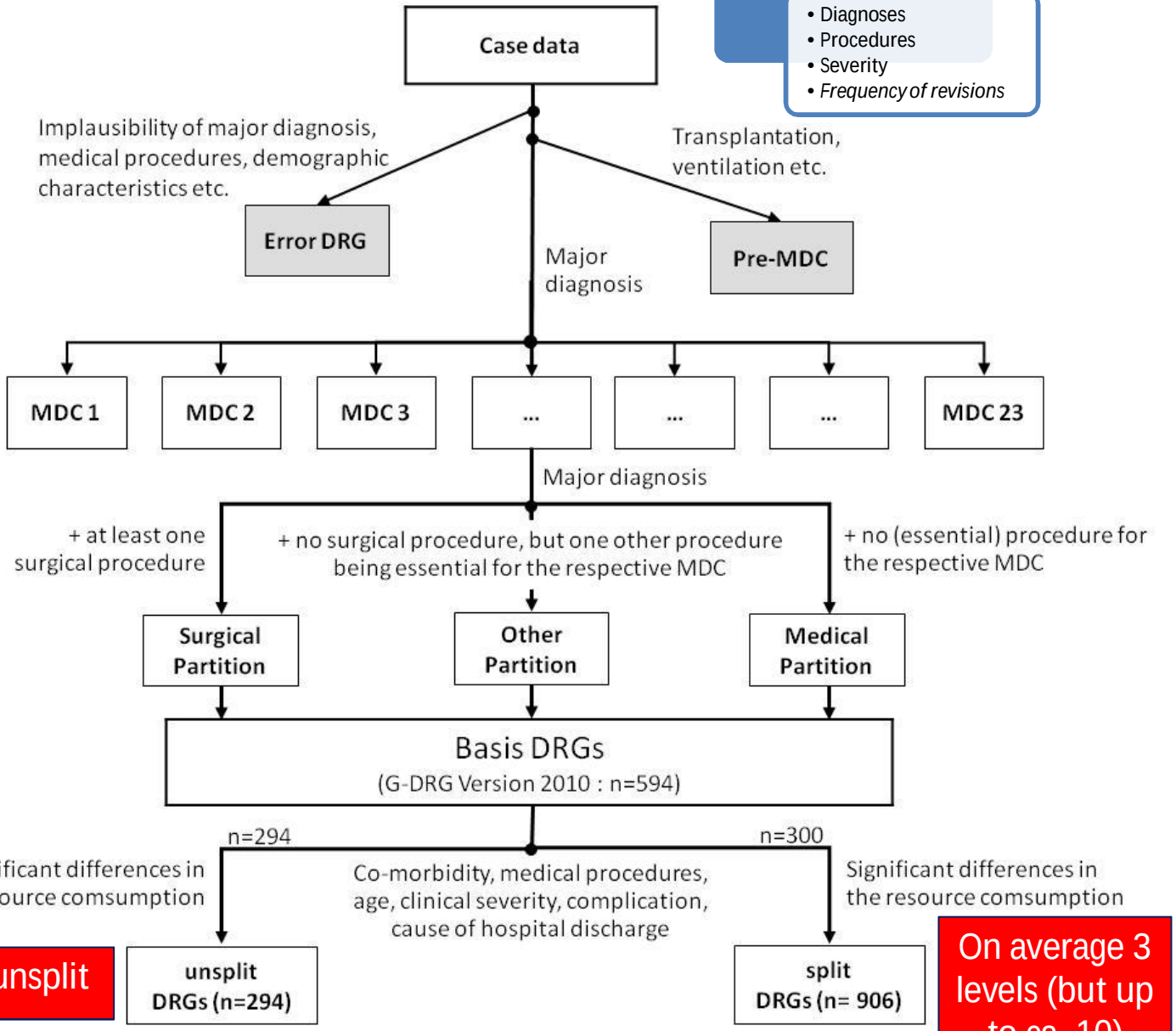
Patient classification system

- Diagnoses
- Procedures
- Severity
- *Frequency of revisions*



NB: Three partitions → one for non-surgical procedures!

Basic characteristics of DRG-like PCS in Europe

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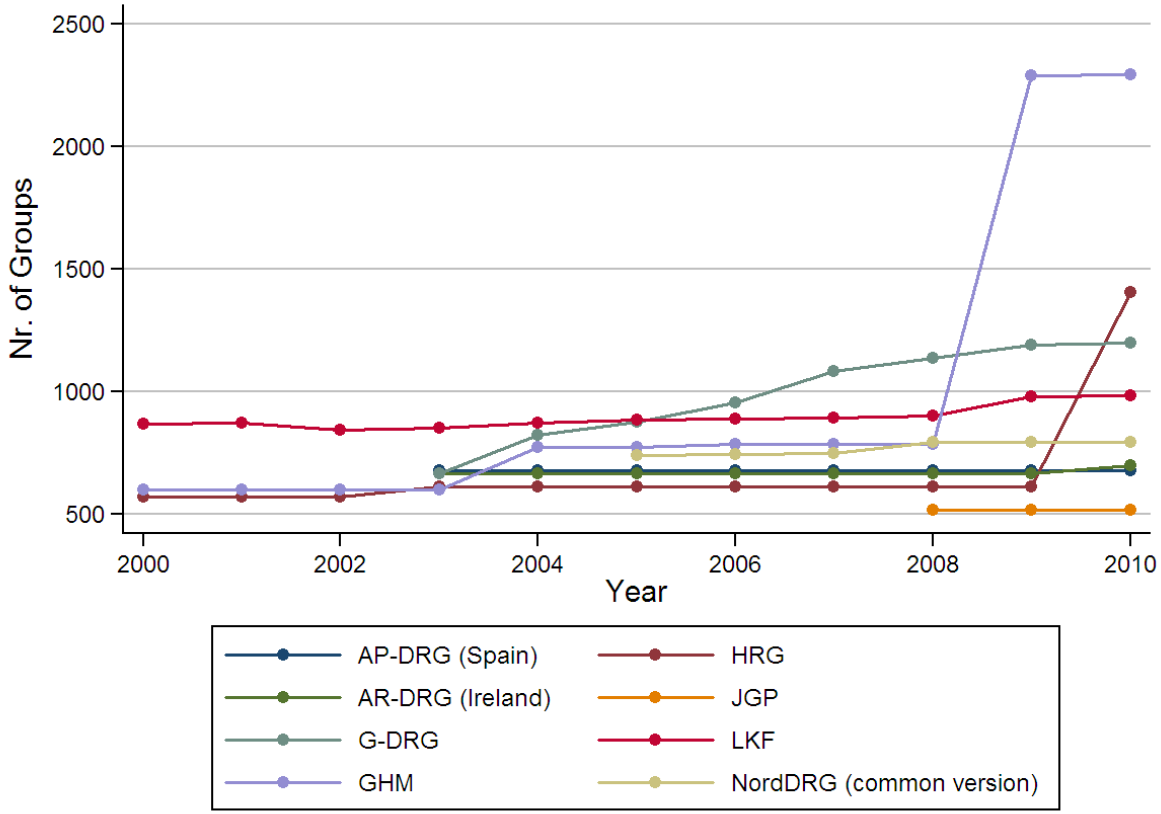
Patient classification system

- Diagnoses
- Procedures
- Severity
- *Frequency of revisions*



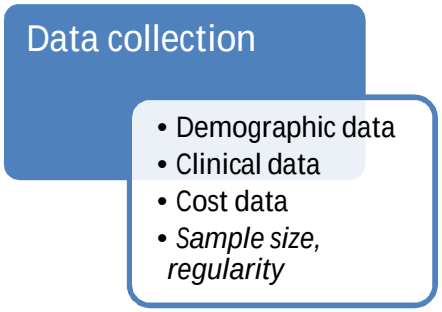
	AP-DRG	AR-DRG	G-DRG	GHM	NordDRG	HRG	JGP	LKF	DBC
DRGs / DRG-like groups	679	665	1,200	2,297	794	1,389	518	979	≈30,000
MDCs / Chapters	25	24	26	28	28	23	16	-	-
Partitions	2	3	3	4	2	2*	2*	2*	-

MDC differences across DRG systems

Patient classification system

- Diagnoses
- Procedures
- Severity
- *Frequency of revisions*

Main questions relating to data collection



Clinical data

→ classification system for diagnoses *and*
→ classification system for procedures

Cost data

→ imported (not good but easy) *or*
→ collected within country (better but needs standardised cost accounting)

Sample size

→ entire patient population *or*
→ a smaller sample

Many countries: *clinical data* = all patients;

cost data = hospital sample
with standardised cost accounting system

Diagnosis and procedure coding across Europe

Data collection

- Demographic data
- Clinical data
- Cost data
- *Sample size, regularity*

Country	Diagnosis Coding	Procedure Coding
Austria	ICD-10-AT	Leistungskatalog
England	ICD-10	OPCS - Office of Population Censuses and Surveys
Estonia	ICD-10	NCSP - Nomesco Classification of Surgical Procedures
Finland	ICD-10	NCSP - Nomesco Classification of Surgical Procedures
France	ICD-10	CCAM - Classification Commune des Actes Médicaux
Germany	ICD-10-GM	OPS - Operationen- und Prozedurenschlüssel
Ireland	ICD-10-AM	ACHI - Australian Classification of Health Interventions
The Netherlands	ICD-10	Elektronische DBC Typeringslijst
Poland	ICD-10	ICD-9-CM
Portugal	ICD-9-CM	ICD-9-CM
Spain	ICD-9-CM	ICD-9-CM
Sweden	ICD-10	NCSP - Nomesco Classification of Surgical Procedures

(almost) standardised

no uniform standard available

Cost accounting in hospitals: how Germany does it

Data collection

- Demographic data
- Clinical data
- Cost data
- *Sample size, regularity*

			Cost- Element Groups									
			1: Labour costs of the other medical staff	2: Labour costs of the nursing staff	3: Labour costs of the administrative and technical staff	4a: Drug costs	4b: Drug costs (individual costs/ actual consumtion)	5: costs of implants and grafts	6a: Material costs (without drugs, implants and grafts)	6b: Material costs (individual costs/ actual consumption, without drugs, implants/ grafts	7: Medical infrastructure costs	8: Non- medical infrastructure costs
			Labour			Material					Infrastructure	
Cost- Centre Groups	1: Normal ward	Hospital units with beds	1.1	1.2	1.3	1.4a	1.4b	-	1.6a	1.6b	1.7	1.8
	2: Intensive care unit		2.1	2.2	2.3	2.4a	2.4b	2.5	2.6a	2.6b	2.7	2.8
	3: Dialysis unit		3.1	2.3	3.3	3.4a	3.4b	-	3.6a	3.6b	3.7	3.8
	4: Operating room	Diagnostic and treatment areas	4.1	-	4.3	4.4a	4.4b	4.5	4.6a	4.6b	4.7	4.8
	5: Anaesthesia		5.1	-	5.3	5.4a	5.4b	-	5.6a	5.6b	5.7	5.8
	6: Maternity room		6.1	-	6.3	6.4a	6.4b	-	6.6a	6.6b	6.7	6.8
	7: Cardiac diagnostics/ therapy		7.1	-	7.3	7.4a	7.4b	7.5	7.6a	7.6b	7.7	7.8
	8: Endoscopic diagnostics/ therapy		8.1	-	8.3	8.4a	8.4b	8.5	8.6a	8.6b	8.7	8.8
	9: Radiology		9.1	-	9.3	9.4a	9.4b	9.5	9.6a	9.6b	9.7	9.8
	10: Laboratories		10.1	-	10.3	10.4a	10.4b	10.5	10.6a	10.6b	10.7	10.8
	11: Other diagnostic and therapeutic areas		11.1	11.2	11.3	11.4a	11.4b	11.5	11.6a	11.6b	11.7	11.8

99 cost categories!

MDC: MDC 14 Schwangerschaft, Geburt und Wochenbett

DRG: O60D: Vaginale Entbindung ohne komplizierende Diagnose

Zurücksetzen

Daten:

14 | MDC 14 Schwangerschaft, Geburt und Wochenbett | Anz. DRGs: 26 | N: 81.952

Fallzahl Normallieger

29.836

v. MDC: 36,41%

v. gesamt: 1,49%

Bewertungsrelation

0,541

Verweildauer

Kurzlieger	10,30%
Normallieger	87,22%
Langlieger	2,48%
1. Tag mit Abschlag	1
1. Tag zus. Entgelt	7
Mittl. arithm. VWD	3,5
Standardabw. VWD	1,0

PCCL

0	80,55%
1	0,00%
2	8,64%
3	10,71%
4	0,10%

Profil drucken...

Geschlecht

Männlich	0,00%
Weiblich	100,00%
Unbestimmt	0,00%

Fallkosten

Arith. MW	1.418,78
Std. Abw.	428,06

Alter

< 28 Tage	0,00%	30 - 39 Jahre	46,60%
28 T. - < 1 Jahr	0,00%	40 - 49 Jahre	2,96%
1 - 2 Jahre	0,00%	50 - 54 Jahre	0,00%
3 - 5 Jahre	0,00%	55 - 59 Jahre	0,00%
6 - 9 Jahre	0,00%	60 - 64 Jahre	0,00%
10 - 15 Jahre	0,12%	65 - 74 Jahre	0,00%
16 - 17 Jahre	0,81%	75 - 79 Jahre	0,00%
18 - 29 Jahre	49,50%	80 Jahre u. älter	0,00%

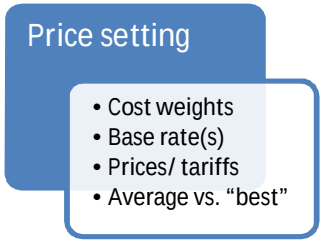
Profile:

Hauptdiagnosen | Nebendiagnosen | Prozeduren | Kosten | Recherche

	Personalkosten:			Sachkosten:					Pers.- u. Sachkosten:		
	Ärztlicher Dienst	Pflegedienst	med./techn. Dienst	Arzneimittel		Implantate / Transplant.	Übriger med. Bedarf		med. Infrastruktur	nicht med. Infrastruktur	
Kostenbereich	1	2	3	4a	4b	5	6a	6b	7	8	Summe
01. Normalstation	104,4	238,2	22,8	11,5	1,5	0,0	18,0	0,3	52,7	225,8	675,3
02. Intensivstation	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0	0,0	0,0	0,1
04. OP-Bereich	0,7	0,0	0,7	0,0	0,0	0,0	0,3	0,0	0,3	0,6	2,7
05. Anästhesie	10,3	0,0	5,4	1,2	0,1	0,0	2,9	0,0	1,3	4,3	25,4
06. Kreißsaal	113,7	0,0	328,8	17,3	0,2	0,0	34,7	0,0	25,1	143,8	663,7
08. Endoskopische Diagnostik / Ther	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1
09. Radiologie	0,2	0,0	0,3	0,0	0,0	0,0	0,1	0,1	0,2	0,3	1,0
10. Laboratorien	2,2	0,0	8,4	0,3	0,2	0,0	6,4	1,9	0,7	3,7	23,7
11. Übrige diagnostische und therape	6,2	0,1	11,2	0,2	0,0	0,0	2,0	0,1	1,4	5,7	26,8
Summe:	237,7	238,4	377,6	30,5	1,9	0,0	64,5	2,5	81,7	384,1	1.418,8

InEK cost data browser: Average costs for normal birth without co-morbidities or complications in German cost calculating hospitals

How to calculate costs and set prices fairly



- Based on good quality data (not possible if cost weights imported)
- Average costs vs. “best practice”
- “Cost weights x base rate” vs. “Tariff + adjustment”

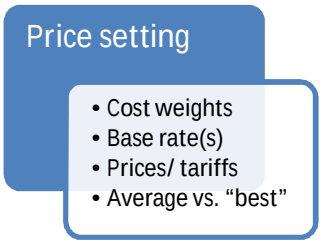
How to calculate costs and set prices fairly

Price setting

- Cost weights
- Base rate(s)
- Prices/ tariffs
- Average vs. “best”

	“cost weight“ (varies by DRG)		“base rate“ or adjustment
England	£ 3000	X	1.0 – 1.32 (varies by hospital)
France	€ 3000	X	1.0 (+/-) (varies by region and hospital)
Germany	1.0	X	€ 3000 (+/-) (varies slightly by state)

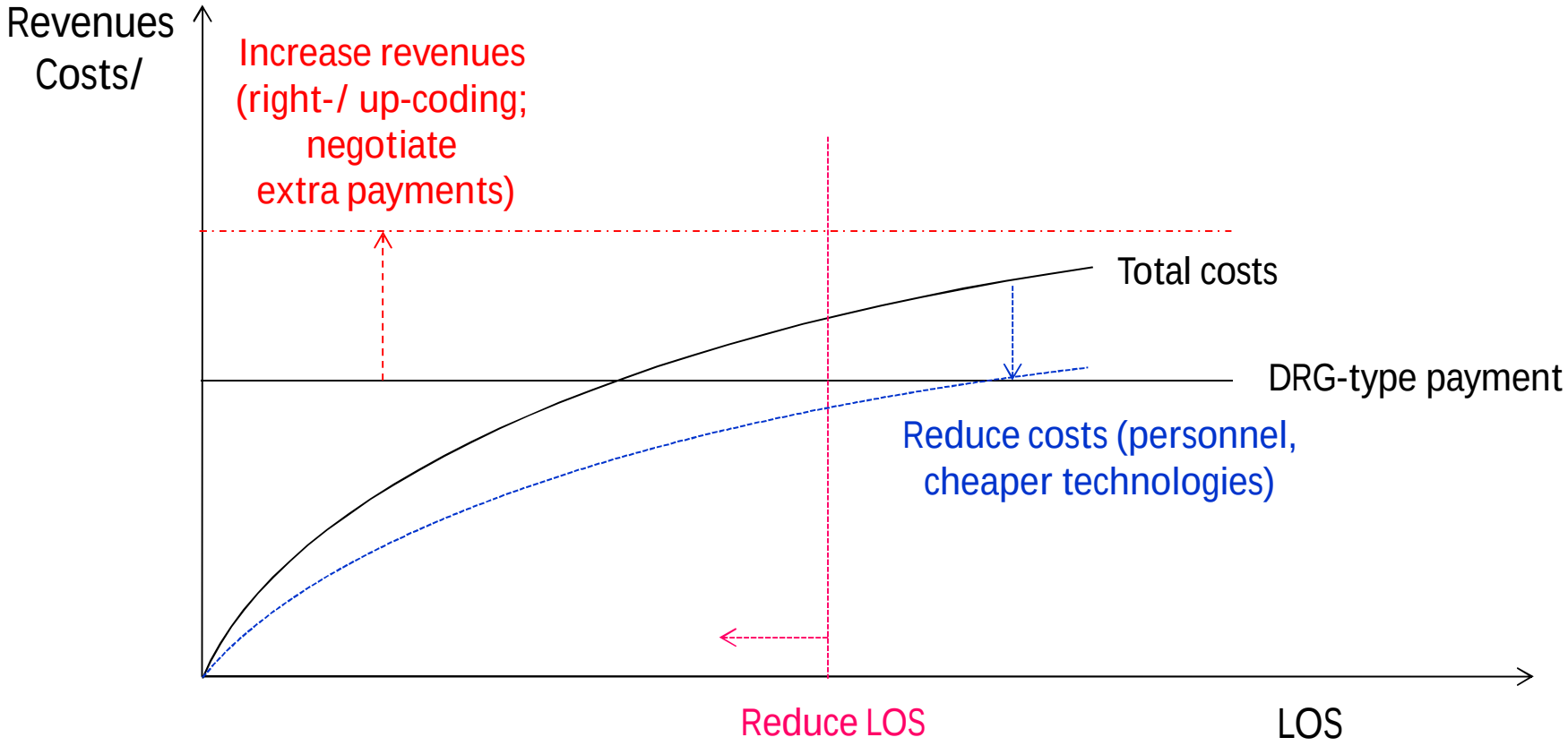
Cost calculation and price setting – country experience



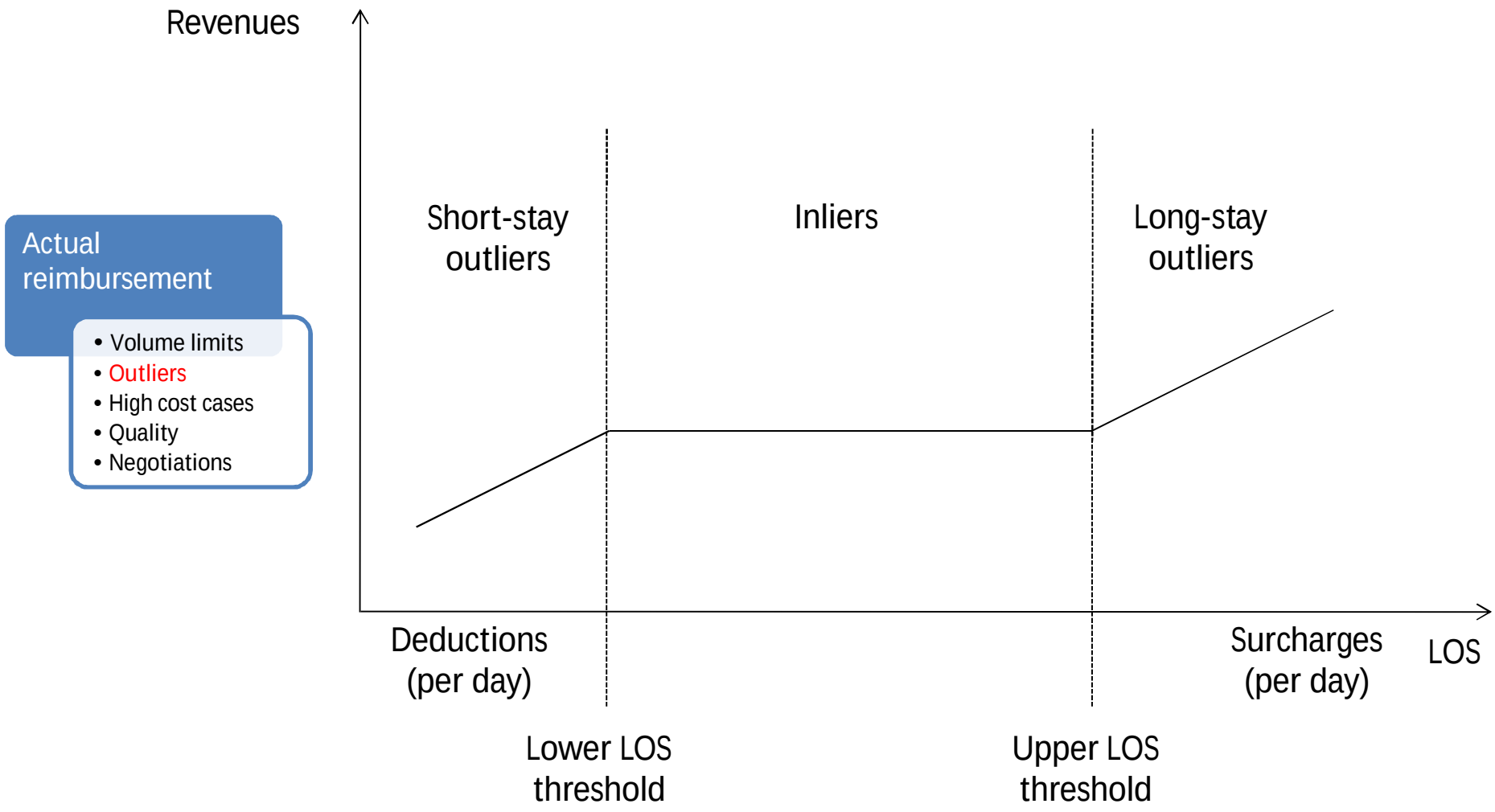
	England	France	Germany	Netherlands
Cost data collection methodology to determine payment rate				
Sample size (% of all hospitals)	All NHS hospitals	99 hospitals (5%)	253 hospitals (13%)	Resource use: all hospitals; unit costs: 15-25 hospitals (24%)
Cost accounting methodology	Top down	Mix of top-down and bottom-up	Mainly bottom-up	Mainly bottom-up
Calculation of hospital payment				
Payment calculation	Direct (price)	Indirect (cost-weight)	Indirect (cost-weight)	Direct (price)
Applicability	Nationwide (but adjusted for market-forces-factor)	Nationwide (with adjustments and separate for public and private hospitals)	Cost-weights nationwide; monetary conversion state-wide	List A: nationwide List B: hospital specific
Volume/ expenditure limits	No (plans exist for volume cap)	Yes	Yes	List A: Yes List B: Yes/No

Being aware of strategic behaviour of hospitals in times of DRGs

Options to avoid deficits under activity based payments



How DRG systems try to counter-act such behaviour: 1. long- and short-stay adjustments



How DRG systems try to counter-act such behaviour: 2. Fee-for-service-type additional payments

Actual reimbursement

- Volume limits
- Outliers
- High cost cases
- Quality
- Negotiations

	England	France	Germany	Nether-lands
Payments per hospital stay	One	One	One	Several possible
Payments for specific high-cost services	Unbundled HRGs for e.g.: • Chemotherapy •Radiotherapy •Renal dialysis •Diagnostic imaging •High-cost drugs	Séances GHM for e.g.: • Chemotherapy •Radiotherapy •Renal dialysis Additional payments: • ICU • Emergency care • High-cost drugs	Supplementary payments for e.g.: • Chemotherapy •Radiotherapy •Renal dialysis •Diagnostic imaging •High-cost drugs	No
Innovation-related add'l payments	Yes	Yes	Yes	Yes (for drugs)

How DRG systems try to counter-act such behaviour: 3. adjustments for quality

Actual reimbursement

- Volume limits
- Outliers
- High cost cases
- Quality
- Negotiations

- England & Germany: no extra payment if patient readmitted within 30 days
- Germany: deduction for not submitting quality data
- England: up 1.5% reduction if quality standards are not met
- France: extra payments for quality improvement (e.g. regarding MRSA)

List B–DBCs as basis for price negotiations in the Netherlands

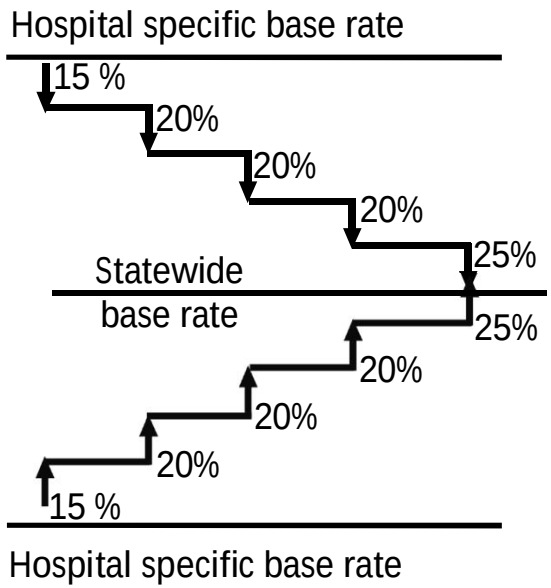
Actual reimbursement

- Volume limits
- Outliers
- High cost cases
- Quality
- Negotiations

Table 1 Negotiated prices in 2007 and 2004 for seven list B DBCs at four health insurers

	2004 price (€)	Minimum 2007 price (€)	Maximum 2007 price (€)	Mean 2007 price (€)	Price increase (%)
Hip replacement	8571	7603	11370	9097	6.3
Knee replacement	10228	9097	13000	10746	5.1
Inguinal hernia repair	2163	1529	3088	2254	4.2
Diabetes	409	385	1027	483	18.1
Tonsillectomy	740	433	1498	800	8.1
Cataract	1317	1044	1599	1381	4.8
Spinal disc herniation	3046	2413	5778	3308	8.6

Implementation: Not from one day to the next - the long way of DRG introduction in Germany

2000-2002	2003 - 2004	2005 - 2009	2010 - 2014
1) Phase of preparation	2) Budget-neutral phase	3) Phase of convergence to state-wide base rates	4) Discussion on future policy
	Historical Budget (2003) ↓ Transformation ↓ DRG-Budget (2004)		• Nationwide base rate • Fixed or maximum prices • Selective or uniform negotiations • Quality Assurance (adjustments) • Budgeting (amount of services) • Dual Financing or Monistic

Conclusions

European countries have developed – and are continuously modifying – their own DRG systems, which

- classify patients into more groups,
- give a higher weight to procedures and to setting,
- base payment rates on actual average (or best-practice) costs,
- pay separately for high-cost and innovative technologies,
- are implemented in a step-wise manner, and

thus reduce, or even avoid, the potential of risk selection and under-provision of services.

Final conference regarding policy conclusions on 17 November 2011 in Berlin:

- Are hospital services and costs across European countries really so different to justify different systems for patient classification and cost weights? Could cost differences not be handled through base rate adjustments (as in the US)?
- What do we know regarding the effects on hospital efficiency and quality of service delivery under DRGs?

www.eurodrg.eu

Diagnosis Related Groups in Europe: Moving towards transparency, efficiency and quality in hosp - Windows Internet Explorer

http://www.mcgraw-hill.co.uk/html/0335245579.html

Google

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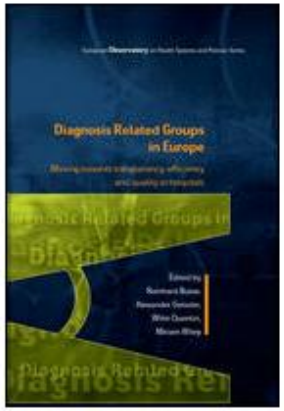

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About the book

DRG systems were introduced in Europe for similar reasons: first, they should increase the transparency of services which are effectively provided in hospitals and second, DRG-based payment systems should give incentives for the efficient use of resources. In addition, the combination of increased transparency and efficient use of resources was assumed to contribute to improving ' or at least assuring ' the level of quality of care. Today, after more than a decade of experience with using DRGs in Europe, it`s time to consider whether the extensive use of DRGs has contributed towards achieving these aims.

This book is a result of the EuroDRG project. It includes chapters on the key issues of DRGs (efficiency, quality, unintended effects, and technological innovation) and 12 country chapters (Austria, England, Estonia, Finland, France, Germany, Ireland, the Netherlands, Poland, Portugal, Spain, Sweden) that provide clearly structured and detailed information about the most important DRG system characteristics in each of the countries which take part in the EuroDRG project.

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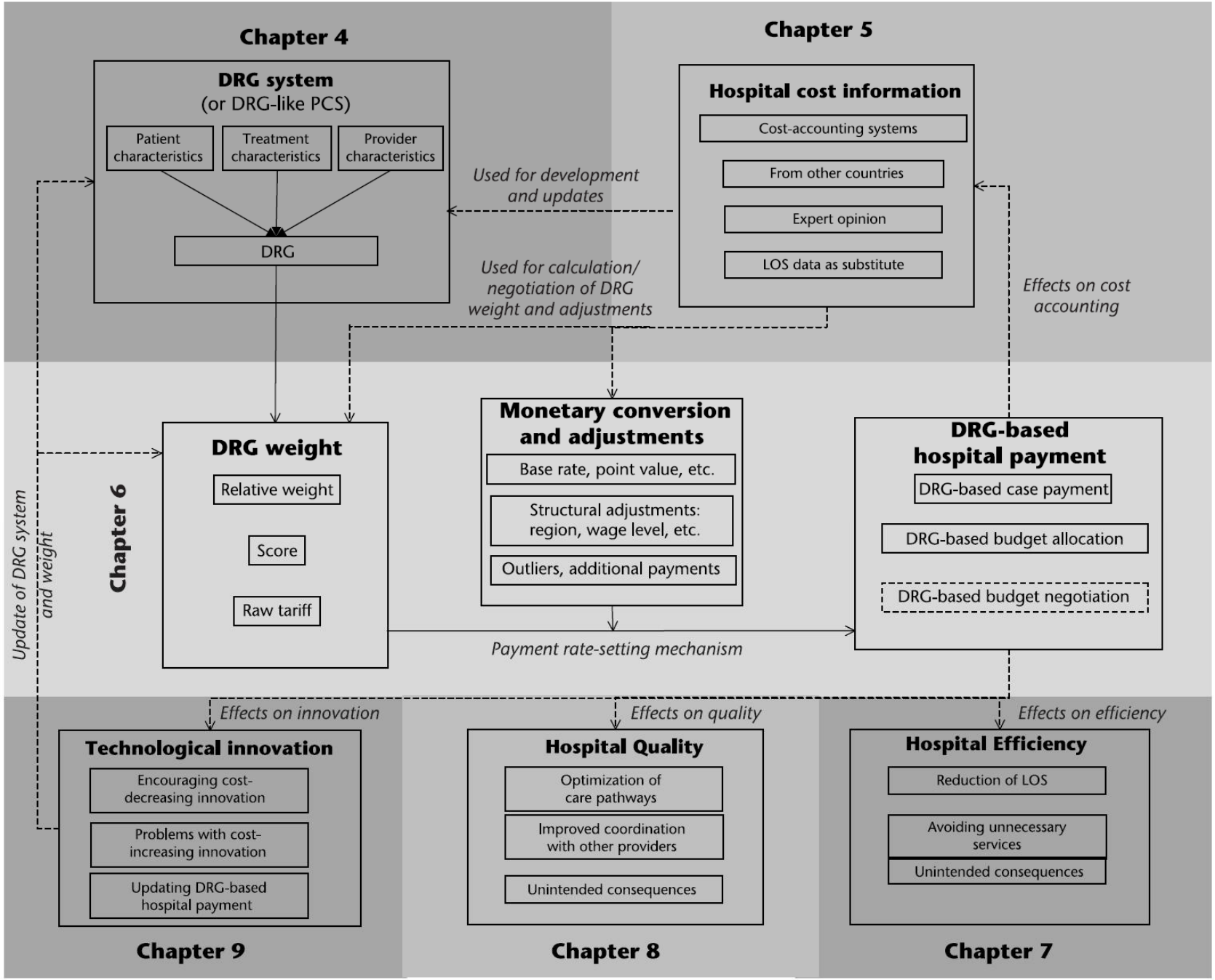

Figure 3.1 Framework for navigating through the book

Countries covered by EuroDRG project

EuroDRG project partners

Austria	Department for Medical Statistics, Informatics and Health Economics, Innsbruck Medical University
England/ UK	Centre for Health Economics, University of York
Estonia	PRAXIS Center for Policy Studies, Tallinn
Europe	European Health Management Association, Brussels
Finland	National Institute for Health and Welfare , Helsinki
France	École des hautes études en santé publique, Rennes & Institut de recherche et documentation en économie de la santé, Paris
Germany	Department of Health Care Management, Technische Universität Berlin
Ireland	Economic and Social Research Institute, Dublin
Netherlands	Institute for Health Policy & Management, Erasmus Universitair Medisch Centrum Rotterdam
Poland	National Health Fund, Warsaw
Portugal	Avisory board member Céu Mateus
Spain	Institut Municipal d'Assistència Sanitària, Barcelona
Sweden	Centre for Patient Classification, National Board of Health and Welfare, Stockholm