| AN-DRGs (Australian National DRGs) 234–6, 277 |
| APRDRGs (All Patient Refined DRGs) (United States) 25–6 |
| AR-DRG (Australia), use in Germany 160–1, 162, 165 |
| Australia |
| Australian Health Care Agreements 231–2 |
| health care system 231–2 |
| universal health insurance system 231–2 |
| Australian casemix system |
| bureaucracy of policy monitoring and management 246–7 |
| casemix development program 233–4 |
| casemix funding of hospitals 236–8 |
| clarity and consistency of policy objectives 247 |
| classification development process and criteria 234–6 |
| comparison of NSW and Victoria funding systems 238–42 |
| data monitoring and auditing 248 |
| development of Australian National DRGs (AN-DRGs) 234–6 |
| factors in retention of casemix policy 239, 242–4 |
| history of casemix development 232–4 |
| hospital management impacts 248–9 |
| impact of policy change rhetoric 245 |
| impacts of introduction in Victoria 238–42, 251–2 |
| influence of Yale DRG development 232 |
| lessons from the experience in Victoria 242–50 |
| moral hazard and gaming behaviour 248 |
| New South Wales funding policy 238 |
| political appeal of casemix policy 242–4 |
| regulatory strategies in casemix funding 237–8 |
| requirements for long-term organizational change 247 |
| role of George Palmer in development 232–3 |
| transition to the new budget system 244 |
| use of casemix incentives to promote other policies 250 |
| Victorian casemix funding of hospitals 236–8, 238–42, 251–2 |
| Austria, LKF system 160–1 |
| Belgium |
| APDRGs 146–8 |
| assessment of the application of DRGs 149–51 |
| data collection and checking 151–2 |
| history of casemix systems 144–5 |
| how DRGs are used 146–8 |
| impacts of shift towards prospective payment 149–51 |
| objectives of using DRGs 148–9 |
| potential adverse effects of reform 150–1 |
| progressive implementation of DRGs 144–5 |
| technical aspects of MBDS data collection 149 |
| Bentes, Margarida 54–5, 58 |
| Blanpain, Jean 363–4 |
| Canadian approaches to casemix |
| analysis of variations in coding practices 333–5 |
| Canadian Case Mix Groups (CMG) development 322–4, 324–6 |
| CMG age group adjustments 323 |
| CMG complexity overlay (Plx) 323 |
| CMG+ development 335–9 |
| CMG+ national pilot 339–40 |
| Comprehensive Ambulatory Classification System (CACS) 324 |
| Day Procedure Groups (DPG) methodology 323 |
| Discharge Abstract Database (DAD) 322, 323 |
| Expected Length of Stay (ELOS) indicator 322 |
| factors in successful application of casemix tools 343 |
| future developments 335–43 |
| history of casemix development 322–4, 325 |
| impact of changes in classification systems 332–3 |
Canadian approaches to casemix (cont.)

- Introduction of CMG methodology 322
- Ongoing development of methodologies 324
- Redevelopment of acute care inpatient grouping (CMG+) 335–9
- Refinement of DPG and CACS methodologies 340–1
- Refinement of RIW, ACW and ELOS methodologies 341–3

- Resource Intensity Weights (RIW) indicator 322
- Responsibility for casemix development and maintenance 324–6
- Role of the Canadian Institute for Health Information (CIHI) 322–4, 324–6

Canadian casemix methodologies 326–32

- Ambulatory Cost Weights (ACW) 332
- Case Mix Groups with Complexity Overlay (CMG/Plx) 326–8
- Case Mix Indices (CMI) 332
- Comprehensive Ambulatory Classification System (CACS) 328
- Day Procedure Groups (DPG) 328
- Expected length of stay (LOS) indicator 330

- Health resource indicators 330–2
- Length of stay (LOS) indicators 330
- Major Clinical Category (MCC) 326–7
- Most Responsible Diagnosis (MRDx) concept 326–7
- Resource Intensity Weights (RIW) 331–2
- Resource Utilization Groups – Home Care (RUG–III–HC) 329
- Resource Utilization Groups (RUG-III) 328–9
- System for classification of inpatient psychiatry (SCIPP) 329

- Canadian health care system 320–1
- Canada Health Act 320
- Health care spending 320–1
- Health insurance system 320
- Population size and spread 320
- Casemix, global diffusion see PCS (patient classification systems) diffusion and specific countries

- DAGS (Danish outpatient grouping system) 97, 113–14

Danish casemix system

- Activity-based financing outside the DkDRGs 107
- Activity-based financing using DkDRGs 104–6
- Activity-based government pool 100, 101–3

Current situation 100–7
- Development of the use of DRGs 112–13
- DkDRG development from NordDRG 97
- DkDRG rates calculation process 113–14
- DkDRG system 84, 89–90
- DRG as a means of payment 97
- DRG system uses (2006) 106
- Impacts of activity-based financing 107–8
- Impacts of political-administrative structural reform 110–12
- Implementation of DkDRG and DAGS 97
- Improvement of activity-based financing models 108–10
- Influence of Jørgen Lotz 95
- Influence of Karin Kristensen 95, 96, 98
- Influence of Poul Erik Hansen 95–6, 98
- Information system (eSundhed) 103

- Introduction of casemix systems 94–6
- NordDRG adaptation to DkDRG 97
- NordDRG-based productivity analysis 96
- NordDRG system 84, 89–90
- Patient choice of hospital 97–8, 100, 101, 103, 108
- Productivity analysis based on casemix 96
- Waiting times 98, 100, 103, 108

Danish health care system 92–4
- Private hospital sector 94
- Spending on health care 93–4
- DkDRG system 84, 89–90, 97, 113–14
- DPC (Diagnosis Procedure Combination), Japan 258–9, 260

Estonia, NordDRG system 84, 89–90

Fetter, Robert 9–13, 22, 122, 145
Finland, NordDRG system 84, 89–90
Finley, Joanne 13–14, 22–5
France
- Access to health care 118–20
- Funding of health care 118–20
- Health care system 116–21
- Health care system performance 116–17
- Organization of health care 120–1
- Population health indicators 116–17
- Population size 116
- Spending on health care 117–18

French casemix system

- Casemix-based financing 131–4, 138–41
- Current development 129–31
- Debates over casemix-based financing 138–41
- Debates over the GHM classification 136–8
- Drivers for development 124–6
- Extensions of casemix 130–1
GHM (Groupe Homogène de Malades) system 116, 121, 125–6, 128–9, 136–8, 160–1
impacts of the introduction 135–6
implementation of the GHM system 128–9
influence of Jean de Kervasdoué 126–7, 363–4
introduction of casemix 121–9
key players in implementation 126–8
lessons from the French experience 141–2
PMSI (Programme de Médicalisation des Systèmes d’Information) 116, 121–31
potential uses 134–5
requirements for implementation to succeed 136
support from Yale University group 122
timing of the implementation 121–4
uses for casemix 131–5
German DRG system
decision to implement a DRG system 160–1
development of the German DRG system (G-DRGs) 163–4, 165–6
DRG introduction process 162–4
effects of DRGs on hospital partners 170–2
effects of DRGs on patients 173
effects of DRGs on sickness funds 172
expectations of the DRG system 161–2
future of DRGs in Germany 173–4
German Institute of Medicine Informatics (DIMDI) 162–3
hospital system impacts of DRGs 168–70
impacts of DRGs 166–73
impacts of political change 160–1
Institute for Calculating DRG cost weights (InEK) 162–3
internal hospital effects of DRGs 166–8
investigation of possible DRG systems 160–1
reform of the hospital reimbursement system 158–60
resistance to DRGs 161–2
selection of Australian AR-DRG system 160–1, 162, 165
situation before DRG development 158–60
test of AP-DRG system 160–1
German health care system 153–8
competition 157
coordination of demand and supply 156–8
demand for health care 153
financing of health care 154–5
hospital reform 157–8
hospital services provision 155
sickness funds 154–5
social health insurance system 153
GHM (Groupe Homogène de Malades) system (France) 116, 121, 125–6, 128–9, 136–8, 160–1
global diffusion of casemix see PCS (patient classification systems) diffusion
Hansen, Poul Erik 95–6, 98
HBCS see Hungarian DRG system (HBCS)
HRGs (Healthcare Resource Groups) (UK) 36, 37–9, 42–7
Hungarian DRG system (HBCS) current situation 295–308
access to health care data 308
activity volume control 304–5
budget planning for inpatient care 307
casemix skills training 307
chronic care 300
cost-weight uniformity 301
coverage procedure for new providers and services 304
definition of hospital case unit and category 302–3
disease treatment protocols 306–7
extension of casemix systems 298–300
financing of brief emergency cases 300
harmonization of outpatient and inpatient fees 305–6
health provider performance limits 304–5
local information system requirements 307–8
quality assurance elements 306
quality indicators 306
refinement of reimbursement parameters 301–2
refinements in definition of groups 296–8
rehabilitation 300
reimbursement for one-day surgery or clinic 298–300
reimbursement of ‘serial’ outpatients treatments 300
rules for very expensive devices and interventions 303–4
submission of data for settlement 307–8
service provider operating licence 306
uniform reimbursement parameters 301
Hungarian DRG system (HBCS) future development 315–17
contribution to viability of the health care system 317
cost-effective support for new technologies 316–17
equipment utilization improvement 316
expansion into new health areas 315–16
### Index

Hungarian DRG system (HBCS) impacts 308–15
better utilization of care 311
cost of health care 311
DRG creep 311
effects on the health market 315
growth in hospital sector output 310
problems and weaknesses 312–14
quality of patient care 312, 314–15
quantification of hospital care results 310–14
redistribution of tasks between hospitals 311
reduction in hospital length of stay 310
reduction in number of beds 310
role in development of hospital management 314
role in realization of health care policy goals 308–10

Hungarian DRG system (HBCS) introduction
adaptation of DRG for use in Hungary 288–9
allocation of risks of reimbursement 294–5
development of an independent system 292–3
development role of the Ministry of Health 289–90
drivers for introduction 286–7
factors in successful development of casemix 290
features of the first DRG-based reimbursement system 294–5
history of the introduction of casemix systems 286–95
hospital base rate calculation 294
international comparisons of data 293
objectives of introduction 287–8
preconditions for introduction 288
questions debated during development 290–2
range of applications for the casemix system 293–4
similarities to HCFA DRG version 295

Hungarian health care system 284–5
acute inpatient care 285
financing of health care services 284
general practitioners 285
outpatient care 285
private health care providers 285

Iceland, NordDRG system 84, 89–90

Italian casemix system
characteristics 202–7
coding procedures in hospitals 212
criticisms 194–5
current situation 207–12
decentralization of health systems 195–6
DRG system 202–7
DRG tariffs adopted by regions 196–202
drivers of implementation 193–4
drivers of introduction 192–218
financial flows leading to funding 207–8
future of casemix systems in Italy 219–25
goals 194
hospital budgeting 208–10
impacts on hospital financial systems 196–202
impacts of political changes on health systems 195–6
impacts of the introduction of DRGs 212–19, 220
implementation 193–4
introduction 192–4
maintenance of the casemix system 211–12
national tariffs and regional adjustments 202–7
path dependence in health policy 193–218
regional adaptations of the casemix system 193–218
regional control of health systems 195–6
RODs (Italian name for DRGs) 193
shift to a DRG-based hospital financial system 193–4
use of DRGs in hospital planning 210–11
weaknesses 219–25

Italian National Healthcare System (SN)
189–91
AOs (Hospital Trusts) 189–90, 190–1
APPs (accredited private hospitals) 189–90, 190–1
ASLs (Local Health Authorities) 189–90, 191
evolution under the casemix system 196–202
funding 191
impacts of regionalization reforms 191
population characteristics 189
public spending on health 189
structure 189–90

Japanese approach to casemix
classification development 258–9
code finder program 261
DPC (Diagnosis Procedure Combination) 258–9
DPC and innovation in hospital management 269–70
DPC as a tool for health reform 270–1
DPC-based cost analysis project 263–4
DPC project team 258
DPC refinement process 263
efficiency of use of health resources 264, 265
evaluation of the DPC system 264–6
extension of DPC to other medical services 268–9
future developments of the DPC project 266–71
health insurance system reform 270–1
history of introduction of casemix systems 255–8
hospital information system 260–3
impacts of an ageing population 270–1
incremental approach to per case payment 268
international comparison of tariffs 267–8
need for standardized medical profiling 255–7
need to create a Japanese system 257–8
patient choice and information 264–5
quality assurance program 265–6
receipt data download system 260–1
reimbursement system based on DPC 261–3
structure of the DPC code 260
universal health insurance system 254–5, 255–7

Kervasdoué, Jean de 126–7, 363–4
Kristensen, Karin 95, 96, 98

length of stay (LOS) as measure of output (US) 10–11, 12
LKF system, Austria 160–1
Lotz, Jørgen 95

Major Diagnostic Categories (MDC) (US) 11

NordDRG system 77, 82–5, 89–90
Norway, NordDRG system 84, 89–90
Owen, Jack 14, 16, 22

Palmer, George 232–3, 363–4
PCS (patient classification systems) adoption patterns, and management innovation 346–7
PCS (patient classification systems) as innovation social aspects 347–53
technical features which promote diffusion 353–5
PCS (patient classification systems) diffusion analysis of variations in adoption 356–67
carriers and champions 363–4
drivers for adoption of new practices 356
economic and performance pressures 359–60
factors influencing variation in adoption 356–67
future developments 368–9
implications for policy makers, managers and researchers 369–71
influence of major stakeholders 365–7

national context 358–62
networks of users 365
political agendas 360
Rogers’ model of diffusion of innovations 358
role of social actors 362–7
S-curve model of diffusion of innovations 356
structure of national political and health care systems 360–2
technical forces 360
variation in duration and difficulty of PCS adoption 348, 356
variation in origins of the system 348, 353–4
variation in purposes and use for patients 348, 355
variation in timing of PCS adoption 348, 356

Pettengill, Julian 6–7, 15–16, 22–5
Portugal
health care system 51–3
Institute for Financial Management and IT (IGIF) 51–2, 61–3
Ministry of Health 51–2, 53–5
private sector 51
Regional Health Authorities 51–2
role of central government 51–2
spending on health care 53
Portuguese casemix system
ambulatory surgery DRGs 60–1
careers about coding of diagnoses 67
concerns about DRGs and hospital funding 68
current situation 55–63
data collection 61–3
DRG creep and splitting stays 67
factors in the continued use of DRGs 68–9
future of the DRG program 70
HCFA DRGs 61
history of introduction 53–5
hospital coding audits 62
hospital feedback reports 58–60
hospital funding system 57–8
impact of introduction of DRGs 63–7
implementation costs 70
implementation of a DRG-based system 53–5
national and local databases 61–3
national base rate 57–8
objectives of a DRG-based system 54–5
performance and quality indicators 58–60
potential benefits of a patient classification system 70
potential uses for DRG-produced information 69–70
relative weights of DRGs 56
role of João Urbano 54–5
role of Margarida Bentes 54–5, 58
RODs (Raggruppament Omogenei di Diagnosi, Italy) 193

Schweiker, Richard 14, 16–17, 22–5

Singapore
health care financing 273
health care system 272
population characteristics 272
spending on health care 272

Singapore casemix system
areas for further study and action 282
choice of system 277
data coding accuracy 277–8
data quality and integrity 277–8
enhancing system efficiencies 281
factors in successful implementation 282–3
funding formula 274
implementation 273–80
improving cost consciousness 280–1
initial adoption of AN-DRG system 277
managing the transition 275–6
objectives 273–4
pilot run 278–9
progress thus far 280–1
quality of care indicators 279–80
technical considerations 277–9
Stockholm model of DRG introduction 78–81
Swedish health care system 73–6

Swedish DRG system
Centre for Patient Classification Systems (CPK) 77, 84–5
coding systems 90
cost weights 90
current situation 82–5
developing a national grouper 88
future of DRGs in Sweden 88–9
health data registers 82
impact of DRG-based PPS 85–6
importance of good data 87–8
importance of information systems 87–8
incentive structure 87, 88
introduction of DRG-based PPS 77–8
introduction of the DRG system 77
lessons learned 86–9
national coordination on DRG issues 77
NordDRG system 77, 82–5, 89–90
productivity and cost containment 87
quality of care issues 82
realistic expectations of DRGs and PPS 86–7
reasons for introduction of DRGs 73–4
Scania approach to DRG introduction 81
Stockholm model of DRG introduction 78–81
Swedish version of NordDRG 77, 82–5, 89–90

Vastra Götaland approach to DRG introduction 81

Swiss casemix system
AP-DRG version adapted for Switzerland 179–80, 180–2
‘APDRG Switzerland’ group 178, 179–80, 180–1, 182, 186
current situation 180–2
data abstraction and coding 182
drivers for introduction 179
extensions of casemix 181
history of introduction 177–80
impacts of AP-DRG introduction 182–3
implementation 179–80, 186–7
key players in introduction 178
lessons from AP-DRG implementation 186–7
limitations on casemix in Switzerland 187–8
monitoring of quality of coding 183–4
PCS Switzerland 178
quality of care indicators 184–5
readmission rates 184–5
role of the Swiss Federal Statistical Office 182
split stays 184–5
SwissDRG project 185–6, 186–7, 187–8
technical issues 182
University of Lausanne IUMSP casemix study (1984) 177–8
uses of casemix 180–1

Swiss health care system 176–7
private health insurance 176–7
sickness funds 176–7
SwissDRG project 185–6, 186–7, 187–8

Thompson, John 9–13, 22

United Kingdom casemix system
casemix classifications (HRGs) 36, 37–9, 42–7
concerns of health commissioners 48
concerns over ‘upcoding’ by hospitals 48
current situation 39–42
financial pressures on hospitals 47–8
HBGs (Health Benefit Groups) 38–9
history of the introduction of casemix 36–9
HRGs (Healthcare Resource Groups) development 36, 37–9
HRGs revision process 42–7
impacts of implementation 47–8
narrowing of services by hospitals 48
National Casemix Office (NCMO) 36
NHS Information Authority (NHSIA) 36–7, 43
NHS Plan 34, 39–42
Payment by Results system 40, 41–2
slow rate of implementation 47–8
Index

Wanless Report into English NHS funding 39–40
United Kingdom health care system 34–6
English health service 34–6
four national divisions 34
National Health Service (NHS) 34–6
Northern Ireland health service 34
Primary Care Trusts 35–6
reform of the English health service 34–6
Scottish health service 34, 47
Strategic Health Authorities 36
Welsh health service 34, 47, 48
United States DRGs (Diagnosis-Related Groups) system
adoption by American states 16–17
adoption by the federal government 16–17
APR (All Patient Refined) DRGs 25–6
calculation of payments to hospitals 7
competing patient classification systems 4
controversies over adoption 19–21
decision tree structure 5–6, 11–12
defining and measuring a hospital’s products 9–13
DRG classification process 5–6
DRG creep concept 19–20
DRG segmentation and partitioning 11–12
DRG special interest groups 25
DRGs as dominant design 4
exceptions and anomalies 25–6
experience of New Jersey 13–14, 20–1
factors which led to adoption 21–5
future of DRGs 25–6
hospital casemix index 6–7
impact on health policy and management mindset 12–13
impacts on health care costs and quality 17–19
impacts on hospital management behaviour 20–1
implications for hospital management 12–13
influence of interpersonal networks 22
influence of Jack Owen 14, 16, 22
influence of Joanne Finley 13–14, 22–5
influence of Richard Schweiker 14, 16–17, 22–5
influence on health care management and financing 4–5
lack of adjustment for severity 12
length of stay (LOS) as measure of output 10–11, 12
Major Diagnostic Categories (MDC) 11
number of DRGs 6
pilot study by Pettengill and Vertrees 6–7, 15–16, 22–5
political response to the health costs crisis 14–17
pressure for a prospective payment system with casemix index 14–17
principles of the DRG system 5–7
proposed severity adjustments 25–6
recalibration of DRG weights 7
relative weight (RW) of each DRG 6–7
response to hospital costs crisis 14–17
review and amendment of DRGs 6
role of the Center for Medicare and Medicaid Services (CMS) 6–7
timing and conditions for acceptability 21–5
use by the United States government 26
use of averages 12
work of Fetter and Thompson 9–13, 22
Yale University research and development 9–13, 16, 22
United States health policy environment 7–9
influence of dominant coalitions 9
political power and influence 8–9
role of the technical medical care system 8
sociocultural influences 8
Urbano, João 54–5
Vertrees, James 6–7, 15–16, 22–5
Yale University DRG research group 122
consultancy service for potential users 354
DRG research and development 9–13, 16, 22
influence in Australia 232