

DRGs in Europe – Incentives for, efforts to, and experience with ensuring transparency, efficiency and quality of hospital care



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The basic question:

What do we want when we pay hospitals?

That

- they care for patients when they need care?
... and do not risk-select ...
- they provide services? ... and are not idle ...
- expenditure is well controlled? ... and not sky-rocketing ...
- services are efficiently provided? ... and money not wasted ...
- service provision is transparent? ... and not opaque ...
- services are provided only if appropriate?
... and not unnecessarily ...
- provided services are of high quality?
... and do not endanger patient safety ...

Together =
performance!

Incentives of different forms of hospital payment

Payment mechanism	Patient needs (risk selection)	Activity		Expenditure control	Technical efficiency	Transparency	Quality	Administrative simplicity
		Number of services/case	Number of cases					
Fee-for-service	+	+	+	-	0	0	0	-
Global budget	-	-	-	+	0	-	0	+

Incentives of different forms of hospital payment

Payment mechanism	Patient needs (risk selection)	Activity		Expenditure control	Technical efficiency	Transparency	Quality	Administrative simplicity
		Number of services/case	Number of cases					
Fee-for-service	+	+	+	-	0	0	0	-
DRG based case payment	0	-	+	0	+	+	0	-
Global budget	-	-	-	+	0	-	0	+

Incentives of different forms of hospital payment

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

Payment mechanism	Patient needs (risk selection)	Access / Number of services/case	Efficiency / Number of cases	Expenditure control	Technical efficiency	Transparency	Quality	Administrative simplicity
Fee-for-service	+	+	+	-	USA 1980s			-
DRG based case payment	0	-	+	0	+	+	0	-
Global budget	-	-	-	+	European countries 1990s/2000s			+

Incentives of different forms of hospital payment

Payment mechanism	Patient needs (risk selection)	Activity		Expenditure control	Technical efficiency	Transparency	Quality	Administrative simplicity
		Number of services/case	Number of cases					
Fee-for-service	+	+	+	-				-
DRG based case payment	0	-	+	0	+	+	0	-
Global budget	-	-	-	+				+

USA 1980s (indicated by a downward-pointing triangle over the Fee-for-service and DRG based case payment rows)

European countries 1990s/2000s (indicated by an upward-pointing triangle over the DRG based case payment and Global budget rows)

"prospective" (highlighted in yellow, pointing to the DRG based case payment row)

"activity-based" (highlighted in yellow, pointing to the DRG based case payment row)

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)

European
 countries
 1990/ 2000s

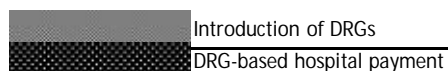
Country	Study	Activity	ALoS
Sweden, early 1990s	Anell, 2005	▲	▼
	Kastberg and Siverbo, 2007	▲	▼
Italy, 1995	Louis et al., 1999	▼	▼
	Ettelt et al., 2006	▲	
Spain, 1996	Ellis/ Vidal-Fernández, 2007	▲	
Norway, 1997	Biørn et al., 2003	▲	
	Kjerstad, 2003	▲	
	Hagen et al., 2006	▲	
	Magnussen et al., 2007	▲	
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	▲	

To get a common “currency” of hospital activity for

- transparency → efficiency benchmarking & performance measurement (protect/ improve quality),
- fair budget allocation (or division among providers),
- planning of capacities,
- payment (→ efficiency & → reduction of variation)

Exact reasons, expectations and DRG usage differ among countries – due to (de)centralisation, one vs. multiple payers, public vs. mixed ownership.

Country	1980	1985	1990	1995	2000	2005	2010	Original purpose	Principal purpose in 2010
Austria								Budgetary allocation	Budgetary allocation, Planning
England								Measuring hospital activity	Payment
Estonia								Payment	Payment
Finland								Measuring hospital activity, benchmarking	Planning, benchmarking, hospital billing
France								Measuring hospital activity	Payment
Germany								Payment	Payment
Ireland								Budgetary allocation	Budgetary allocation
Netherlands								Payment	Payment
Poland								Payment	Payment
Portugal								Measuring hospital activity	Budgetary allocation
Spain (Catalonia)								Payment	Payment, benchmarking
Sweden								Payment	Measuring hospital activity, benchmarking





Excluded costs
(e.g. for infrastructure; *in U.S. also physician services*)

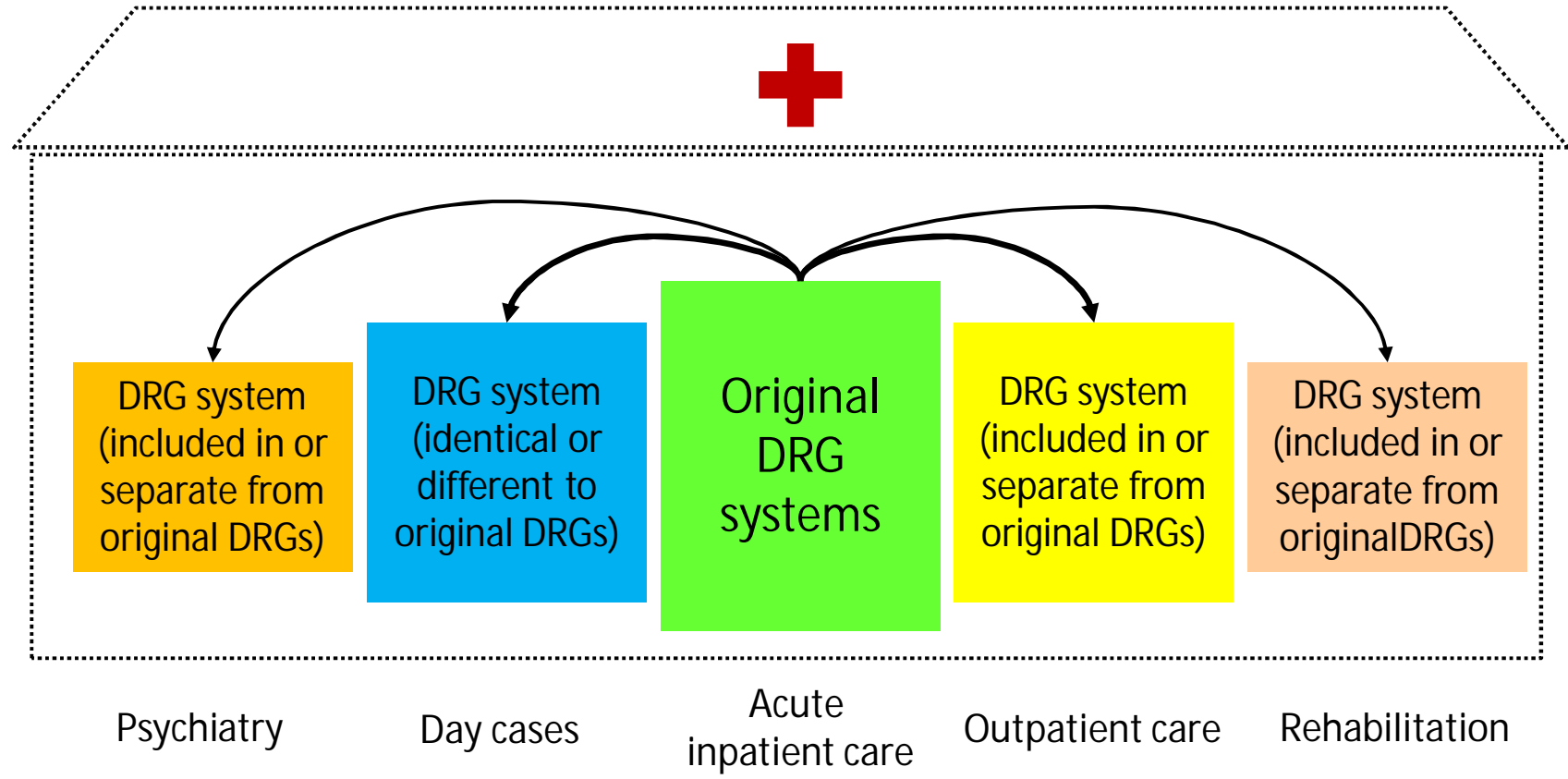
Payments for non-patient care activities
(e.g. teaching, research, emergency availability)

Payments for patients not classified into DRG system
(e.g. outpatients, day cases, psychiatry, rehabilitation)

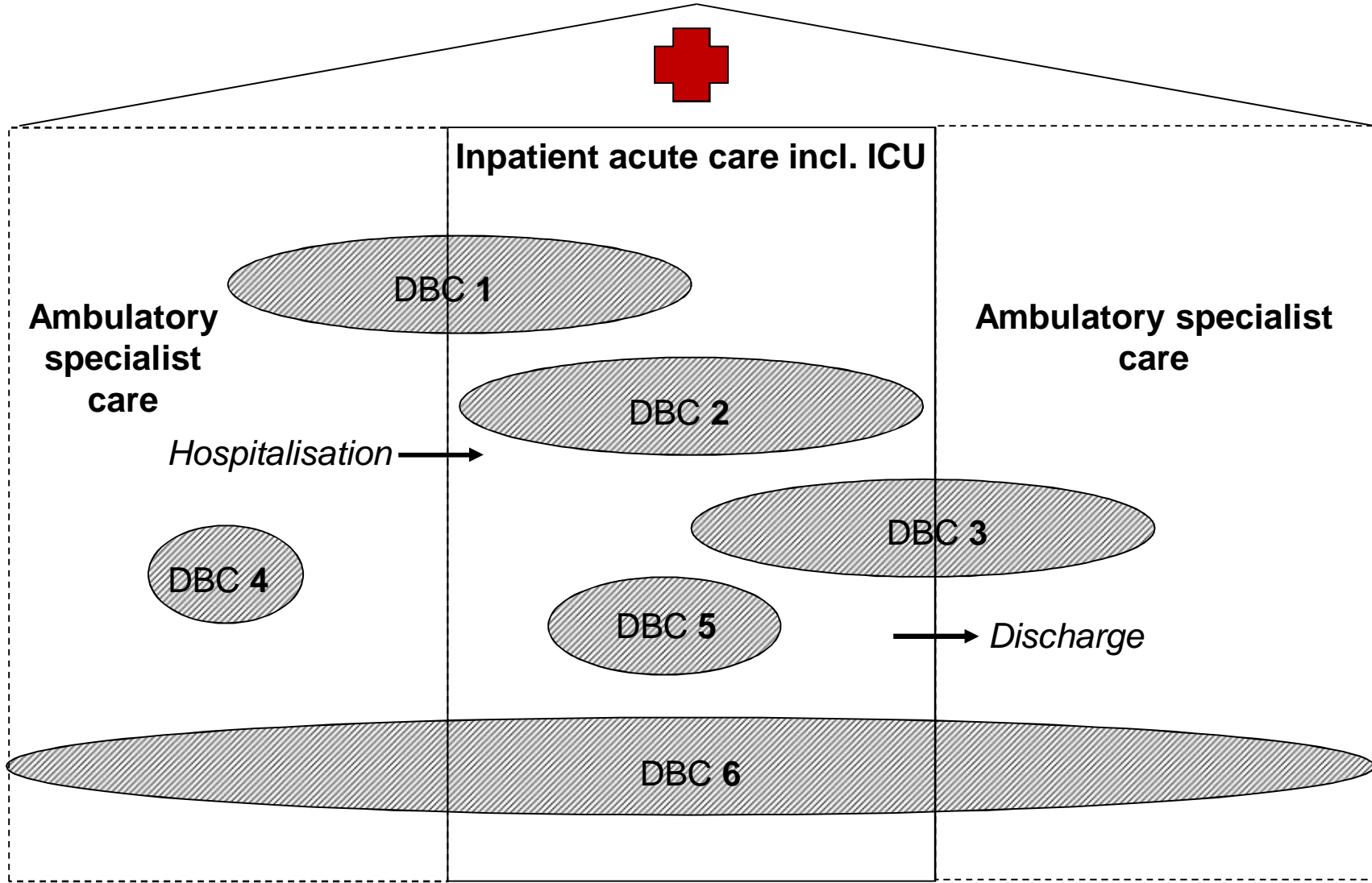
Additional payments for specific activities for DRG-
classified patients (e.g. expensive drugs, innovations),
possibly listed in DRG catalogues

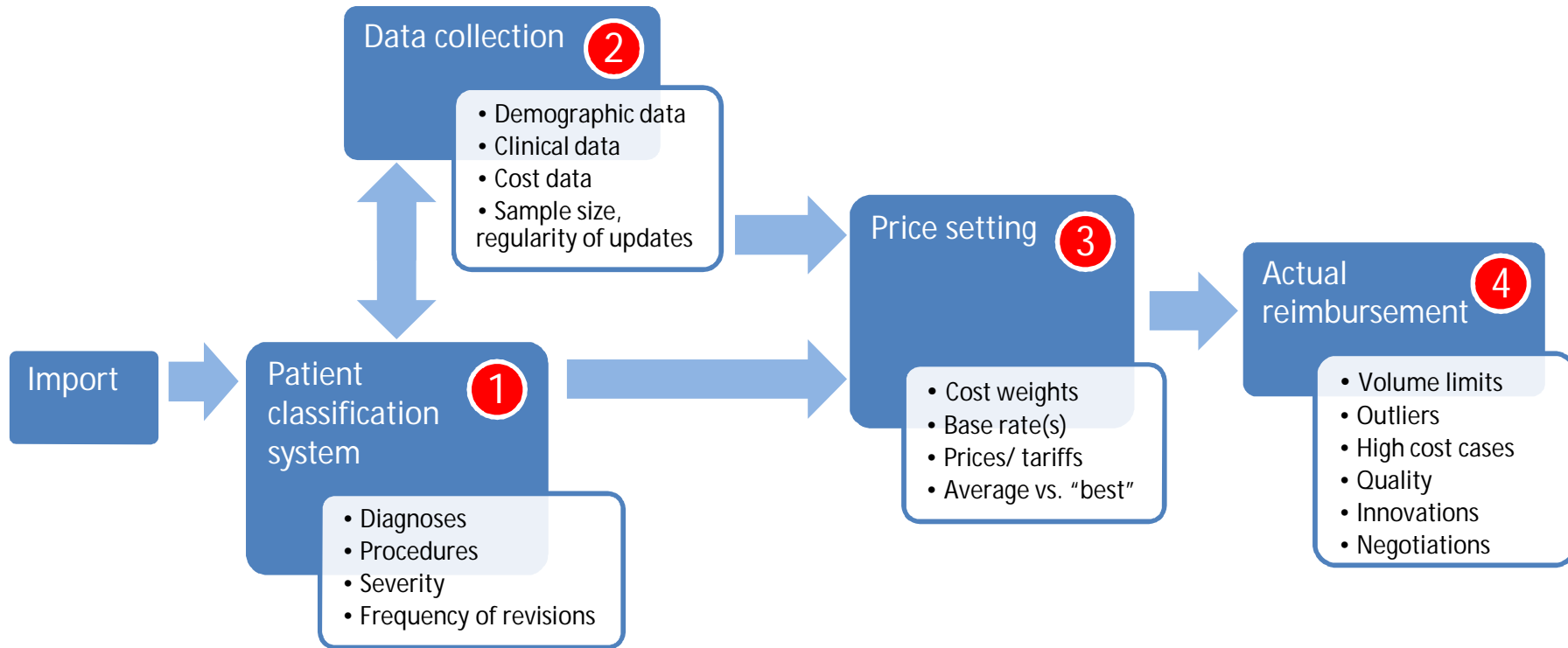
Other types of payments for DRG-classified patients
(e.g. global budgets, fee-for-service)

DRG-based case payments,
DRG-based budget allocation
(possibly adjusted for outliers, quality etc.)



DBC's (diagnosis-treatment combinations); *examples*



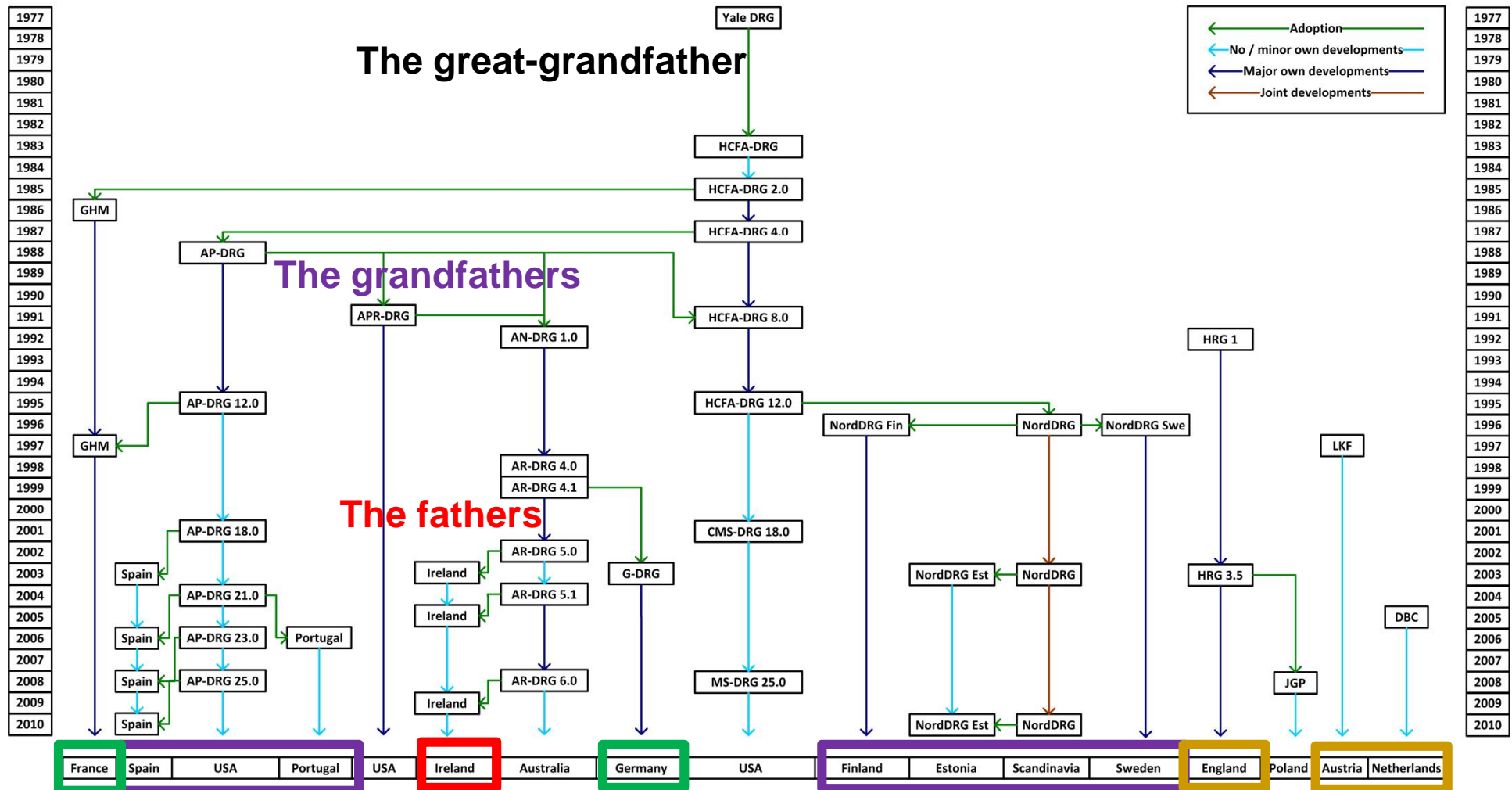


Choosing a PCS: copied, further developed or self-developed?

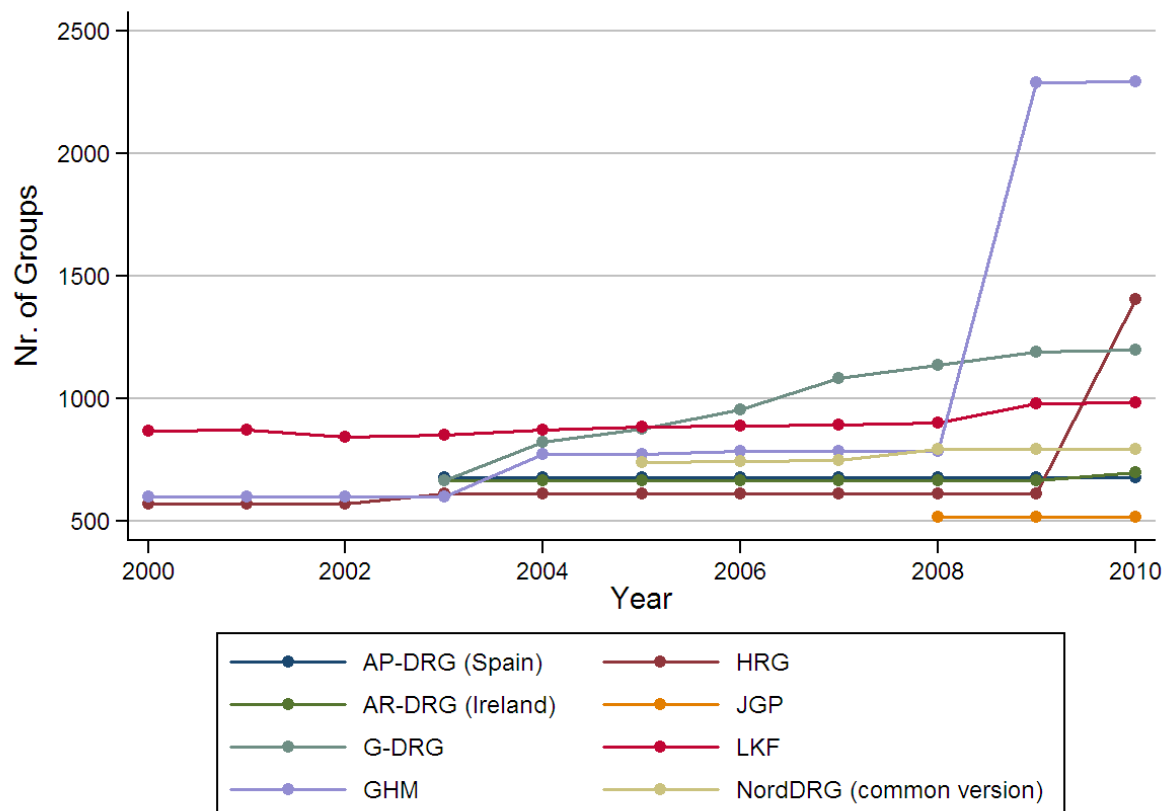
Patient classification system

- Diagnoses
- Procedures
- Severity
- Frequency of revisions

France	Spain	USA	Portugal	USA	Ireland	Australia	Germany	USA	Finland	Estonia	Scandinavia	Sweden	England	Poland	Austria	Netherlands
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Basic characteristics of Patient classification systems in Europe



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

	AP-DRG (678)	HRG (1389)	NordDRG (794)	AR-DRG (665)	GHM (2297)	LKF (979)	G-DRG (1200)	JGP (518)
Error Pre-MDC			99	99 (A)	90		99 (A)	
Nervous System	1	A	1	01 (B)	01		01 (B)	A
Eye	2	B	2	02 (C)	02		02 (C)	B
Ear, Nose, Mouth & Throat	3	C	3	03 (D)	03		03 (D)	C
Respiratory System	4	D	4	04 (E)	04		04 (E)	D
Circulatory System	5	E	5	05 (F)	05		05 (F)	E
Vascular Diseases (only JGP)		F						
Digestive System	6	G	6	06 (G)	06		06 (G)	Q
Hepatobiliary System & Pancreas	7	H	7	07 (H)	07		07 (H)	F
Musculoskeletal System & Connective Tissue	8	I	8	08 (I)	08		08 (I)	G
Skin, Subcutaneous Tissue & Breast	9	J	9	09 (J)	09		09 (J)	H
Breast Problem (only NordDRG)		K	30					
Burns	22		22	22 (Y)	22		22 (Y)	J
Endocrine, Nutritional & Metabolic System	10	L	10	10 (K)	10		10 (K)	K
Kidney & Urinary Tract	11	M	11	11 (L)	11		11 (L)	L
Male Reproductive System	12	N	12	12 (M)	12		12 (M)	M
Female Reproductive System	13	P	13	13 (N)	13		13 (N)	N
Pregnancy, Childbirth & Puerperium	14	Q	14	14 (O)	14		14 (O)	O
Newborn & Other Neonates (Perinatal Period)	15	R	15	15 (P)	15		15 (P)	P
Blood, Blood Forming Organs & Immunological Disorders	16	S	16	16 (Q)	16		16 (Q)	Q
Myeloproliferative DDs (Poorly Differentiated Neoplasms)	17	T	17	17 (R)	17		17 (R)	R
Infectious & Parasitic DDs	18	U	18	18 (S / T)	18		18 (S)	S
Human Immunodeficiency Virus Infection	24	V	19	19 (U)	19		19 (U)	T
Mental Diseases & Disorders	19		21	20 (V)	20		20 (V)	U
Alcohol/Drug Use or Induced Mental Disorders	20		24	21 (W / X)	21		21 (W)	V
Injuries, Poison & Toxic Effect of Drugs	21		23	23 (Z)	23		23 (Z)	W
Multiple Significant Trauma	25				26		26 (X)	X
Factors Influencing Health Status	23				23		23 (Z)	Y
Other								Z

Data collection

- Demographic data
- Clinical data
- Cost data
- Sample size, regularity of updates

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

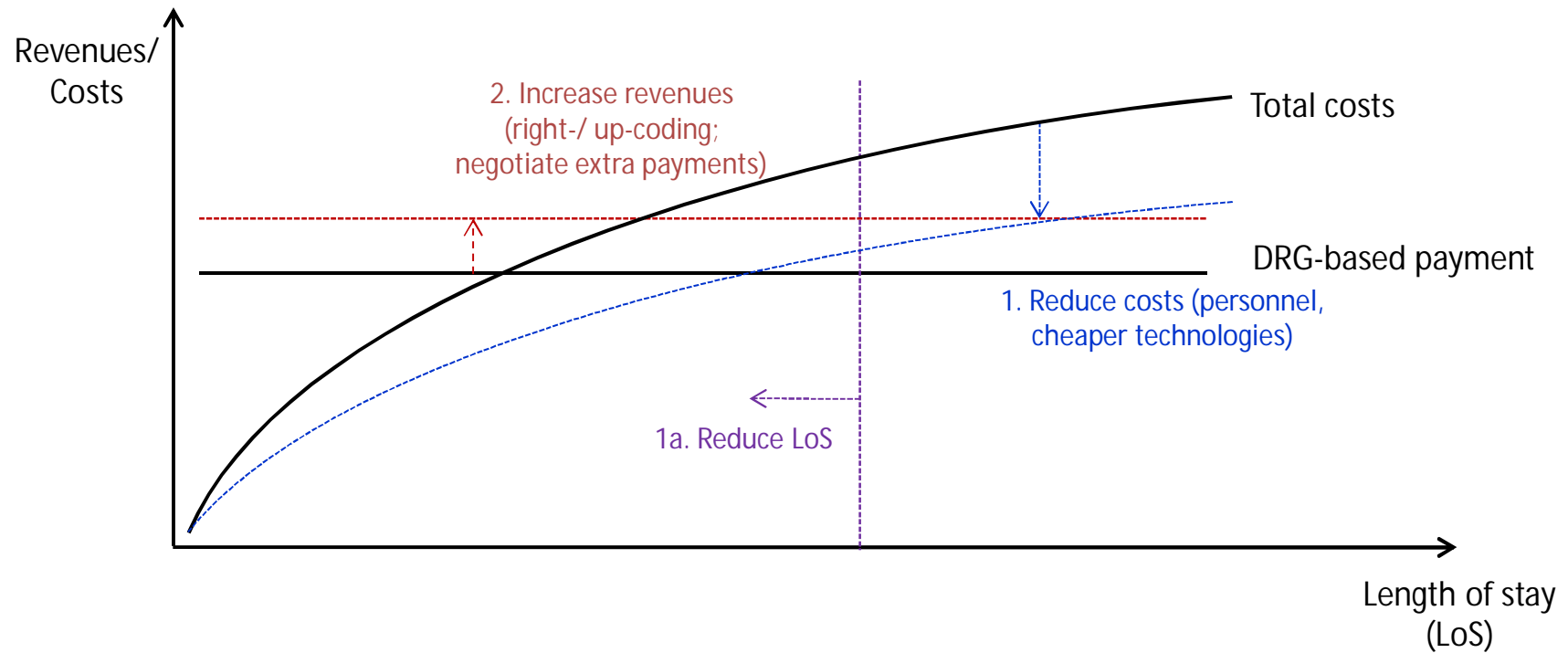
- entire patient population *or*
- a smaller sample

Many countries: *clinical data* = all patients;
cost data = hospital sample
with standardised cost accounting system

Price setting

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

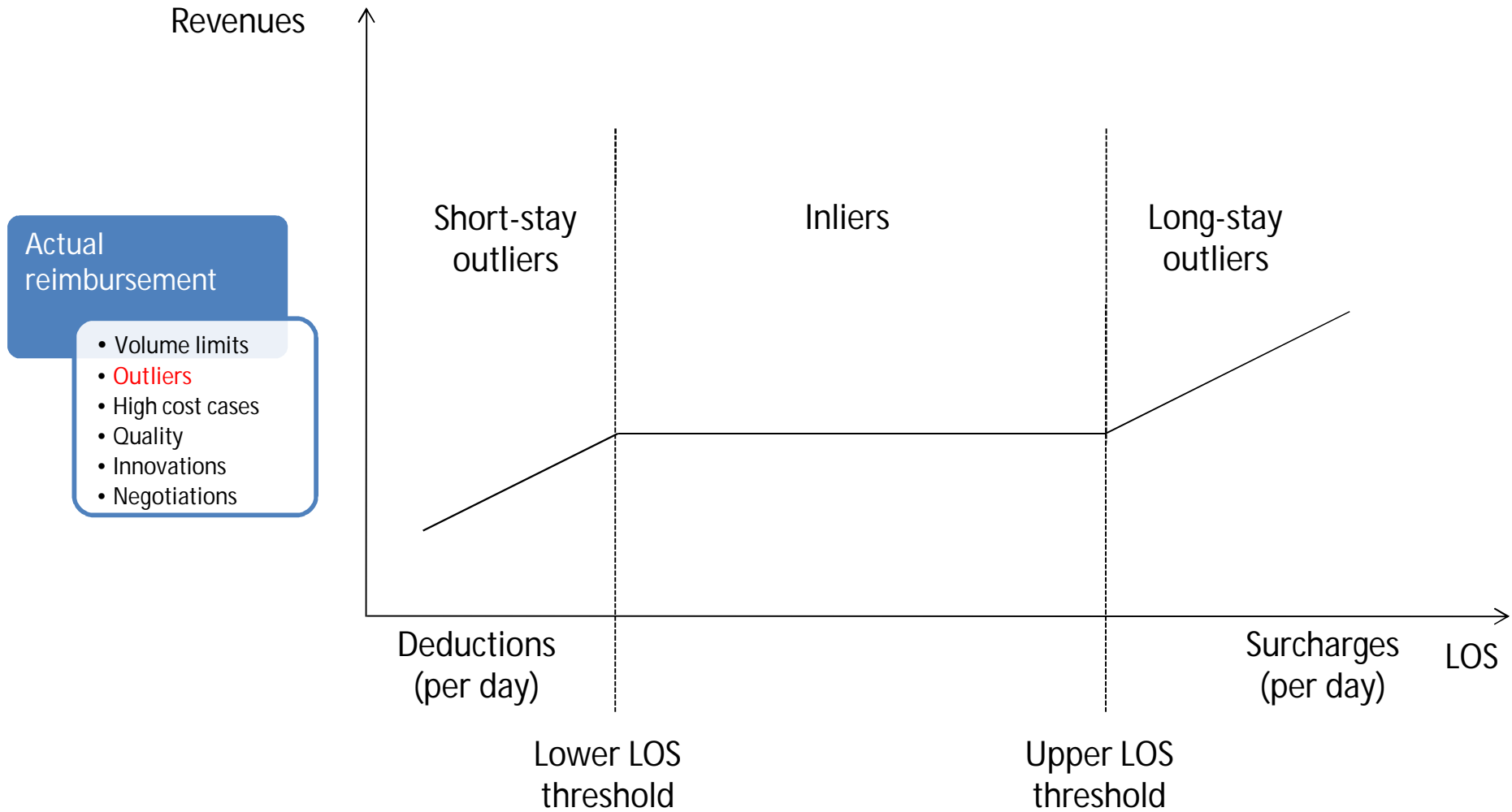
- Based on good quality data
(not possible if cost weights imported)
- “Cost weights x base rate” vs.
“Tariff + adjustment” vs.
Scores
- Average costs (mostly in Europe) vs.
“best practice” (for high-volume DRGs in England)



Incentives of DRG-based hospital payment	Strategies of hospitals
1. Reduce costs per patient	a) Reduce length of stay <ul style="list-style-type: none"> optimize internal care pathways inappropriate early discharge ('bloody discharge')
	b) Reduce intensity of provided services <ul style="list-style-type: none"> avoid delivering unnecessary services withhold necessary services ('skimping/undertreatment')
	c) Select patients <ul style="list-style-type: none"> specialize in treating patients for which the hospital has a competitive advantage select low-cost patients within DRGs ('cream-skimming')
2. Increase revenue per patient	a) Change coding practice <ul style="list-style-type: none"> improve coding of diagnoses and procedures fraudulent reclassification of patients, e.g. by adding inexistent secondary diagnoses ('up-coding')
	b) Change practice patterns <ul style="list-style-type: none"> provide services that lead to reclassification of patients into higher paying DRGs ('gaming/overtreatment')
3. Increase number of patients	a) Change admission rules <ul style="list-style-type: none"> reduce waiting list admit patients for unnecessary services ('supplier-induced demand')
	b) Improve reputation of hospital <ul style="list-style-type: none"> improve quality of services focus efforts exclusively on measurable areas

Positive and negative consequences are closely related

How DRG systems reduce unintended behaviour: 1. long- and short-stay adjustments



How DRG systems reduce unintended behaviour: 2. Fee-for-service-type additional payments

- Actual reimbursement
- Volume limits
 - Outliers
 - High cost cases
 - Quality
 - Innovations
 - Negotiations

	England	France	Germany	Netherlands
Payments per hospital stay	One	One	One	Several possible
Payments for specific high-cost services	Unbundled HRGs for e.g.: <ul style="list-style-type: none"> • Chemotherapy • Radiotherapy • Renal dialysis • Diagnostic imaging • High-cost drugs 	Séances GHM for e.g.: <ul style="list-style-type: none"> • Chemotherapy • Radiotherapy • Renal dialysis Additional payments: <ul style="list-style-type: none"> • ICU • Emergency care • High-cost drugs 	Supplementary payments for e.g.: <ul style="list-style-type: none"> • Chemotherapy • Radiotherapy • Renal dialysis • High-cost drugs/ devices 	Since 2012: <ul style="list-style-type: none"> • ICU • Care in cooperation with practice-based physicians
Innovation-related add'l payments	Yes	Yes	Yes	Yes (for drugs)

How DRG systems reduce unintended behaviour: 3. adjustments for quality

Type of adjustment	Mechanism	Examples
Hospital based	<ul style="list-style-type: none"> • Payment for entire hospital activity is adjusted upwards or downwards by a certain percentage • Hospital receives an additional payment unrelated to activity 	<ul style="list-style-type: none"> • Predefined quality results are met/not met (<i>e.g., in England</i>) • Overall readmission rate is below/above average or below/above agreed target (<i>e.g., in the United States</i>) • Hospitals install new quality improvement measures (<i>e.g., in France</i>)
DRG/ disease based	<ul style="list-style-type: none"> • Payment for all patients with a certain DRG (or a disease entity) is adjusted upwards or downwards by a certain percentage • DRG payment is not based on average costs but is awarded to those hospitals delivering 'good quality' 	<ul style="list-style-type: none"> • Insurers negotiate with hospitals that DRG payment is higher/lower if certain quality standards are met/not met (<i>e.g., in Germany and the Netherlands</i>) • DRG payment for all hospitals is based on 'best practice'; that is, costs incurred by efficient, high-quality hospitals (<i>e.g., in England</i>)
Patient based	<ul style="list-style-type: none"> • Payment for an individual patient is adjusted upwards or downwards by a certain amount • No payment is made for a case 	<ul style="list-style-type: none"> • Certain readmissions within 30 days are not paid separately but as part of the original admission (<i>e.g., in England and Germany</i>) • Complications (that is, certain conditions that were not present upon admission) cannot be used to classify patients into DRGs that are weighted more heavily (<i>e.g., in the United States</i>)

4. Frequent revisions of PCS and payment rates

Country	PCS		Payment rate	
	Frequency of updates	Time-lag to data	Frequency of updates	Time-lag to data
Austria	Annual	2–4 years	4–5 years	2–4 years
England	Annual	Minor revisions annually; irregular overhauls about every 5–6 years	Annual	3 years (but adjusted for inflation)
Estonia	Irregular (first update after 7 years)	1–2 years	Annual	1–2 years
Finland	Annual	1 year	Annual	0–1 year
France	Annual	1 year	Annual	2 years
Germany	Annual	2 years	Annual	2 years
Ireland	Every 4 years	Not applicable (imported AR-DRGs)	Annual (linked to Australian updates)	1–2 years
Netherlands	Irregular	Not standardized	Annual or when considered necessary	2 years, or based on negotiations
Poland	Irregular – planned twice per year	1 year	Annual update only of base rate	1 year
Portugal	Irregular	Not applicable (imported AP-DRGs)	Irregular	2–3 years
Spain (Catalonia)	Biennial	Not applicable (imported 3-year-old CMS-DRGs)	Annual	2–3 years
Sweden	Annual	1–2 years	Annual	2 years

- DRG-based hospital payment is the main method of provider payment in Europe, but systems vary across countries
 - Different patient classification systems
 - DRG-based budget allocation vs. case-payment
 - Regional/local adjustment of cost weights/conversion rates
- To address potential unintended consequences, countries
 - implemented DRG systems in a step-wise manner
 - operate DRG-based payment together with other payment mechanisms
 - refine patient classification systems continuously (increase number of groups)
 - place a comparatively high weight on procedures
 - base payment rates on actual average (or best-practice) costs
 - reimburse outliers and high cost services separately
 - update both patient classification and payment rates regularly
- If done right (which is complex), DRGs can contribute to increased transparency and efficiency – and quality



Excluded costs
(e.g. for infrastructure; *in U.S. also physician services*)

Payments for non-patient care activities
(e.g. teaching, research, emergency availability)

Payments for patients not classified into DRG system
(e.g. outpatients, day cases, psychiatry, rehabilitation)

Additional payments for specific activities for DRG-classified patients (e.g. expensive drugs, innovations), possibly listed in DRG catalogues

Other types of payments for DRG-classified patients
(e.g. global budgets, fee-for-service)

DRG-based case payments,
DRG-based budget allocation
(possibly adjusted for outliers, quality etc.)

Integrate all relevant costs and measure them accurately

Separate priority activities not related to a particular patient from DRG payments

Pay separate for patient-related activities which you want to incentivize (upon prior authorization, 2nd opinion?)

- Define clinically meaningful groups (constant updating),
- which are cost-homogeneous (on average or “best practice”),
 - measure quality and
 - adjust payment

New from Open University Press

Diagnosis-Related Groups in Europe

Moving towards transparency,
efficiency and quality in hospitals

Reinhard Busse, Alexander Geissler, Wilm Quentin and
Miriam M. Wiley (Eds)

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Diagnosis Related Group (DRG) systems were introduced in Europe to increase the transparency of services provided by hospitals and to incentivise greater efficiency in the use of resources invested in acute hospitals. In many countries, these systems were also designed to contribute to improving - or at least protecting - the quality of care. After more than a decade of experience with using DRGs in Europe, this book considers whether the extensive use of DRGs has contributed towards achieving these objectives.

