Feasibility study of the introduction of an all-inclusive case-based hospital financing system in Belgium - Supplement

KCE reports 121S

Federaal Kenniscentrum voor de Gezondheidszorg
Centre fédéral d'expertise des soins de santé
Belgian Health Care Knowledge Centre
2010

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KCE reports vol. 121S

Title:	Feasibility study of the introduction of an all-inclusive case-based hospital financing system in Belgium - Supplement
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Acknowledgements:	Irina Cleemput (KCE), Chris De Laet (KCE), Stephan Devriese (KCE), Maarten Van Stiphout (voorheen UZ Brussel), Imgard Vinck (KCE), France Vrijens (KCE)
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Conflict of interest:	Employment in an organisation that may gain or lose financially from the results of this report: Edith Azoury, Jan Beeckmans, Dirk Corens, Guy Durant, Peter Fontaine, Bruno Holthof, Daniel Ransart, Patrick Waterbley. Walter Sermeus has a relationship with a care institution (UZ Leuven) that could be conceived as a conflict of interest. Kenneth Bonheure delivers consultancy services to the pharmaceutical industry and the hospital sector.
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Layout:	Ine Verhulst

Brussels, 25th January 2010

Study nr 2007-21

Domain: Health Services Research (HSR)

MeSH: Reimbursement Mechanisms ; Diagnosis-Related Groups ; Health Care Reform ; Cost Allocation

NLM classification: WX 157

Language: English

Format: Adobe® PDF™ (A4)

Legal depot: D/2010/10.273/04

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How to refer to this document?

Van De Sande S, De Ryck D, De Gauquier K, Hilderson R, Neyt M, Peeters G, Swartenbroekx N, Tambeur W, Vanden Boer G, Van de Voorde C. Feasibility study of the introduction of an all-inclusive case-based hospital financing system in Belgium - Supplement. Health Services Research (HSR). Bruxelles: Centre fédéral d'expertise des soins de santé (KCE). 2010. KCE Reports 121S. D/2010/10.273/04



Supplement

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Appendices with Chapter 3

APPENDIX 1: COMPONENTS OF THE BFM

The table below displays the different sub-parts of the hospital budget or "budget of financial means" for 2009. Sub-parts indicated with * are not available in 2005, sub-parts indicated with ** are not present in 2008 (new budget sub-parts since 2009).

Sub Part	Description French	Description Dutch
A1	0100 Immeuble-A1	0100 Onroerend-A1
	0200 Gros Travaux d'entretien-A1	0200 Groot onderhoud-A1
	0300 Charges financières-A1	0300 Financiële lasten-A1
	0400 1ère installation-A1	0400 Eerste inrichting-A1
	0500 Matériel médical-A1	0500 Medisch materiaal-A1
	0560 Matériel médical supplément-A1	0560 Medisch materiaal supplement-A1
	*0570	*0570 Medisch materiaal specifieke bepalingen op 01/01/2007
	*0580	*0580 Medisch materiaal sado specifieke bepalingen op 01/01/2007
	0700 Matériel non médical-A1	0700 Niet medisch materiaal-A1
	0760 Matériel non médical supplément-A1	0760 Niet medisch materiaal supplement-A1
	*0770	*0770 Niet medisch materiaal specifieke bepalingen op 01/01/2007-A1
	*0780	*0780 Niet medisch materiaal saldo specifieke bepalingen op 01/01/2007-A1
	0850 Matériel médical et non médical (Sp et Psychiatrique)-A1	0850 Medisch en niet medisch materiaal (Sp en Psychiatrie) - A1
	0860 Matériel médical et non médical (Sp et Psychiatrique) supplément-A1	0860 Medisch en niet medisch materiaal (Sp en Psychiatrie) supplement - A1
	*0870	*0870 Medisch en niet-medisch materiaal specifieke bepalingen (Sp en Psychiatrie)-A1
	*0880	*0880 Medisch en niet-medisch materiaal saldo specifieke bepalingen (Sp en Psychiatrie)-A1
	0900 Matériel roulant-A1	0900 Rollend materiaal-A1
	*1100	*1100 Supplement informaticamateriaal op 1.1.2008-A1
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden) –A1
	*9001	*9001 Medisch materiaal-A1
	*9002	*9002 Niet medisch materiaa-A1
	*9003	*9003 Medisch en niet-medisch materiaal (Sp en Psychiatrie)-A1
	*9510	*9510 Provisie art. 25 § 6: onroerend-A1
	*9515	*9515 Provisie grote onderhoudswerken-A1
	*9520	*9520 Provisie art. 27 § 2: financiële lasten-A1
	*9530	*9530 Provisie art. 25 § 6: eerste inrichting-A1
	*9540	*9540 Provisie art. 25 § 6: medisch materiaal-A1
	*9550	*9550 Provisie art. 25 § 6: niet-medisch materiaal-A1
	*9560	*9560 Provisie art. 25 § 6: medisch en niet-medisch materiaal (Sp en Psychiatrie)-A1
A2	0200 Forfait A2-A2	0200 forfait A2 -A2
A3	0200 RMN : Immeuble-A3	0200 NMR: Onroerend-A3

Sub Part	Description French	Description Dutch
	0400 RMN : Charges Financières-A3	0400 NMR: Financiële lasten-A3
	0600 Forfait RMN AR 26/2/1991 (RMN < 1 tesla)-A3	0600 Forfait NMR KB 26/2/91 (<1 Tesla)-A3
	*0900	*0900 NMR : Groot onderhoud-A3
	1200 Radiothérapie : Immeuble-A3	1200 Radiotherapie: Onroerend -A3
	1400 Radiothérapie : Charges financières-A3	1400 Radiotherapie: Financiële lasten-A3
	1600 Radiothérapie : Forfait-A3	1600 Radiotherapie: Forfait-A3
	*2200	*2200 Petscan: onroerend-A3
	*2400	*2400 Petscan: Financiële lasten-A3
	2600 Petscan : Forfait-A3	2600 Petscan: Forfait-A3
	*2800	*2800 Petscan: Groot onderhoud-A3
B1	0200 Budget B1-B1	0200 Budget B1 - B1
	0600 Financement du transport des patients K-B1	0600 Financiering van het transport van K-patiënten-B1
	0650 Hôpital de jour chirurgical art 33 § 1 et 2-B1	0650 Heelkundige dagziekenhuis art.33 § 1 en 2 - B1
	0700 Service Social lits G-B1	0700 Sociale dienst G-bedden -B1
	0750 Service social lits G isolé-B1	0750 Sociale dienst geïsoleerde G-bedden - B1
	0800 Financement du Service Social-B1	0800 Financiering van de Sociale Dienst - B1
	*0850	*0850 Ontslagmanagement (sociale dienst geïsoleerde G en Sp..)-B1
	*0900	*0900 Burgerlijke aansprakelijkheid artsen-B1
	*0950	*950 Verwarming-B1
	1000 Dispositions particulières au 01/07/2005 Psy-B1	1000 Specifieke bepalingen op 01/07/2005 Psy-B1
	*1010	*1010 Specifieke bepalingen op 01/07/2006 Psy-B1
	*1020	*1020 Specifieke bepalingen op 01/07/2007 Psy-B1
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden) –B1
B2	0200 Budget B2-B2	0200 Budget B2 - B2
	*0370	*0370 Sociale correctiefactor op 1.7.2008 aan 25%-B2
	*0375	*0375 Sociale correctiefactor op 1.7.2008 aan 25%-B2
	0600 Supplément par lit (Sp)-B2	0600 Supplement per bed (SP) -B2
	*0700	*0700 Supplement actieve verbanden 1.1.2008
	1000 Dispositions particulières au 01/07/2005 Psy-B2	1000 Specifieke bepalingen op 01/07/2005 Psy-B2
	*2000 Dispositions particulières au 01/07/2005 et 2006 G et Sp-B2	*2000 Specifieke bepalingen op 01/07/2005 en 2006 G en Sp-B2
	*2100 Dispositions particulières au 01/07/2007 G et Sp-B2	*2100 Specifieke bepalingen op 01/07/2007 G en Sp-B2
	*2200 Saldo dispositions particulières au 01/07/2007 G et Sp-B2	*2200 Saldo specifieke bepalingen op 01/07/2007 G en Sp-B2
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden) –B2
B3	0200 RMN AR 26/2/1991 (RMN < 1 tesla)-B3	0200 NMR KB 26/2/1991 (<1 Tesla) - B3
	0600 Radiothérapie-B3	0600 Radiotherapie - B3
	0800 Petscan-B3	0800 Petscan - B3
B4	0100 Recyclage-B4	0100 Recyclage - B4
	0200 Plateforme de concertation en santé mentale-B4	0200 Overlegplatformen - B4
	0300 Accord social 1989-B4	0300 Sociaal akkoord 1989 -B4
	0400 Réviseur d'entreprises-B4	0400 Bedrijfsrevisor -B4
	0500 Médecin Chef-B4	0500 Hoofdgeneesheer -B4

Sub Part	Description French	Description Dutch
	0600 Infirmière hygiéniste-B4	0600 Verpleegster ziekenhuishygiëne -B4
	0700 Médecin hygiéniste-B4	0700 Geneesheer ziekenhuishygiëne -B4
	*0710	*0710 Platform hygiëne-B4
	*0720	*0720 Kwaliteit en veiligheid-B4
	*0730	*0730 Borstklinieken-B4
	*0740	*0740 Klinische pharmacie-B4
	0800 RCM - RIM - RPM (Hôpitaux généraux)-B4	0800 MVG-MKG-MPG (Algemene ziekenhuizen) -B4
	*0810	*0810 Toevoeging voor registratie-B4
	0900 RPM en psychiatrie-B4	0900 MPG en psychiatrie - B4
	1000 SMUR-B4	1000 MUG -B4
	1100 Prime d'intégration-B4	1100 Integratiepremie -B4
	1200 Colloqués-B4	1200 Gecollokeerden -B4
	1300 Transport interne-B4	1300 Intern transport -B4
	1500 Formation permanente-B4	1500 Permanente vorming -B4
	*1510	*1510 Supplement permanente vorming 01/01/2009-B4
	1600 Formation permanente hôpitaux publics-B4	1600 Permanente vorming PU - B4
	1700 Conventions de 1er emploi (ex stagiaires ONEM)-B4	1700 Eerste tewerkstelling (ex RVA stagiairs- -B4
	1800 Absence de longue durée-B4	1800 Langdurige afwezigheid -B4
	1900 Cotisation patronale de pensions (hôpitaux publics)-B4	1900 Patronale bijdragen PU - B4
	*1910	*1910 0,25% voor compensatie maatregel IPA openbare ziekenhuizen-B4
	*2000	*2000 Pilootstudies-B4
	*2010	*2010 Geriatrisch dagziekenhuis : paramedisch personeel-B4
	*2015	*2015 Pilootfunctie liaison-B4
	*2020	*2020 Geriatrisch pilootprogramma versterking B1-B4
	*2030	*2030 Geriatrisch dagziekenhuis : verplegende personeel-B4
	*2040	*2040 Kankerplan : pilootstudie_B4
	*2050	*2050 Kankerplan : Multidiciplinaire equipe-B4
	*2051	*2051 Kankerplan : Datamanager-B4
	*2052	*2052 Kankerplan : Ondersteuning pediatrische oncologische eenheid-B4
	*2053	*2053 Kankerplan : Ondersteuning celbank-B4
	*2054	*2054 Kankerplan : Ondersteuning tumorotheek-B4
	*2055	*2055 Kankerplan : Coördinatie translationeel onderzoek-B4
	2200 Fonction palliative : équipe mobile-B4	2200 Palliatieve functie: mobiele equipe - B4
	2300 Protocole médecins généralistes - hôpitaux-B4	2300 Relatie huisdokters-ziekenhuis - B4
	2400 Infections nosocomiales-B4	2400 Nosocomiale infecties - B4
	2500 Contractuels subventionnés-B4	2500 Gesubsidieerde contractuelen -B4
	2600 RPM pour les MSP-B4	2600 MPG van de RVT - B4
	2700 Emplois T1/T2-B4	2700 Tewerkstelling T1/t2 - B4
	2800 Prime syndicale et frais d'affiliation-B4	2800 Syndicale premie en aansluiting -B4
	3000 Enregistrement SMUR et Urgences-B4	3000 Registratie MUG en Spoed -B4
	**3100 Financement fin de carrière (45+)-B4	3100 Eindeloopbaan (45+) -B4
	3500 Financement Personnel accompagnant-B4	3500 Begeleider intreders en herintreders -B4

Sub Part	Description French	Description Dutch
	3600 Financement Equipe mobile (Sp, Sp pal, Psy)-B4	3600 Mobiele equipe (Sp,Sp pal, Psy) - B4
	3700 Activites ludiques et soutien psycho-social (provenant du B2)-B4	3700 Ludieke activiteiten en psy.soc.Beg. (uit B2) - B4
	3800 Personnel supplémentaire (provenant du B2)-B4	3800 Bijkomend personeel (uit B2) - B4
	3900 Oncologie pédiatrique (provenant du B2)-B4	3900 Kinderoncologie (uit B2) - B4
	4000 Transplantations-B4	4000 Transplantaties - B4
	4100 Article 74-B4	4100 Artikel 74 -B4
	4200 Fécondation in vitro-B4	4200 In vitro fertilisatie -B4
	4300 Fonction de médiation-B4	4300 Bemiddelings functie -B4
	4400 Coordination et encadrement psychologique des grands brûlés-B4	4400 Coördinatie en psychologische begeleiding van zwaar verbranden -B4
	*4600	*4600 Artikel 91 quater van het KB van 25 april 2002-B4
	*4800	*4800 97 coma bedden + 97 liaison
	*4900	*4900 Generatiepact: Veiligheid-B4
	*4901	*4901 Generatiepact: Kinderverzorgster-B4
	*4902	*4902 Generatiepact: Geïnterneerd-B4
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden)-B4
B5	0200 Masse B5-B5	0200 Massa B5 - B5
	0400 Gestion antibiothérapie-B5	0400 Antibiotherapiebeheer - B5
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden)-B5
B6	0200 Masse B6-B6	0200 Massa B6 - B6
	*9000	*9000 Wijziging –B6
B7	0250 Différence points B2-B7	0250 Verschil punten B2 - B7
	0300 Diminution B2-B7	0300 Vermindering B2 - B7
	*0330	*0330 Eerste NMR-B7
	*0360	*0360 Budget klinische biologie-B7
	*0400	*0400 Massa B-B7
	0600 Masse C-B7	0600 Massa C-B7
	0800 Masse D-B7	0800 Massa D-B7
	0900 Sous partie B7 A-B7	0900 Onderdeel B7A - B7
	0999 Adaptations-B7	0999 Aanpassingen - B7
	*9000	*9000 Wijziging -B7
B8	**0200 Masse article 78, 1° a)-B8	0200 Massa art.78, 1° a)-B8
	*0201	*0201 Massa sociale functie 75%-B8
	*0220	*0220 Massa SCI 25%-B8
	*0260	*0260 Massa sociale functie 75% voor buiten systeem-B8
	*0270	*0270 Massa SCI 25% voor buiten systeem-B8
	0400 Masse médiation interculturelle-B8	0400 Massa interculturele bemiddeling - B8
	*9000	*9000 Wijziging –B8
B9	*0100	*0100 Suppl. financiering eindeloopbaan vanaf oktober 2005-B9
	*0150	*0150 Financiering eindeloopbaan Akkoord 2000-B9
	*0200	*0200 Attractiviteitspremie-B9
	*0300	*0300 Vakantiegeld statutairen (65-80)-B9
	*0305	*0305 Vakantiegeld statutairen (80-92)-B9

Sub Part	Description French	Description Dutch
	*0310	*0310 Onderfinanciering vakantiegeld-B9
	*0400	*0400 Langdurige afwezigheid: statutair personeel-B9
	*0500	*0500 Geriatrisch dagziekenhuis: verpleegkundig personeel-B9
	*0550	*0550 Liaisonfunctie – Geriatrie-B9
	*0600	*0600 Interculturele bemiddeling-B9
	*0700	*0700 Supplementair personeel operatiekwartier-B9
	*0800	*0800 Versterking nachtequipe algemene ziekenhuizen-B9
	*0850	*0850 Versterking nachtequipes A en A nacht bedden Psy-B9
	*0900	*0900 Verhoging 50% naar 56% suppl zondagnacht en feestdagen-B9
	*1000	*1000 Functiesupplement-B9
	*1100	*1100 Mobiele equipe-B9
	*9000	*9000 Wijziging-B9
C1	*0200	*0200 Massa C1-C1
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden)-C1
	*9500	*9500 Provisies-C1
C2	*0200	*0200 Massa C2-C2
	*0920	*0920 Attractiviteitspremie-C2
	*9005	*9005 Comp. van de berekening van de maatregelen op 1 juli 2007-C2
	*9006	*9006 Comp. berekening van de nieuwe maatregelen op 1 januari 2008-C2
	*9007	*9007 Comp. berekening van de nieuwe maatregelen op 1 juli 2008-C2
	*9010	*9010 Comp. m.b.t. opmerkingen op budget 1.07.2006-C2
	*9016	*9016 Comp. betreffende opmerkingen op 1 juli 2007
	*9040	*9040 Compensatie op 01/01/2008 betreffende indexhypothese-C2
	*9045	*9045 Compensatie op 1.7.2008 betreffende indexhypothese-C2
	*9046	*9046 Compensatie op 01/01/2009 betreffende indexhpothese-C2
	*9080	*9080 Comp. saldo maatregelen 01/01/07 med. Mat., gespreid op 6m-C2
	*9090	*9090 Comp. saldo maatregelen 01/01/07 niet-med. mat., gespreid op 6m-C2
	*9100	*9100 Comp. saldo maatregelen 01/01/07 niet-med. mat., 6m (Sp en Psychiatrie)-C2
C3	*0200	*0200 Massa C3-C3
	*0210	*0210 Compensatie chronische patiënten-C3
	*0300	*0300 Aanpassing-C3
	*9000	*9000 Wijziging van het budget (opening/sluiting van bedden)-C3
C4	*0200	*0200 Massa C4-C4

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APPENDIX 2: INTERNATIONAL COMPARISON OF ACTIVITY-BASED HOSPITAL FINANCING

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LIST OF ABBREVIATIONS

Abbreviation	English	Other languages
A&E	Accident and Emergency Department	
ALOS	Average Length of Stay	
APR-DRG	All Patient Refined Diagnosis Related Groups	
ARH	Regional Hospital Agency	Agence Régionale de l'Hospitalisation
ATIH	Technical Agency for Hospital Information	Agence Technique pour l'Information Hospitalière
CEPS	Economical Committee for Medical Products	Comité Economique des Produits de Santé
CHU	Teaching hospital	Centre Hospitalier Universitaire
CLCC	Cancer treatment Centre	Centre de Lutte Contre le Cancer
CMD	Major Category of Diagnosis	Catégorie Majeure de Diagnostic
CMI	Case mix index	
DKG-NT	German Hospital Association – Tariffs for associated costs	Deutsche Krankenhausgesellschaft – Nebenkostentarif
DMI	Medical device	Dispositif medical implantable
EBM	Uniform Value Scale	Einheitlicher Bewertungsmaßstab
ENC	National cost study	Etude Nationale des Coûts
ENCC	National cost study with a common methodology	Etude Nationale des Coûts à méthodologie Commune
FPV	Case Fee Agreement	Fallpauschalenvereinbarung
GDP	Gross Domestic Product	
GHS		Groupe Homogène de Séjour
GOÄ	Catalogue of Tariffs for Physicians	Gebührenordnung für Ärzte
HRG	Healthcare Resource Group	
KHEntgG	Hospital Remuneration Act	Krankenhausentgeltgesetz
KHG	Hospital Financing Act	Krankenhausfinanzierungsgesetz
IAM	Medical activity index	Indice d'Activité Médicale
IAS	Nursing staff activity index	Indice d'Activité Soignante
ICD	International Classification of Diseases	
ICR	Relative cost index	Indice de Coût Relatif
ICRM	Material resources consumption index	Indice de Consommation des Ressources

		Matérielles
InEK	Institute for the Hospital Remuneration System	Institut für das Entgeltsystem im Krankenhaus
LOS	Length of stay	Verblijfsduur Durée de séjour
LPPR		Liste des Produits et des Prestations Remboursables
LSO	long-stay outliers	
MAD	Maximum Allowed Deviation	
MDC	Major Disease Categories	
MERRI	Teaching, research, recourse and innovation missions	Missions d'Enseignement, de Recherche, de Référence et d'Innovation
MFF	Market Force Factor	
MIGAC	General interest mission and contractual activities	Missions d'Intérêt Général et à l'Aide à la Contractualisation
NHS	National Health Service	
NICE	National Institute for Health and Clinical Excellence	
ONDAM	National Health Insurance spending objective	Objectif National de Dépenses d'Assurance Maladie
PCT	Primary Care Trust	
PbR	Payment by Results	
NIHDI	National Institute for Health and Disability Insurance	Rijksinstituut voor Ziekte- en Invaliditeitsverzekering Institut National d'Assurance Maladie-Invalidité
SAC	Clinical cost centre	Section d'Analyse Clinique
SAMT	Technical cost centre	Section d'Analyse Médico-Technique
SAMU	District emergency regulation centres	Service d'Aide Médicale Urgente
SAMX	Mixed technical and clinical cost centre	Section d'Analyse Mixte
SHI	Statutory Health Insurance	Gesetzliche Krankenversicherung (GKV)
SMUR	Mobile Emergency Unit	Service Mobile d'Urgence et de Réanimation
SSO	short-stay outliers	
T2A		Tarification à l'Activité
UNCAM	National union of health insurance funds	Union nationale des caisses d'assurance maladie
VBE	Agreement on Special Facilities	Vereinbarung zur Bestimmung von Besonderen Einrichtungen

1 ENGLAND

1.1 GENERAL INFORMATION ON HEALTHCARE SYSTEM

1.1.1 Type of healthcare system

England has a national health service (NHS) which is not insurance-based but funded mainly by taxes.

1.1.2 Status or ownership of hospitals

In England, majority of hospital care is through public ownership via the NHS although there is a trend towards greater plurality of provision.[1]

1.1.3 Hospital financing

The NHS budget is yearly voted by the Parliament. A proportion of this budget (i.e. about 18%) is reserved for central services research and training. The remainder is distributed to the local health authorities i.e. Primary Care Trusts (PCTs) using a weighted capitation formula. Within this resource limit, PCTs are responsible for purchasing healthcare services on behalf of their local population. PCTs have traditionally purchased inpatient healthcare from publicly-owned hospitals, but are now beginning to purchase from private providers.[2]

PCTs continue to negotiate contracts with healthcare providers to plan the volume of activity required for the next financial year, but with the new reimbursement system for hospital care, known as "Payment by Results" (PbR), inpatient stays and day case activity are priced according to national tariffs for each Healthcare Resource Group (HRG).[2] Payment by Results means that payment will be linked to activity and adjusted for case mix.

To encourage market entry, private hospitals are still granted block contract for 5 years, but it is anticipated that in the future all providers will be reimbursed using the HRG tariff.[2]

1.1.4 Employment of physicians

Physicians working in NHS hospitals are paid salaries.

1.2 DRG CLASSIFICATION SYSTEM

1.2.1 Name of DRG classification system

Healthcare Resource Groups (HRGs) were introduced in 1994. The latest version is called HRG4.

1.2.2 Origin of DRG classification system

The HRG classification system is based on the HCFA patient classification system of DRGs introduced in 1983, in the United States for reimbursing providers under Medicare.[3]

1.2.3 Reasons to introduce DRG classification system

The first introduction of HRGs in 1994 was to provide greater classification on hospital procedures in view of managerial purposes and to monitor and measure hospital activity. When the Government extended HRGs to finance providers, in 2003, they intended to create plurality of provision and effective ways of making the funding follow the patient. Nowadays, additional reasons are: get more transparency of hospital activity; get fairer remuneration of providers linked to fixed national prices; incentivise and fund the development of additional capacity.[1]

1.2.4 Scale on which DRG classification system is used

Nationwide; 100% of NHS hospitals are using HRGs.

1.2.5 Transition

Although HRGs were already introduced in English hospitals in 1994, it was only in April 2004 that they were introduced for financial use. This new prospective reimbursement system for hospital care, known as "Payment by Results" (PbR), was phased in over a four-year period. In order to maintain stability over the transitional phase, the change in income was adjusted by 25% in the first year, 50% in the second year and so on, with a maximum movement per annum of 2% of PbR income. By April 2008, 90% of public hospital activity is expected to be covered by the tariff. The transition was quicker for foundation hospitals.[1, 4] It is anticipated that even private hospitals will be reimbursed using the HRG tariff.[2]

Version four (HRG4) has been used for NHS costing since April 2006 and may be used for funding in 2009/2010.[5]

1.2.6 Refinement of DRG classification system

A new HRG must encompass at least 600 cases nationally and incur over □1.5 million in expenditure.[2] HRGs are reviewed annually with a major revision every 3 to 4 years, and amendments made to reflect changes in clinical practice or costs, improved resource data, or requests from commissioners or others for different HRGs to be unbundled, or for new HRGs to be created.[6]

An objective for the redevelopment of HRGs is the improvement in reduction in variance. Both length of stay and patient cost (from specific NHS providers) were used as indicators of resource use in the development of HRG4, a significant improvement over HRG v3.5, which used length of stay as the only dependent measure. Except for hotel costs, length of stay should be avoided where more appropriate alternatives exist. Data on theatre usage, nursing dependency, drugs, prostheses etc. should be used. Early versions relied only on length of stay as a proxy for overall resource use. To create the version 4, the Department of Health commissioned a survey of drugs, consumables and theatre time data from eight NHS providers, to take account of the use of these resources as well as LOS in grouping of procedures and diagnoses.[6]

Groups with high coefficient of variation should be investigated to ensure that the variation is caused by intra-hospital variation rather than variation between hospitals. The latter situation may require the creation of groupings that discriminate between differing within-HRG complexities experienced by different hospitals, and may necessitate the creation of HRGs where the activity is confined to one or two specialised providers so that the groupings can be excluded from the prospective payment system (Payment by Result system).

HRGs should ideally have less than 25% length of stay and cost variability. Greater variability may make the HRG unsuitable for use for re-imbursement.

The number of groupings has increased from 650 in HRG v3.5, to more than 1 400 in HRG4.

1.2.7 Grouping process

HRG4 uses a 5 character code structure (AANNA). The first two characters represent the chapter/sub chapter (e.g. LA = Renal). The next two numeric characters represent the HRG number within the chapter. The final character signifies the 'split' level applicable to the episode e.g. an age split. For example: LA03A = Kidney Transplant from Live donor, 19 years and over; LA03B = Kidney Transplant from Live donor, 18 years and under. An HRG ending with Z indicates that there are no splits applicable to that HRG. Episodes that cannot be grouped because of insufficiency of data or data validation issues will be allocated to HRG UZ01Z.[7]

The fields required by the Grouper depend on the grouping being done, i.e. for Admitted Patient Care, Outpatients, Accident & Emergency, Adult Critical Care, Paediatric Critical Care or Neonatal Critical Care. For Admitted Patient Care v3.5 HRGs, these include: procedures (OPCS-4 codes), primary and secondary diagnoses (ICD-10), length of stay, age, legal status, sex, method of discharge.[8, 9]

1.2.7.1 Chapters

HRGs are organized into clinically relevant chapters (rather than specialties): Nervous System; Eyes and Periorbita; Mouth Head Neck and Ears; Respiratory System; Cardiac Surgery and Primary Cardiac Condition; Digestive System; Hepatobiliary and Pancreatic System; Musculoskeletal System; Skin, Breast and Burns; Endocrine and Metabolic System; Urinary Tract and Male Reproductive System; Female Reproductive System and Assisted Reproduction; Obstetrics; Diseases of Childhood and Neonates; Vascular System; Immunology, Infectious Diseases and other contacts with health services (mental health), Unclassified Groups.

With HRG4, new chapters have been introduced: Diagnostic Imaging and Interventional Radiology; Haematology, Chemotherapy, Radiotherapy and Specialist Palliative Care; Multiple Trauma, Emergency and Urgent Care, Rehabilitation; Critical Care, High Cost Drugs and Devices; Unbundled.[6]

1.2.7.2 Unbundling

Unbundling is the first step in the grouping process, following data validation of the patient record. Unbundled procedures are removed from the data input file and processed separately to derive unbundled HRGs. The grouper then ignores these unbundled components when deriving the core HRG for an episode or spell.

The concept of unbundling is that under HRG4 a case will be assigned to more than one HRG if it includes any "unbundled" elements (i.e. significant elements of cost and activity). The "unbundled component" becomes an HRG in its own right as an addition to a core HRG.[10]

For example, a case could be assigned the following HRGs depending on the components within it:

Core HRG	+	Unbundled Interventional Radiology HRGs	+	Unbundled High Cost Drug HRGs	+	Unbundled Diagnostic Imaging HRGs	+	Unbundled Rehabilitation HRGs

Unbundled HRGs have been developed to comply with the design rules which apply to all HRGs. Principally, there must be at least 600 cases expected per annum nationally, or the total cost must be at least £1.5 million per annum. It is not appropriate to unbundle small components of care, and the minimum size of a bundle should be more than 20% of the total cost of the HRG, though this requirement is aspirational rather than mandatory.

Unbundled HRGs have been developed for: Chemotherapy – procurement and delivery; Radiotherapy – planning and delivery; Interventional Radiology; Diagnostic Imaging; Rehabilitation; Renal Dialysis; Critical Care; Specialist Palliative Care; High cost drugs.[10]

1.2.7.3 Complications and co-morbidities

For HRG4, there are three complication levels: level 1 - not significant complication; level 2 - intermediate complication; level 3 - major complication.

There are three ways in which HRGs can be split by complication: with or without complication (level 2 to 3); with or without major complication (level 3); or without complication, with intermediate complication or with major complication.[6]

1.3 CALCULATION OF COSTS

1.3.1 Method of costing

All NHS hospitals in England are required to annually report activity and unit costs using a standard methodology of **step-down costing and micro costing**.

In general, costs should be:

- calculated on a full absorption basis to identify the full cost of services delivered;
- allocated and apportioned accurately by maximizing direct charging and where this is not possible using standard methods of apportionment;
- matched to the services that generate them to avoid cross subsidization.2

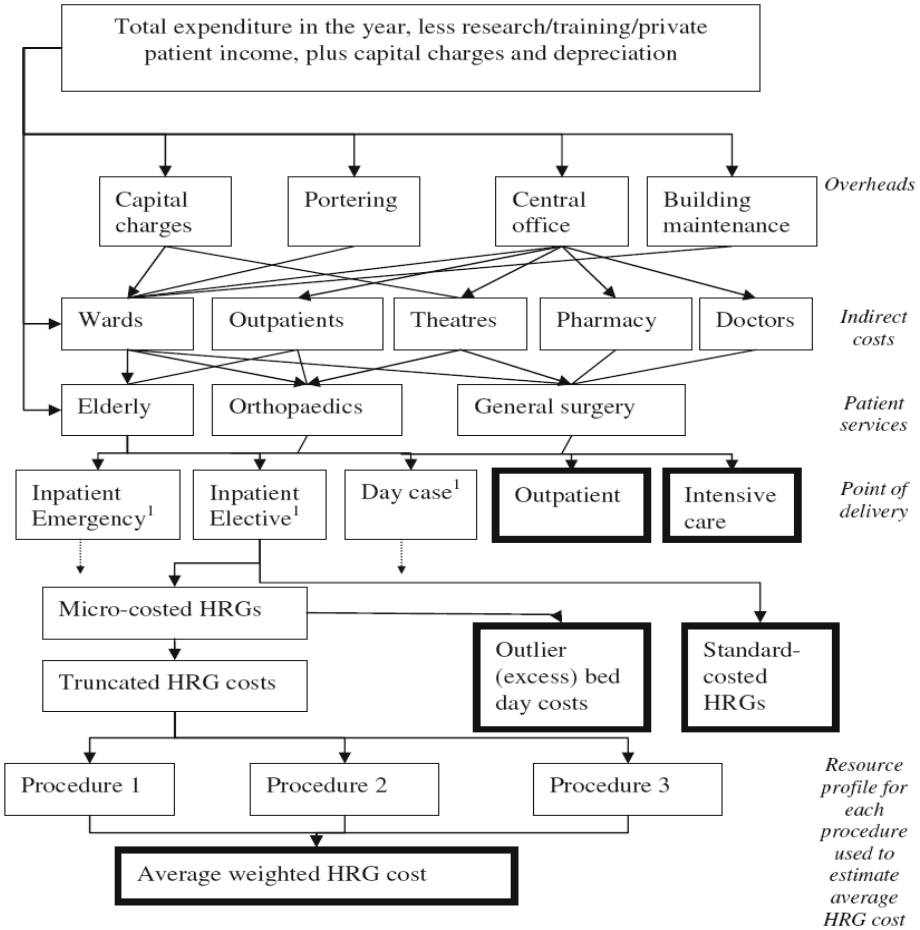
1.3.2 Cost allocation

1.3.2.1 Step-down accounting

The costing methodology requires hospital facilities to be grouped together into one of three types of 'cost pool'. Cost pools bring together costs into identifiable groups (e.g., wards) and allow them to be allocated to services using the same method.[2]

Figure 1 shows how costs are attributed, allocated and apportioned to estimate unit costs.

Figure 1 : Attribution, allocation and apportionment of costs in the NHS[2]



Note 1: Inpatient elective, emergency activity and day case activity are costed to HRG level using the micro costing process (the dashed arrows show that similar micro costing processes are used to obtain HRG-level costs for these 3 types of services). Outpatient activity is distinguished between first attendance and follow up

The first step consists to attribute the costs to specialties, services, programmes or patients and to identify costing pools and key cost drivers.[11] Direct costs can be directly allocated to the services which used them, for example, it may be known which speciality used certain drugs.[2] Costs that cannot be attributed directly need to be allocated and apportioned using appropriate work or other measures. Indirect and overhead costs may be pooled to aid their allocation or apportionment to services.

A two stage apportionment method is used where Support Services are generally apportioned first to Patient Treatment Services. Patient Treatment Services, including their apportionment of Support Services, are then apportioned to treatment function. Where Support Services, for example catering, are directly attributable to patients they would be attributed directly to treatment function, for example in proportion to patient days.

First stage of the apportionment method: allocation of Support Services

This stage indicates which departments should be allocated directly to treatment function and which via Patient Treatment Services, with which unit of work measurement.

Table 1 : First Stage Allocation of Support Services

Department Reference	By Work Measure
Domestic	Floor area cleaned
Catering	Number of meals provided
Laundry/linen	Patient days
Portering/transport	Weighted patient days
Engineering maintenance	Building volume
Building maintenance	Building volume
Energy/water etc	Heated volume
Site overheads (exc. capital charges)	Building volume
Chief executive	Gross cost of patient treatment service
Central office support	Gross cost patient treatment service
Employee service	Staff numbers
Procurement	Number of orders raised
Medical records	Outpatient attendances & inpatient and day case episodes
Training, education	Weighted number of persons employed
Miscellaneous	Gross cost of Patient Treatment Service
Purchase of tertiary referrals	Actual cost of referrals
Capital charges - equipment	Specific equipment
Capital charges - others	Floor area

Second stage: allocation from Patient Treatment Services to Treatment function

This stage indicates the recommended unit of work measurement.

Table 2 : Second Stage Allocation of Patient treatment services to specialties

Department Reference	Method of apportionment
Wards	Direct allocation or pro-rata bed days
Outpatient clinics	Direct allocation or pro-rata attendances
Day care facilities	Direct allocation or pro-rata attendances
Accident and emergency department	Direct allocation
Clinicians	Direct allocation
Artificial limb and wheelchair	Item issued, or non acute
Dietetics	Attendances
ECG	Weighted requests
EEG	Requests as per guidance on radiology services
Lithotripsy	Attendance
Medical illustration and photography	Number of requests
Miscellaneous patient treatment services	Gross expenditure of specialties
Nuclear medicine	Weighted requests
Occupational therapy	Contacts
Operating theatre	Operating time / sessions
Pathology	Test bandings
Pharmacy	Number of delivered items
Physiotherapy	contacts
Psychology	To relevant services/appointments
Radiology	Bandings
Radiotherapy	Direct to HRG, based on number of treatment/fractions
Speech therapy	contacts

These apportionment methods are only to be used once all the possibilities for allocating costs directly to treatment function have been exhausted.

1.3.2.2 Disaggregation of costs between points of delivery

The second step consists of disaggregating the costs between the points of delivery: elective inpatient; emergency inpatient; day case; outpatient; intensive care, accident and emergency and other.[2]

1.3.2.3 Micro-costing

For inpatient and day case activity, the costs are then further disaggregated to HRGs.[2] This is done in several steps:

1. The main HRGs used by the provider are identified within each speciality.
2. The main conditions or procedures used by the provider are identified within each HRG.
3. A resource profile is estimated for each condition or procedure (see Figure 1). This involves identifying the main cost drivers for each procedure, e.g., time-based costs such as spent on ward, time spent in surgical theatre, or event based costs such as use of high cost prostheses. This stage is a micro-costing process often requiring detailed clinical knowledge, and data from theatre and other information systems.
4. Unit costs are identified for each cost driver. For event-based costs such as the unit cost of prostheses, this might be available from the hospital purchasing system. For time-based costs, this will be an average unit cost per bed day, theatre minute etc derived from the appropriate cost pool. Table 3 shows an example of the micro costing process for an elective hip replacement.

Table 3 : Example of resource profile for a hip replacement procedure[2]

Cost pool	Measure	Units	Cost per measure (£)	Total cost (£)
Ward	Bed days	8.81	120	1,057
Theatre	Theatre hours	1.33	600	798
Prosthesis	Number used	1	2,889	2,889
Total				4,744

Procedure code: W371 primary total prosthetic replacement hip joint using cement.

5. The weighted average HRG cost is estimated as the total costs for each of the procedures/conditions costed, added together and divided by the total number of FCEs[a] for the costed codes within the HRG. Table 4 shows an illustrative example for hip replacement. This process will leave a difference between the cost for each patient service estimated by the step-down costing method and the cost estimated using the micro-costing method. It is required that at least 80% of the gross cost of each patient service is identified by micro-costing.

Table 4 : Example of estimation of unit cost for a hip replacement procedure[2]

Number	Procedure code	Description	Cost (£)	Finished consultant episodes	Total cost (£)
1	W371	Primary total prosthetic replacement hip joint using cement	4,744	50	237,200
2	W378	Total prosthetic replacement of hip joint using cement	3,211	20	64,220
3	W468	Prosthetic replacement of head of femur using cement	6,830	30	204,900
	Total			**100**	**506,320**
Weighted average cost [506,320/100] for HRG H80 at this provider					**5,063**

6. When the difference is attributable to long stay outliers whose length of stay beyond a nationally defined trim point is not costed in the micro costing process, these costs are aggregated and used to calculate a cost per 'excess' bed day for outlier patients in each HRG.

7. This is called trimming and truncation. All episodes have the relevant upper trim point applied. Instead of excluding outlier cases, only the excess bed days beyond the upper trim point are excluded. This means that all episodes are included and costed within the HRG including those which have been truncated. The excess bed days beyond the trim point are costed separately and a cost per bed day is reported. The cost per day, for the excess bed days, should include only the costs associated with the time based ward costing pool, and any associated variable costs. This is primarily hotel and nursing costs and drugs, dressings, etc. It is not expected to include expensive costs except in very exceptional circumstances. The number and costs of excess bed days are reported separately for elective and non-elective patients.

8. When the difference is attributable to less frequent procedures and conditions which have not been costed using the micro-costing process, these costs are aggregated at patient service level and used to estimate a 'standard' cost for less frequent HRGs that have not been costed using the micro-costing process. Residual costs are divided by the number of uncosted episodes to produce a simple average cost per residual episode.

1.3.3 Data sample

All hospitals (**100%**) provide their cost data since cost collection is mandated from all public hospitals.[12]

[a] A Finished Consultant Episodes (FCE) is the time a patient spends in the care of one specialist doctor at one healthcare provider. For historical reasons the NHS uses FCEs as the basis for hospital patient administration systems.[2]

1.3.4 Quality of data

No information was found.

1.4 OUTLIERS

1.4.1 Definition of outliers

Outliers are defined in terms of length of stay (LOS).

1.4.2 Lower trim point

In England, there is **no lower trim point** applied to low length of stay for elective admissions.

For short stay (0 or 1 day) non-elective emergency admissions, however, the HRG tariff is reduced. See Section 1.5.4.2 on page 21.

1.4.3 Upper trim point

For each HRG, the NHS has defined a trim point to be the upper quartile of length of stay plus 1.5 times the inter-quartile range.[2]

Upper LOS trim point for each HRG_j in England : $Q75_j+(Q75_j-Q25_j) * 1.5$

Trim points are HRG specific and differ for elective and non-elective activity. See Table 5 for examples.

1.5 DETERMINING THE HRG TARIFF

1.5.1 Converting cost information into prices

In England, the cost information is converted more or less directly into a **national HRG price which reflects an average cost per HRG**.

1.5.2 Calculation of HRG tariff

HRG prices are calculated according to a formula that, greatly simplified, looks like: [2]

$$Ti = \delta i\left[pi\overline{C}i + (1 - pi)\overline{D}i\right]$$

Legend

Ti tariff price for HRG *i*

$\overline{C}i$ Average inpatient reference cost for HRG *i*

$\overline{D}i$ Average day case reference cost for HRG *i*

pi Proportion of elective activity undertaken on an inpatient basis for HRG *i*

δi Inflationary factor for HRG *i*

The HRG tariff is based on the average unit costs of providers 2 years previously. Several adjustments are made to these unit costs to determine tariffs.[2, 13]

1. Total costs are obtained for each provider/HRG/specialty combination by multiplying the unit costs by "Finished Consultant Episodes" volumes. Day case and elective inpatient costs are combined to reflect the fact that there is a single elective tariff covering day cases and elective inpatient activity. Costs and volumes are then aggregated by HRG and provider, stripping out specialty, because this is not featured in the tariff.

2. Certain adjustments are made for cost changes that would be caused by the National Institute for Health and Clinical Excellence (NICE) guidance and technology appraisals. Technology appraisals are recommendations on the use of new and existing treatments within the NHS. Since 2002, The England NHS has been legally obliged to provide funding for treatments recommended by NICE.

3. Provider's costs for each HRG are divided by the provider "Market Force Factor" (MFF) to remove any location-specific cost differences, because it would be inappropriate for the tariff to reflect these differences. The MFF reflects geographical variation in input prices (staff, land and building) and is set to one for the lowest one.
4. Data cleaning involves the removal of outliers where costs are less than 1/20th or greater than 20 times the mean for that HRG.
5. Costs and activity are aggregated by HRG and by admission method (elective or non-elective), removing the provider.
6. Costs of days above the trim point (see page 20) are removed from the total cost of each elective and non-elective HRG.
7. Finally, tariffs are adjusted to account for 2 years' inflation.
8. In 2003 prices were related to 15 HRGs and in 2004 to 48 HRGs. In 2005, there were fixed prices for all HRGs.[1]

1.5.3 Specific adjustments of HRG tariffs

1.5.3.1 Adjusting for regional characteristics

In step three of the HRG calculation, HRG costs are divided by the provider "Market Force Factor" (MFF) to remove any location-specific cost differences. The MFF reflects geographical variation in input prices (staff, land and building) and is set to one for the lowest one (Devon and Cornwall area). This is to avoid incentives for PCTs to send patients for treatment outside their local area to take advantage of lower prices arising from lower input costs. The MMF is then reimbursed directly to the hospital trust by the Department of Health and the equivalent subtracted from the national allocations to all purchasing PCTs taken together.[14]

1.5.4 Reimbursement of hospital stays

In general, the Payment by Result (PbR) calculation process for Admitted Patient Care (APC) encompasses two steps: identification of currency and application of tariffs. For the technical details of this calculation process, we refer to the NHS document 'Secondary Uses Service - A Guide to the PbR Algorithm'.[15, 16]

1.5.4.1 Reimbursement of day care

Since there is no lower trim point for elective admissions, there are no adjustments for elective short stay outliers, which are reimbursed at the full inpatient tariff. This also implies that the **same HRG tariff is paid for an elective inpatient as a day case**. This gives hospitals a clear financial incentive to transfer services to day case where possible.[2]

1.5.4.2 Reimbursement of short-stay outliers

On the other hand, however, there are **separate tariffs for elective and emergency inpatient stays** because the HRG tariff may encourage the medically unnecessary admission of patients from accident and emergency departments. To mitigate this even further, some **emergency short stays** (i.e. less than two days) are reduced to 40% of tariff.[2, 15]

1.5.4.3 Reimbursement of long-stay outliers

Outliers are reimbursed with a HRG specific rate per day beyond the trim point, calculated on basis of specific costs of outliers. The excess bed days beyond the trim point are costed separately and a cost per bed day is reported. **Since trim points are HRG specific and differ for elective and non-elective activity, the total reimbursement for elective and non-elective long-stay outliers differs.** See Table 5 for examples.

The cost per day, for the excess bed days, should include only the costs associated with the time based ward costing pool, and any associated variable costs. This is primarily hotel and nursing costs and drugs, dressings, etc. It is not expected to include expensive costs except in very exceptional circumstances.

A minimum amount of £100 is set for this tariff. This amount had been calculated as being the basic hotel cost of keeping a patient in hospital for purposes of delayed transfer reimbursement. A maximum amount of £500 was also set to minimise the risk of a situation where the main tariff is less than the excess bed day tariff. The way that the tariff is calculated means that, for excess bed days that cost more than £500, the cost above this maximum would be funded via the tariff for the main part of the spell.[13] However, the examples in Table 5 illustrate that the per-diem long stay payment can be higher than the average daily inlier tariff.

If discharge is delayed by problems with the provision of residential or home care, the cost of the delayed discharge passes to the local authority social service who reimburses the healthcare provider.[2]

1.5.4.4 Examples of HRG tariffs

Table 5: Admitted Patient Care Tariff 2007–08 [17]

HRG Code	Label	Elective spell tariff	Elective long stay trim point	Non-elective spell tariff	Non-elective long stay trim point	Per day long stay payment (for days exceeding the long stay trim point)
N10	Caesarean Section with CC	£1 926	13 days	£2 746	14 days	£304
L51	Chronic renal failure	£575	1 day	£2 564	23 days	£189

1.6 FUNDING CHARACTERISTICS OF SPECIFIC HOSPITAL ACTIVITIES

1.6.1 Share of hospital revenue that is activity-based

By April 2008, **90% of public hospital activity**, including non-electives, outpatients, and accident and emergency, is expected to be covered by the HRG tariff.[4]

1.6.2 Capital costs

Under the Payment by Results system, tariff income per HRG will be the main funding source for hospitals.

Over and above this, a central supplement, managed by the NHS Bank, contributes to the revenue costs of capital development. The following costs, associated with major new capital schemes (defined as those over £25m), are covered:

- procurement costs up to a maximum of 2% of the capital value of the project ;
- support in the early years of operation equivalent to 2.5% of capital value in year 1, 2% in year 2, tapering to 0% over 5 years.[18]

1.6.3 Research, training and medical education

Research, training and medical education are **not included** in the PbR system allocation because a fixed tariff could discourage expenditure. These fields are centrally funded by the Department of Health and payments are made directly to hospitals.[14]

1.6.4 Intensive care

Intensive care was initially excluded from the Payment by Results (PbR) system because of a lack of appropriate information systems and collection. Prices and volumes were locally negotiated.

With the introduction of HRG4, a new dataset – the "CCMDS - Critical Care Minimum Dataset" – has been mandated for collection from 1st April 2006.

This new data collection has supported the development of new **HRGs for adult, paediatric and neonatal critical care**.[19] 2006, 2007 and 2008 are "shadow years" for intensive care. This involves the collection and report of the CCMDS, the use of HRG as a case mix adjustment and the use of local prices attached to case mix weighted activity.[20]

A tariff for adult critical care is payable for patients receiving level 2 or level 3 care. Reimbursement will depend on the care received, rather than the designation of the bed or unit in which the patient receives care. There are seven HRGs defined, based upon the total number of organ groups supported (0 to 6) during a critical care stay. The organ groups are: basic respiratory support; advanced respiratory support; advanced or basic cardiovascular support; renal support; neurological support and dermatological support (gastrointestinal support is treated as a standard component of care and the cost of providing this care is considered to be absorbed into the costs of the other organ support groups).[10]

Paediatric and Neonatal Critical Care HRGs will be generated per diem, i.e. for each day the patient receives Critical Care. Paediatric critical care HRGs are: intensive Care - Extracorporeal Membrane Oxygenation (ECMO)/Extracorporeal Life Support (ECLS); intensive care advanced enhanced; intensive care advanced; intensive care basic enhanced; intensive care basic; high dependency advanced; high dependency. Neonatal HRGs are: intensive care; high dependency; special care without external carer; special care with external carer; normal care. The minimum data sets that support the flow of paediatric and neonatal critical care data have been mandated in the NHS from April 2008.[10]

These critical care HRGs will be unbundled from the rest of the patient episode. For reference cost grouping, days in critical care must be deducted from the overall patient length of stay to avoid double counting.[10]

1.6.5 High cost drugs

Before HRG4, some drugs were excluded from the scope of tariff because the distribution of the drug within the relevant HRG is not even across providers and could cause heterogeneity, and because costs of drugs are high relative to the rest of the activity within the relevant HRG. Funding in this case is locally negotiated, cost and national volume for the item to be excluded is estimated, and tariffs are adjusted for the relevant HRGs, so as to ensure that the effect of the exclusions is cost neutral.[19]

Table 3: Mapping of the high cost drug exclusions to their respective BNF categories

Exclusions for 2008/09 (by category)	**2008/09 exclusions**
Cytokine Inhibitors (Anti-TNF)	Cytokine modulators Drugs affecting the immune response > cytokine Inhibitors
Vasodilator antihypertensive drugs/ Primary Pulmonary Hypertension	Bosentan Iloprost Epoprostenol Phosphodiesterase type-5 inhibitors > sildenafil
Antifibrinolytic drugs/haemostatics blood products	
Allergen Immunotherapy	Omalizumab

Torsion Dystonias and other involuntary movements	Riluzole
	Torsion dystonias and other involuntary movements
Antifungals	Drugs used in fungal infections > Amphotericin > lipid formulations
	Drugs used in fungal infections > Caspofungin
	Drugs used in fungal infections > Voriconazole
AIDS/HIV antiretrovirals	
Viral Hepatitis (B&C) & Respiratory Syncytial Virus	Interferon alfa
Growth Hormone & Growth Hormone Receptor Antagonist	Anterior pituitary hormone > growth hormone receptor antagonist
	Anterior pituitary hormones > growth hormone
Drugs affecting bone metabolism	Teriparatide
Immunomodulating drugs	Interferon beta
	Interferon alfa
	Glatirimer
	Natalizumb
Somatostatin Analogues	
Drugs used in Neutropenia	
Drugs used in Metabolic disorders	Carnitine deficiency
	Fabry's disease
	Gaucher's disease
	Mucopolysaccharidosis
	Nephropathic cystinosis
	Urea cycle disorders > sodium phenylbutyrate
	Betaine
Hyperuricaemia associated with cytotoxic drugs	Hyperuricaemia associated with cytotoxic drugs
Ocular diagnostic and peri-operative preparations and photodynamic treatment	Ranibizumab
Drugs affecting the Immune response	Efalizumab
Intravenous/subcutaneous human normal immunoglobulins	Normal immunoglobulin > for intravenous use

With the HRG4 system, specific high cost drugs codes will derive **unbundled HRGs** that are additional to the core HRG for the care episode. All high cost drug HRGs will be unbundled. Whenever a separate high cost drug code is recorded it will generate a separate unbundled high cost drug HRG in addition to the core HRG for the care episode. Nevertheless, high cost drugs that are used to treat neoplasms will generate chemotherapy procurement HRGs (for the drug regimen) rather than the high cost drugs HRGs.[10]

1.6.6 Medical devices

Some medical devices are also excluded from the scope of tariff because the distribution of the device within the relevant HRG is not even across providers and could cause heterogeneity. The following criteria are used to identify the exclusions: costs are high relative to the rest of the activity within the relevant HRG; and a sub-set of Trusts within the HRG disproportionately provides the high cost item (the benchmark we have used is that fewer than 20 providers are carrying out half of all activity).

Funding in this case is also locally negotiated (volume and price agreements or case-by-case agreement). Cost and national volume for the item to be excluded is as well estimated, and tariffs are adjusted for the relevant HRGs, so as to ensure that the effect of the exclusions is cost neutral.[19]

Examples of excluded devices are: aortic stents; aneurysm coils; bespoke orthopaedic prostheses; bone anchored hearing aids (BAHA); carotid, iliac and renal stents; CPAP/BiPAP; deep brain, vagal, sacral and spinal cord stimulators; gliadel wafers; implantable defibrillators (ICD); cardiac resynchronisation therapy (CRT); ICD with CRT capability; illizarov frames; insulin pumps and pump consumables, intrathecal drug delivery pumps; implantable loop recorders; 3 dimensional navigation system mapping catheters; occluder septal devices.[21]

1.6.7 Transplants

Transplant services are **excluded** from the PbR tariff system. Some of these services (for example, heart, lung, pancreas and liver transplant) are purchased and funded on a national basis (National Specialised Commissioning Advisory Group) rather than locally, to ensure a high quality of clinical care and equity of access for patients. Other services are purchased on a regional basis.[22]

1.6.8 Chemotherapy

Chemotherapy was specifically excluded from the PbR tariff system under HRG v3.5 and subject to local negotiation.

With the HRG4 system, the chemotherapy HRGs for cancer treatment have been **unbundled** from the medical and the surgical inpatient and non-admitted care HRGs. All patients will therefore receive a core HRG based on surgical procedures or primary diagnoses and one or more additional chemotherapy HRGs.[10]

Each patient is allocated one HRG (regimen HRG) for the regimen procured per cycle and one HRG (delivery HRG) for each attendance for treatment, to reflect the complexity of treatment and hence resource usage.

For inpatients however, it is assumed that all costs are included in the Admitted Patient Care episode and that the activities contained within the chemotherapy delivery HRG are absorbed into the inpatient surgical and/or medical HRG. Inpatient chemotherapy requires a regimen code but not a delivery code for every new cycle of chemotherapy.

The chemotherapy regimen HRGs are banded into 10 bands. The Chemotherapy Regimen Codes list includes all of the regimens that are in common use in the UK but excludes adult cancer research trials.

The chemotherapy delivery HRGs take account of the resources required for the delivery of one cycle of the chemotherapy regimen.[10]

Table 6 : Chemotherapy delivery grouping logic

HRG Label
Deliver exclusively Oral Chemotherapy
Deliver simple Parenteral Chemotherapy at first attendance
Deliver more complex Parenteral Chemotherapy at first attendance
Deliver complex Chemotherapy, including prolonged infusional treatment at first attendance
Deliver subsequent elements of a Chemotherapy cycle

Example:

A patient with a haematological neoplasm receives 2 cycles of ABVD with 2 days of delivery (D1 & D15) in each cycle as a day case. The first attendance of each cycle is complex prolonged infusional treatment:

Cycle1: DRG Procurement of drugs for chemotherapy for neoplasm for regimens in band 2 + DRG Delivery of complex chemotherapy for neoplasm including prolonged infusional treatment at first attendance + DRG Delivery of subsequent element of cycle of chemotherapy for neoplasm.

Cycle 2: DRG Procurement of drugs for chemotherapy for neoplasm for regimens in band 2 + DRG Delivery of complex chemotherapy for neoplasm including prolonged infusional treatment at first attendance + DRG Delivery of subsequent element of cycle of chemotherapy for neoplasm.[23]

1.6.9 Radiotherapy

Radiotherapy was specifically excluded from the PbR tariff system and was subject to local negotiation.

With HRG4 system, the radiotherapy HRGs will be **unbundled** from the medical and the surgical inpatient and non-admitted care HRGs. All patients receive therefore a core HRG based on surgical procedures or primary diagnoses and one or more additional radiotherapy HRGs.[10]

Providers receive multiple delivery HRGs (one per fraction) if a course of radiotherapy is delivered over multiple attendances.

HRG4 groups for radiotherapy include one set for pre-treatment (planning) processes and one set for treatment delivered, with a separate code being allocated for each fraction delivered. These groups are:

- Radiotherapy planning
- Radiotherapy treatment (delivery per fraction)

The planning HRGs are banded into 9 bands based on increased complexity.[10]

Table 7 : Radiotherapy HRGs

Define volume for SXR, DXR, electron or Megavoltage Radiotherapy without imaging and with simple calculation
Define volume for simple Radiation Therapy with imaging (Simulator, CT scanner etc) but with simple calculation and without Dosimetry
Define volume for simple Radiation Therapy with imaging and Dosimetry
Define volume for multiple phases of complex Radiation Therapy with imaging and Dosimetry
Define volume for Radiation Therapy with imaging, Dosimetry and technical support e.g. mould room
Define volume for Radiation Therapy with imaging and Intensity-modulated Radiation Therapy Dosimetry or equivalent
Prepare for Total Body Irradiation
Prepare for Intracavitary Radiotherapy
Prepare for Interstitial Radiotherapy
Other Radiotherapy Planning
Deliver a fraction of treatment on a superficial or orthovoltage machine

Deliver a fraction of treatment on a megavoltage machine
Deliver a fraction of complex treatment on a megavoltage machine
Deliver a fraction of Radiotherapy on a megavoltage machine using General Anaesthetic
Deliver a fraction of Total Body Irradiation
Deliver a fraction of Intracavitary Radiotherapy without General Anaesthetic
Deliver a fraction of Intracavitary Radiotherapy with General Anaesthetic
Deliver a fraction of Interstitial Radiotherapy
Other Radiotherapy Treatment

1.6.10 Interventional radiology

Costs of interventional radiology that are incurred as part of an inpatient or day case episode are included in the composite cost of inpatient or day case treatment under HRG v3.5.

With the HRG4 system, all interventional radiology HRGs are **unbundled** and will generate HRGs that are additional to a core HRG for the episode of care. There are 10 Interventional Radiology [IR] specific unbundled HRGs. Because the IR HRGs are unbundled they have been designed to take into account resources specifically for the procedure, for example consumables and theatre cost. The other resources used are covered by the core HRG for the spell. To be assigned an unbundled IR HRG, a procedure code must be followed by an IR approach code from the following list:[10]

Table 8 : Interventional radiology (IR) approach codes

Approach to organ under radiological control
Approach to organ under ultrasonic control
Approach to organ under CT scan control
Approach to organ under fluoroscopy control
Approach to organ under image intensifier
Approach to organ under video control
Approach to organ under MRI control
Other specified approach to organ under image control
Unspecified approach to organ under image control
Thoracoscopic video-assisted approach to thoracic cavity
Laparoscopic ultrasonic approach to abdominal cavity
Endoscopic approach to other body cavity
Endoscopic ultrasonic approach to other body cavity
Other specified minimal access to other body cavity
Unspecified minimal access to other body cavity
Arteriotomy approach to organ using image guidance with fluoroscopy
Arteriotomy approach to organ using image guidance with CT
Arteriotomy approach to organ using image guidance with ultrasound
Arteriotomy approach to organ using image guidance with image intensifier
Arteriotomy approach to organ using image guidance with video control
Arteriotomy approach to organ using image guidance with MRI control
Other specified arteriotomy approach to organ under image control
Unspecified arteriotomy approach to organ under image control
Endovascular placement of three or more metallic stents
Endovascular placement of three or more drug-eluting stents
Endovascular placement of three or more coated stents
Endovascular placement of one metallic stent
Endovascular placement of two metallic stents
Endovascular placement of three or more plastic stents
Endovascular placement of metallic stent with mechanical embolic protection NEC
Endovascular placement of two drug-eluting stents
Endovascular placement of two coated stents
Endovascular placement of one drug-eluting stent
Endovascular placement of one coated stent

1.6.11 Clinical laboratory tests

The method of reimbursement of providers for laboratory tests depends on whether the test was requested by a clinician working in secondary care or in primary care. Laboratory tests can be requested by hospital clinicians during an episode of patient care, as part of an inpatient admission or an outpatient attendance. If the hospital itself provides this service, then the costs incurred are included in the tariff paid for that inpatient admission or outpatient attendance. Where arrangements have been agreed to purchase diagnostic tests in significant volumes from an alternative provider, such as an independent sector treatment centre, then the diagnostic test will be purchased separately from the other elements of the care pathway. If the inpatient admission or outpatient attendance is reimbursed by PbR, then the tariff for that episode can be reduced by the value of the diagnostic test.

Laboratory tests can also be requested directly by primary care clinicians on behalf of patients, known as 'direct access' tests. These services are purchased from NHS and independent sector providers through locally negotiated contracts. Costs are reported following the reference cost framework per test, aggregated as haematology, histology, immunology, microbiology, neuropathology, cytology, phlebotomy, biochemistry and other.[14]

1.6.12 Diagnostic imaging

This comprises diagnostic imaging services provided to outpatients. The method of reimbursement and reporting of activity depends on whether the clinician requesting the test works in secondary care or primary care, in the same way as laboratory tests.

The costs of diagnostic imaging included as part of an outpatient attendance (that is, under the care of a consultant) were included in the relevant outpatient tariff for that speciality. The costs of diagnostic imaging requested by a primary care physician under direct access arrangements were reported separately per test following the reference cost framework.[14]

With the HRG4 system, all diagnostic imaging with the exception of plain film x-ray and obstetric scans is **unbundled** and will derive HRGs that are additional to a core HRG for the care event.[10] The concept of unbundling allows to separately identify certain services that might be provided in a variety of settings, or by different providers. Unbundling across all care settings reduces the incentive to admit patients unnecessarily.

Table 9 : Diagnostic imaging HRGs

Magnetic Resonance Imaging Scan, one area, no contrast
Magnetic Resonance Imaging Scan, one area, post contrast only
Magnetic Resonance Imaging Scan, one area, pre and post contrast
Magnetic Resonance Imaging Scan, two - three areas, no contrast
Magnetic Resonance Imaging Scan, two - three areas, with contrast
Magnetic Resonance Imaging Scan, more than three areas
Magnetic Resonance Imaging Scan, requiring extensive patient repositioning and/or more than one contrast agent
Computerised Tomography Scan, one area, no contrast
Computerised Tomography Scan, one area with post contrast only
Computerised Tomography Scan, one area, pre and post contrast
Computerised Tomography Scan, two areas without contrast
Computerised Tomography Scan, two areas with contrast
Computerised Tomography Scan, three areas with contrast
Computerised Tomography Scan, more than three areas
Dexa Scan
Contrast Fluoroscopy Procedures less than 20 minutes
Contrast fluoroscopy Procedures 20 - 40 minutes
Contrast fluoroscopy Procedures more than 40 minutes
Mobile / Intraoperative Contrast Fluoroscopy Procedures less than 20 minutes
Mobile / Intraoperative Contrast Fluoroscopy Procedures 20 - 40 minutes

Mobile / Intraoperative Contrast Fluoroscopy Procedures more than 40 minutes
Ultrasound Scan, non-imaging Procedures
Ultrasound Scan less than 20 minutes
Ultrasound Scan more than 20 minutes
Ultrasound Mobile Scan / Intraoperative Procedures less than 20 minutes
Ultrasound Mobile Scan / Intraoperative Procedures 20 to 40 minutes
Ultrasound Mobile Scan / Intraoperative Procedures more than 40 minutes
Plain Film, one area
Plain Film, two - three areas
Plain Film, four or more areas
Plain Film, contrast Procedures without Fluoroscopy
Plain Film, Mobile / Intraoperative Procedures, one area
Plain Film, Mobile / Intraoperative Procedures, two - three areas
Plain Film, Mobile / Intraoperative Procedures, four or more areas
Nuclear Medicine - category 1
Nuclear Medicine - category 2
Nuclear Medicine - category 3
Nuclear Medicine - category 4
Nuclear Medicine - category 5

1.6.13 Renal dialysis

Renal dialysis is specifically excluded from the PbR tariff system and is subject to local negotiation.

With the HRG4 system, all renal dialysis will be **unbundled**, i.e. identified as a separate HRG, additional to a core HRG.

Table 10 : Renal dialysis HRGs

Haemodialysis/Filtration on patient with Hepatitis B 19 years and over
Haemodialysis/Filtration on patient with Hepatitis B 18 years and under
Haemodialysis/Filtration 19 years and over
Haemodialysis/Filtration 18 years and under
Peritoneal Dialysis on patient with Hepatitis B 19 years and over
Peritoneal Dialysis on patient with Hepatitis B 18 years and under
Peritoneal Dialysis 19 years and over
Peritoneal Dialysis 18 years and under

In addition, if specified high cost drugs are used in renal dialysis, these should be recorded and will then be identified as additional unbundled HRGs.

Future payment arrangements for dialysis will need to be determined either for individual sessions or for aggregated courses of treatment.[10]

1.6.14 Other specialized services

Prior to the implementation of HRG4, two main approaches were developed to handling specialized services in PbR: calculation of top-up or exclusion. Broadly, specialized services are those with low patient numbers but which need a critical mass of patients to make treatment centres cost effective. Particular challenges for these services include training specialist staff, supporting high quality research programmes, and making the best use of scarce resources like expertise, high tech equipment and donated organs.

1.6.14.1 Top-ups

Some procedure and diagnosis codes are determined as indicators of specialised activity. Where the impact is found to be statistically significant, a specialised top-up (specialised supplement over an above the basic HRG tariff) is calculated, with the level of the top-up determined by the statistical analysis.

The procedure and diagnosis codes that attract the top-up are given in Annexes D-G of the "NHS Department of Health Payment by Results Guidance 2007/08".[21] Some HRGs that are specialised characteristically, have their tariff calculated to reflect this and do not qualify for specialised top-ups.

Table 11 : Specialised service and paediatric admitted patient tariff top-ups[19]

Specialty	% Top-up
Cardiology and Cardiac Surgery	16%
Children Non-specialised	11%
Children Specialised	69%
Colorectal	35%
Hepatology, Hepatobiliary and Pancreatic Surgery	9%
Neurosciences	24%
Orthopaedic	70%
Respiratory	17%
Spinal surgery	24%

1.6.14.2 Exclusions

Some HRGs are excluded from the scope of Payment by Results because they have low volumes, volatile costs, and/or are of a specialised nature.

Funding in this case continues to be locally negotiated.

The following criteria were used to identify the exclusions:

- Costs are high relative to the rest of the activity within the relevant HRG
- A sub-set of Trusts within the HRG disproportionately provides the high cost item (the benchmark we have used is that fewer than 20 providers are carrying out half of all activity).

In each case, cost and national volume for the item to be excluded were estimated, and tariffs were adjusted for the relevant HRGs and outpatient specialties, so as to ensure that the effect of the exclusions was cost neutral[19].

Procedures excluded:

Cleft lip and palate; Dynamic graciloplasty, Endoprosthetic replacement for benign bone tumours, Gastric banding, Head and neck cancer reconstructive surgery, Other NSCAG services, PDT for wet Age Related Macular Degeneration, Pelvic reconstruction.[21]

HRGs excluded:

Cystic fibrosis, major burns (because tariffs have to rely on well definitions of diagnoses and activity); bone marrow graft; surgery for scoliosis, Spinal Cord Injury with Fusion or Decompression, Oesophagus - Complex Procedures.[21]

1.6.15 Mental health

Mental health is specifically **excluded** from the PbR and is locally negotiated.

Nevertheless, with the HRG4 system, mental health HRGs are covered in chapter WD. These HRGs reflect activity undertaken by acute NHS trusts that do not provide specialist mental health services (work is currently ongoing to develop currencies that better reflect the complex nature of specialist mental health services).These HRGs are not designed to be iso-resource but merely to acknowledge the treatment of patients with a mental health diagnosis by an acute provider.[6]

1.6.16 Rehabilitation

Rehabilitation was initially excluded from the PbR tariff and locally negotiated (cost and volume contracts).

With the HRG4 system, **unbundled** rehabilitation HRGs are generated on a per diem basis and will only be generated where care is identified as taking place under a specialist rehabilitation consultant or within a discrete rehabilitation ward or unit, and where the appropriate procedure code indicating delivery of rehabilitation is recorded in the patient record. Where a patient is not admitted specifically to a rehabilitation unit or where rehabilitation treatment is undertaken without transfer to a specialist consultant, or without transfer to a rehabilitation unit, such activity will not be coded.

Thus this will not be identified as specialist rehabilitation and will not generate an unbundled rehabilitation HRG. For example, if the patient receives rehabilitation care after a hip replacement as part of the routine post-operative care within the same provider (and without specialist rehabilitation consultant), the rehabilitation care is regarded as part of the hip replacement procedure.[10]

An unbundled rehabilitation HRG is generated for each day of discrete rehabilitative care.[10]

Table 12 : Rehabilitation HRGs

Assessment for Rehabilitation (unidisciplinary)
Assessment for Rehabilitation (multidisciplinary; non-specialist)
Assessment for Rehabilitation (multidisciplinary; specialist)
Rehabilitation for stroke (without treatment episode)
Rehabilitation for brain injuries (without treatment episode)
Rehabilitation for Spinal Cord injuries (without treatment episode)
Rehabilitation for pain syndromes (without treatment episode)
Rehabilitation for other Neurological disorders (without treatment episode)
Rehabilitation for amputation of limb (without treatment episode)
Rehabilitation for hip fracture (without treatment episode)
Rehabilitation for joint replacement (without treatment episode)
Rehabilitation for Inflammatory Arthritis (without treatment episode)
Rehabilitation for Non-inflammatory Arthritis (without treatment episode)
Rehabilitation for other Musculoskeletal disorders (without treatment episode)
Rehabilitation for drug and alcohol addiction (without treatment episode)
Rehabilitation for other Psychiatric disorders (without treatment episode)
Rehabilitation for burns (without treatment episode)
Rehabilitation following head & neck reconstructive surgery (without treatment episode)
Rehabilitation following other reconstructive surgery (without treatment episode)
Rehabilitation for other trauma (without treatment episode)
Rehabilitation for acute myocardial infarction and other cardiac disorders (without treatment episode)
Rehabilitation for Respiratory disorders (without treatment episode)
Rehabilitation for other disorders (without treatment episode)

1.6.17 Palliative services

Palliative services were initially excluded from the PbR tariff and are locally negotiated.

With the HRG4 system, all Specialist Palliative Care will be **unbundled** and will generate SPC HRGs on per diem bases that are additional to the core episode HRG. The Hospital SPC HRG is always in addition to a diagnosis/surgical HRG which will cover the episode (inpatient SPC HRGs are generated for each day of discrete specialist palliative care).[10]

Table 13 : Specialist Palliative care HRGs

Inpatient Specialist Palliative Care 19 years and over
Inpatient Specialist Palliative Care 18 years and under
Inpatient Specialist Palliative Care Same Day 19 years and over
Inpatient Specialist Palliative Care Same Day 18 years and under
Hospital Specialist Palliative Care Support 19 years and over
Hospital Specialist Palliative Care Support 18 years and under
Medical Specialist Palliative Care Attendance 19 years and over (outpatient)
Medical Specialist Palliative Care Attendance 18 years and under (outpatient)

1.6.18 Admission through Accident and Emergency Department

1.6.18.1 Differential tariff for emergency admissions

Separate tariffs exist for elective and non-elective inpatient spells. The additional costs of Accident and Emergency Department (A&E) attendances that lead to an admission have been **added to the admitted patient care non-elective HRG** tariff **in proportion to the numbers of patients admitted through A&E**. Patients admitted through A&E are reimbursed both for the A&E attendance and the relevant admitted patient HRG tariff.[13]

There is a growth in emergency admissions which places growing financial risk on PCTs. In order to better share the risk between providers and commissioners, a reduced rate tariff of 50% will apply to all emergency spells above a set threshold. If the threshold level of activity is not met, 50% of tariff will be withdrawn for the difference between actual and threshold. The differential rate should be applied to the tariff and include any national adjustments for short stay spells, specialised service top ups and excess bed days. Emergency spells are defined by reference to the admission method of the patient. Only spells with the following admission methods should be treated as emergencies in relation to the application of the differential rate tariff:[24]

Table 14 : Admission Codes to which differential tariff is applicable

Admission code	Description
21	Accident and emergency or dental casualty department of the Health Care Provider
22	General practitioner: after a request for immediate admission has been made direct to a Hospital Provider, i.e. not through a Bed bureau, by a GP or deputy
23	Bed bureau
24	Consultant clinic, of this or another Health Care Provider
28	Other means, examples are: - admitted from the Accident And Emergency Department of another provider where they had not been admitted - transfer of an admitted patient from another Hospital Provider in an emergency - baby born at home as intended

1.6.18.2 Short stay emergency tariff

The short stay emergency tariff applies to certain HRGs **where length of stay is less than two days** and when all the following criteria are met: the emergency admission has admission code 21-24 or 28 (see Table 14); the assignment of the HRG is based on diagnosis rather than procedure code; the spell is not for a child (aged <17 on date of admission). If these criteria are met then the short stay tariff applies regardless of whether the patient is admitted under a medical or a surgical specialty. The **reduction** applies to all elements of the tariff including specialised top-ups. The level of reduction depends on the national average length of stay of the HRG as follows:[20]

Table 15 : Reduction of short stays

HRGs with average length of stay	Short stay tariff (% of tariff applied)
0-1	100% - i.e. full tariff applies
2 days	50%
3-4 days	35%
5 or more days	20%

1.6.19 Visits to Accident and Emergency Department (without admission)

Accident and emergency departments and minor injuries units are to be funded according to the so-called **80:20 fixed:variable funding model**. This means that a grant covers 80% of (fixed) costs and 20% of revenue is related to (variable) activity up to a planned level. The split between the fixed and variable element to the tariff should not be interpreted as a measure of the prevailing fixed or variable costs. Rather, it provides a mechanism for ensuring that required capacity is funded regardless of actual activity. This is in recognition of the unpredictable nature of emergency services and the 'core service' features of A&E. A core level of A&E provision is required independently of the level of activity at any particular point in time.[12, 19]

Organisations will be funded at tariff for their planned weighted activity. Under-performance against this plan will then be withdrawn at 20% of tariff, whilst over performance will be funded at full tariff. These are strong financial incentives for A&E departments to increase activity beyond the planned level.[12, 19]

1.6.20 Outpatient (ambulatory) services

Outpatient services provided by hospital trusts are generally only available to NHS patients following a referral by a health-care professional. The tariff is per attendance by treatment function, with a separate tariff for first attendance and follow-up attendance. To provide incentives to minimise follow-ups where they are not necessary, the tariff has been structured so that follow-ups have a relatively low reimbursement rate compared with a first attendance. 10% of the costs of follow-up attendances have been added to the first attendance costs making the tariff for first attendance relatively higher.[20] Table 16 gives a few examples of outpatient tariffs.

Table 16: Outpatient mandatory Tariff Attendances – TFC based payments 2007–08 [17]

TFC	Outpatient Specialty Name	Age group	First attendance	Follow-up attendance
100	General Surgery	Adult	£155	£80
100	General Surgery	Child	£166	£85
161	Burns care	Adult	£214	£75
161	Burns care	Child	£214	£75

TFC = Treatment Function Code

There is a specified tariff for 8 procedures: colposcopy; hysteroscopy; flexible sigmoidoscopy; rigid sigmoidoscopy; fine needle biopsy of breast; needle biopsy of prostate; laser destruction of lesion of skin; subcutaneous injection.[20]

There is a separate tariff for children in some specialties, and some other services are excluded : transplantation surgery; restorative dentistry; paediatric dentistry; neurosurgery; cardiothoracic surgery; cardiac surgery; thoracic surgery; cardiothoracic transplantation; accident & emergency; clinical pharmacology; bone and marrow transplantation; haemophilia; audiological medicine; clinical genetics; rehabilitation; palliative medicine; clinical immunology; allergy; intermediate care; respite care; infectious diseases; tropical medicine; nephrology; neurology; paediatric neurology; neonatology; dental medicine specialties; midwife episodes; chemical pathology; haematology (inc. Anti-Coagulant Clinics); histhopathology; occupational medicine; spinal injuries; cystic fibrosis ; HIV/AIDS; family planning clinic.

The Department of Health (DH) was concerned that the PbR tariff structure provided a dis-incentive to provide procedures in an outpatient setting, where this is clinically appropriate and cost-effective, since the PbR outpatient tariff for a given speciality is generally much lower than the equivalent admitted patient HRG tariff. Therefore providing the procedure in outpatients is less profitable than through an admission (that is, as a day case). To mitigate this dis-incentive for greater efficiency the DH has agreed that where the local cost of providing this procedure is more than twice the relevant speciality level outpatient tariff, the service can be funded at a locally negotiated rate.[2]

Version 3.5 was developed for inpatients and day cases. HRG4 has been designed to support setting independent service delivery. In the context of non-admitted care activity, this means that if a procedure or intervention can be performed across different settings then the same HRG can be assigned regardless of setting. For example, an endoscopy would be assigned the same HRG regardless of whether it was performed as an outpatient, a day case or an inpatient procedure. This rule only applies to **intervention (OPCS) based HRGs** and not ICD-10 based HRGs.[6] The objective is to avoid perverse incentives associated with providing the same care in different settings (primary care, outpatient, day care, inpatients). **Patients that can be appropriately treated in more than one setting should be grouped in the same HRG**.

It is also recognised that the underlying procedure required for HRG assignment will not always be recorded for outpatients or ward attenders, or that a procedure is not always carried out. A solution has therefore been developed that allows allocation of an HRG where minimum information is recorded. To facilitate this, eight new global non-admitted HRGs have been created as part of the second iteration of HRG4: [6]

Table 17 : non-admitted HRGs

HRG	Label
WF01A	Non-Admitted Face to Face Attendance - Follow-up
WF01B	Non-Admitted Face to Face Attendance - First
WF01C	Non-Admitted Non Face to Face Attendance – Follow-up
WF01D	Non-Admitted Non Face to Face Attendance - First
WF02A	Multiprofessional Non-Admitted Face to Face Attendance - Follow-up
WF02B	Multiprofessional Non-Admitted Face to Face Attendance - First
WF02C	Multiprofessional Non-Admitted Non Face to Face Attendance - Follow-up
WF02D	Multiprofessional Non-Admitted Non Face to Face Attendance - First

2 GERMANY

2.1 GENERAL INFORMATION ON HEALTHCARE SYSTEM

2.1.1 Type of healthcare system

In Germany, health care is mainly financed through social health insurance with (almost) equal contributions made by employers and employees.[25] The rise of Germany's modern health care system dates back to 1883, when health insurance was made mandatory for certain employees nationwide. This principle of statutory social insurance, called the 'Bismarck system', was later also applied to alleviate the risks of work-related accidents and disability, old age and disability, unemployment, and the need for long-term care. About 88% of the population are covered through statutory health insurance ('Gesetzliche Krankenversicherung', GKV) while about 10% rely on substitutive (mainly residents earning above a specified income threshold) and complementary (civil servants) private health insurance. Altogether, public sources accounted for three quarters of total expenditure on health and private sources for one quarter. People with social and private health insurance basically have ready and equal access to services at all levels, although to a lesser extent in rural areas.[26]

A fundamental aspect of the German health care system is the sharing of decision-making powers among the federal government, the individual states (Länder), and designated self-regulated institutions of payers and providers. While the statutory health insurance framework and co-payment levels are set by federal law, most decisions on the actual contents of the uniform benefits package and the delivery of curative health services are made through joint negotiations between the providers (associations of physicians and/or dentists and/or the Hospital Federation) and the payers (associations of sickness funds) at both regional and national levels.[27]

Another key feature of the German system is the fragmentation of care across sectors, with ambulatory and inpatient care being completely separated. Ambulatory office-based physicians, both general practitioners as specialists, transfer their patients to hospital physicians for inpatient treatment and receive them back after discharge. Except for university hospitals, hospitals have traditionally provided inpatient care only. But their scope to provide ambulatory care has been extended increasingly in the past decade.[26] Hospital care is provided in public (53.6% of beds), private for profit (10.0% of beds) and not-for-profit (36.4% of beds) facilities.[1]

In 2005, Germany had the second highest level of health care expenditure in the European Union i.e. 10.7% of its gross domestic product.[28] The emphasis of the German system on free choice, ready access, high numbers of providers and technological equipment, and the unification of the eastern and western part of Germany contributed to these high expenses. But, since several years, cost-containment is high on the political agenda, with activity-based funding as one of the possible methods to do so.[26]

2.1.2 Status or ownership of hospitals

In Germany, 53.6% of beds are public; 36.4% of beds are private not for profit; 10% of beds are private and for profit.[1]

2.1.3 Hospital financing

Financing rules for public and private hospitals are identical.

2.1.4 Employment of physicians

Within the statutory health insurance (SHI) settings, physicians working in hospitals are paid salaries. Public and non-profit providers usually pay public tariffs, while for- profit providers may pay lower or higher wages or additional payments.[26]

In private delivery settings, non-SHI private patients are charged for hospital services according to the German Catalogue of Tariffs for Physicians ('Gebührenordnung für Ärzte', GOÄ) which is a fee-for-service system.[26] In general, hospital physicians have to give up approximately 40% of their private fees to compensate the hospital for the use of facilities.[29]

2.2 DRG CLASSIFICATION SYSTEM

2.2.1 Name of DRG classification system

The Statutory Health Insurance Reform Act of 2000 ('G KV-Modernisierungsgesetz') introduced a new system of hospital financing reimbursement according to a prospective payment system called **'German DRG-system' (G-DRG)** and mandated the self-governing bodies (that is the German Hospital Association, sickness funds and private health insurers) to develop a DRG methodology. This represented the most significant reform in the German hospital sector since the system of dual financing was introduced in 1972 where the state was responsible for capital costs while operating costs were paid by sickness funds or private insurers.[29] The primary motive for fundamentally reforming the old reimbursement system based on per diem charges was to engender a more appropriate allocation of resources under DRGs.[25, 30]

Activity-based funding was gradually phased in from 2003 as a voluntary option. Since 2004, all clinical departments (except mental health) are required to document their activity using G-DRGs and, are almost entirely financed through this mechanism. Resources are allocated to hospitals according to the nature and level of activity they perform, measured on the basis of a medico-economic classification of patients into G-DRG.[31] Uniformity has been put into operation insofar as the G-DRG system applies equally to all patients, regardless of whether they are members of the statutory health insurance system, private health insurance, or are self-paying patients. In addition, the G-DRG system applies, in principle, to all hospitals and all clinical departments with the exception of institutions or facilities providing services in psychiatry, psychosomatic medicine, or psychotherapy.[30]

2.2.2 Origin of DRG classification system

Germany modelled its G-DRGs initially on the Australian Refined DRG system (AR-DRG), but modified the patient classification system and calculated its own cost weights on the basis of German data. The Australian Refined DRG system evolved from the Australian National (AN) DRG, which in its turn was based on the AP DRG and APR systems.[3, 30] The Australian system uses 661 DRGs and the Germans increased this number gradually to 1137 DRGs in 2008.[29, 32, 33]

Germany also made use of additional reimbursement components, e.g. for innovative and diagnostic treatment procedures, for teaching hospitals. In 2005, the reimbursement components that existed in addition to the uniformly weighted DRGs accounted for approximately 20% of total reimbursement for non-psychiatric inpatient care.[3]

2.2.3 Reasons to introduce DRG classification system

There were several reasons to introduce the G-DRG system. First, there was the hope of more transparency and fairer remuneration in hospital financing. Second, it was hoped that the DRG system would increase the efficiency in the utilisation of resources in the hospitals. This way, competition among hospitals would increase and excess capacity would be reduced.[1, 25]

2.2.4 Scale on which DRG classification system is used

G-DRG is used nationwide. Since 2004, all hospitals are required to document their activity using G-DRGs with the exception of institutions or facilities providing services in psychiatry, psychosomatic medicine, or psychotherapy. In 2007, their total number amounted to approximately 1 744 hospitals.[34, 33]

2.2.5 Transition

The DRG reimbursement system was introduced step-by-step over a period of 6 years. While the implementation of the DRG system by the German hospitals was still optional in 2003, it became mandatory in 2004. These first years (2003-2004) were budget neutral which means that the total expenditure of hospitals could not be larger or smaller than in the current system. The existing hospital budget was applied although allocated according to cases instead of days.[29]

After the hospital budget neutral years, a period of convergence (2005-2008) between the old and the new DRG-based budget follows in which the individual hospital base rate has to be adjusted to the federal state base rates. Hospital specific base rates are calculated as the hospital's historic budget for all services which now fall under DRGs divided by the case mix. The case mix is equal to the sum of the cost weights of all DRGs of a hospital over a specified time period. In 2005, the individual base rates were calculated as a ratio between state-wide base rates (15%) and individual hospital base rates (85%). The ratio shifts to 35:65 in 2006, to 55:45 in 2007, and to 75:25 in 2008. If implementation occurs on time, hospitals will calculate services based on the state-wide base rate (100:0) by January 1st, 2009.[25, 29, 34]

Budget reductions will be subject to limitations during the transition phase. In order to minimise the risk of unjustifiable budget reductions influenced by an underdeveloped DRG Case Fees Catalogue, the absolute value by which the individual budgets of affected hospitals may be reduced in 2005 may not be greater than 1% of the modified initial value from 2004. The limit increases from 1% in 2005 successively in 0.5% increments to 3% of the modified initial value in 2009. There is no provision for an upper limit on budget increases within the transition period.[35]

From 2009 onwards, the base rates will be negotiated ex-ante at the level of the state (Länder) between the health insurance fund associations and the hospital management. State-wide base rates must be based on the average reimbursement amount of all DRGs in a state.[29]

Table 18 : Progress of DRG introduction (adapted version of Table 3 by Schreyögg)[33, 35]

Year	Number DRGs	Equalized to state-wide base rate, based on initial values for 2004	Equalized to state-wide base rate, based on previous year	Weight of negotiated budget	Limit on budget reduction, based on previous year
2003	664	-	-	-	-
2004	824	0%	0%	100%	-
2005	878	15%	15%	85%	1%
2006	954	+20% = 35%	23.5%	65%	1.5%
2007	1082	+20% = 55%	30.8%	45%	2%
2008	1137	+20% = 75%	44.1%	25%	2.5%
2009	?	+25% = 100%	100%	0%	3%

2.2.6 Refinement of DRG classification system

The self-governing bodies in the German health care system have been entrusted by the legislature with introducing and further developing the G-DRG system. In order to fulfil these tasks, the contracting parties founded the Institute for the Hospital Remuneration System (InEK)[b] in 2001. The institute is responsible for the practical implementation of the switch-over to a case fee system based on DRGs, as well as for the calculation and further development of cost weights based on the cost and claims data collected in German hospitals. The updated G-DRG system is made available, and the annual adjustment of the classification system is performed, by 30th September of the year prior to that in which the changes are to take effect. The changes are made on the basis of corresponding empirical data delivered by hospitals.[35] InEK has a budget of about €4.5 million a year and a staff of about 23.[36] The financing of InEK is realized through an additional charge, the so-called 'DRG-Systemzuschlag'. In 2008, this charge amounted to €0.90 per case billed of which €0.28 for the financing of the InEK and €0.62 for the reimbursement of hospitals participating in the data sharing programme.[37]

b http://www.g-drg.de

To derive DRG classifications InEK relies on retrospective cost and claims data collected in German hospitals. Every German hospital is required to provide the institute with hospital-related structural data (for example, the hospital's institutional code and ownership, number of beds, number of trainees, costs for personnel and total costs) and case-related claims data annually. The case-related cost data are calculated using a sampling of data from hospitals participating in a voluntary data sharing programme. All data from the data year are to be sent by 31st March of the following year. Thus, the further development of the G-DRG system, version year t, is based on data from the year t-2.[30, 35]

When the InEK considers the creation of a new G-DRG, task packets are formed based on the various suggestions and analyses which are then processed according to a weighted variation coefficient. As such, frequent, cost-intensive, and heterogeneous groups are processed first. Subsequently, those changes are chosen that will result in the greatest variance reduction. In this context, splits need to meet two requirements:

- the difference between mean costs must be greater than 10% of the highest mean cost or must exceed €500;
- the number of cases to be calculated must be greater than 30, and the number of cases from all German hospitals has to be greater than 500 in every newly created DRG.30, 35

2.2.7 Grouping process

The German DRG a system is subdivided into 23 Major Disease Categories (MDC) which refer to a body system or disease aetiology, and are associated with a specialist field of medicine. Exceptional cases are assigned to the so-called pre-MDCs, irrespective of the major diagnosis. The pre-MDCs include long-term ventilation cases and transplantations. Cases that can not be grouped under a specific category are assigned to the Error DRGs. Appendix 4 gives an overview of the MDCs. The format of a DRG is an alphanumerical code with 4 digits. The first digits A to Z represent the 23 MDCs; first digit 9 identifies the Error DRGs.[38]

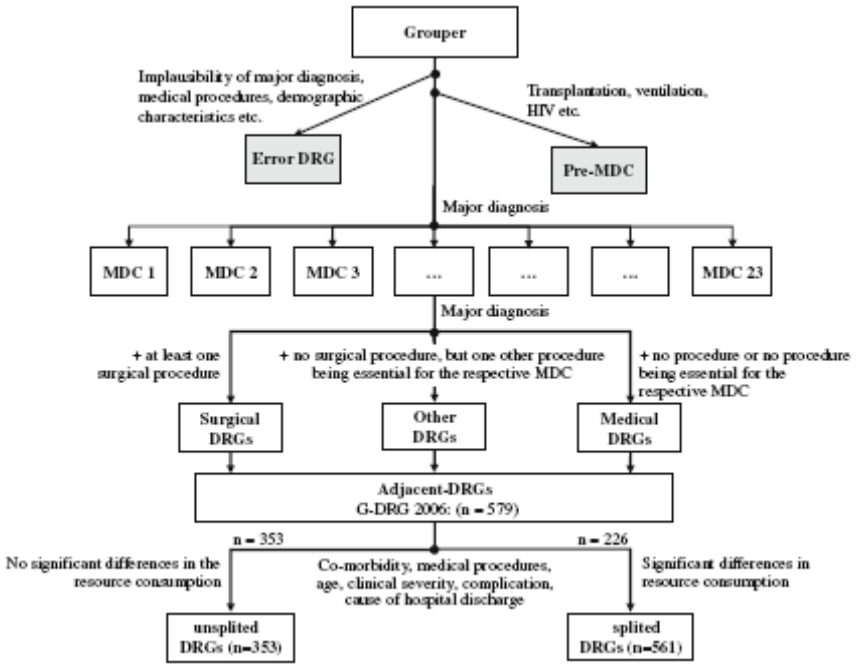
The second and third digits are numerical and allow a **differentiation between surgical procedures (01-39), other procedures (40-59), and medical procedures** (60-99) carried out during the hospital stay.[38] Figure 2 provides more information on this differentiation. The codification of the procedures is effected on the basis of the Operations and Procedures Codification Index ('Operationen- und Prozedurenschlüssel', OPS) which originates from the WHO's International Procedure of Medicine (1978) and is developed by the German Institute for Medical Documentation and Information (DIMDI).[39] This institute is also responsible for the German modification of the international classification of diseases (ICD-10-GM) used for the codification of the diagnoses.[40]

The combination of a letter and two numerical digits represents a so-called basic DRG. These basic DRGs are further subdivided on the basis of co-morbidity and clinical severity. For the latter, co-diagnoses as well as patient characteristics are taken into account, but are weighted differently depending on the DRG.[34] There are **nine degrees of severity** (Complication or Co-morbidity Level, CCL) which are denoted by the fourth letter in the DRG abbreviation. The most severe DRGs are marked with the letter 'A', the least severe cases get labelled with 'I'. The letter 'Z' is used when there are no severity levels to split the DRG. Majority of G-DRGs have one or two severity levels; DRGs with four or more degrees of severity are rare (see Appendix 5).[41-43]

In summary, in the G-DRG system, the procedure used to assign treatment cases to a DRG is based on a grouping algorithm using the inpatient hospital discharge dataset as a basis for a variety of criteria: major diagnosis at discharge, other diagnoses (co-morbidity or complications), clinical intervention (medical procedures e.g. stent implantation), patient characteristics (gender, age, weight of new born children), cause of hospital discharge (e.g. death) and length of stay.[34, 44] All these data are fed into a special software tool, the so-called "grouper", and assigned to a particular DRG (see Figure 2).[45]

DRG assignments are unambiguous, as treatment cases are assigned to a single DRG. The grouping process as well as the whole G-DRG-system is annually revised by the InEK.[34]

Figure 2 : The grouping process in the G-DRG system 2006 (Fig. 1 by Schreyögg)[34]



2.3 CALCULATION OF COSTS

The following information about cost calculation was all derived, often literally, from the elaborate report 'Approaches for Costing and Pricing in Practice in Germany', written by Schreyögg et al. in 2005.[35] This excellent report arose from a European Commission project 'Health Benefits and Service Costs in Europe', commonly referred to as HealthBASKET. The HealthBASKET project wanted to address the EU need of reliable comparisons about available health services, how these are defined, what their costs are and which prices they will have to pay for them. The project approached these issues by focusing specifically on the basket of services and by reviewing and developing methodologies to assess costs and prices of individual services across EU Member States.[c]

2.3.1 Method of costing

In Germany, participating hospitals must comply with predefined cost accounting standards, which are outlined in a calculation manual ('Kalkulationshandbuch').[46] They have to calculate costs per case according to the full cost method using actual costs. This means that all DRG-related costs have to be taken into consideration when calculating the costs of DRG treatment cases. The actual costs are derived from the hospitals' audited annual accounts. Accordingly, the reference period for calculating costs per case is a completed calendar year. The participating hospitals are supposed to make **step-down accounting** a first priority. However, if this is not feasible they are also allowed to use a mixed calculation between step-down accounting and gross-costing as a second option, or even make use of gross-costing when necessary.[34]

[c] http://www.healthbasket.org

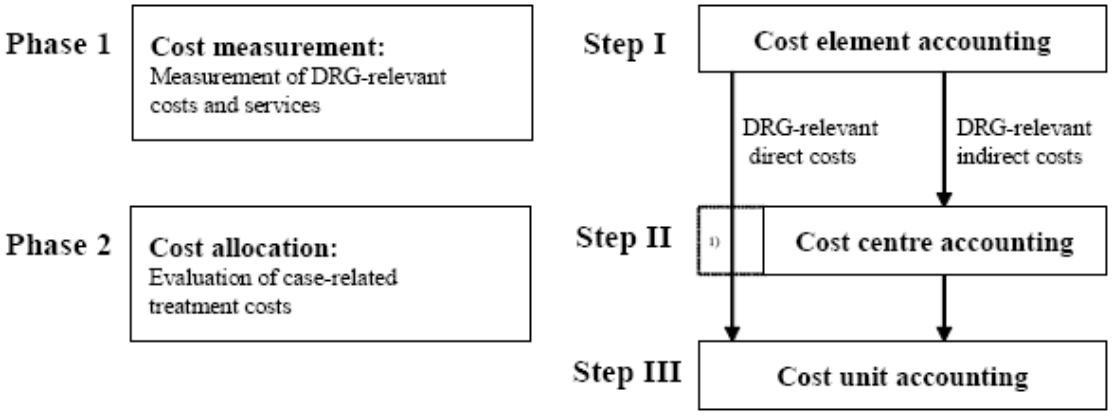
2.3.2 Cost allocation

2.3.2.1 General principles of cost allocation

In the hospitals participating in the voluntary data sharing programme, raw costs per case are calculated according to the full cost method using actual costs. This means that DRG-related costs are offset in full against the DRG treatment cases while taking all DRG-related services into consideration. The participating hospitals' actual costs are derived from their audited annual accounts. Accordingly, the reference period for calculating raw costs per case is a completed calendar year.[35]

Raw costs per case are calculated according to standard cost accounting principles. The calculation can be divided into two phases – cost measurement and cost allocation – which can be further subdivided into three steps: cost element, cost centre, and cost unit accounting. The goal of the first phase is to determine which services and costs are DRG-related; the goal of the second phase is to calculate the case-related treatment costs.[35] Figure 3 provides an overview of the calculation process.

Figure 3 : Procedure for calculating raw costs per case (Figure 1 by Schreyögg)[35]



1) Hospitals usually process all costs using cost centre accounting – an approach based primarily on provisions contained within § 8 of the Hospital Bookkeeping Directive ('Krankenhausbuchführungsverordnung', KHBV). As part of the calculation of raw costs per case, a separate company code is created, allowing the hospitals themselves to decide whether to assign the direct costs directly to cost objects

As can be seen in Figure 4, the process of calculating costs per case is based on a modular approach. It entails arranging each set of case-related data in the calculation results according to cost-element groups and cost-centre groups. Aggregating costs across cost element groups and cost-centre groups makes it possible to pinpoint the costs per patient or per patient group (DRGs) in a concise manner. Therefore, hospitals participating in the voluntary data sharing programme have been instructed to aggregate their treatment costs in this way.[34]

Aggregating cost elements across cost element groups

After cost centre accounting has been completed, the cost elements are separated into cost element groups ('Kostenartengruppen'). This reduces the computational costs of cost unit accounting in the hospitals and of calculating relative weights at the InEK. Eight cost element groups have been defined (see Figure 4).[35]

Aggregating direct cost centres across cost centre groups

In cost unit accounting, all DRG-related costs are assigned to their corresponding treatment cases. To ensure the comparability of the data sets from different hospitals, the per-case costs in the data sets are arranged in a uniform manner. For this purpose, the cost centres in each set of case-related data are aggregated across 12 cost centre groups ('Kostenstellengruppen') as depicted in Figure 4.[35]

Central Cost Centre

Only non-medical infrastructure costs from cost element group 8 may be assigned to the central cost centre. The central cost centre is thus irrelevant for all of the other cost element groups. Furthermore, the central cost centre is only set up for hospitals that base their cost centre accounting on the gross-costing method or a mixed calculation method that combines step-down and gross-costing accounting. Costs booked to the central cost centre are allocated according to the length of stay.[35]

2.3.2.2 Cost element accounting

The first step in the process for calculating raw costs per case, i.e. cost element accounting, is used to determine which DRG-related costs were incurred in total, and in what amount, over a specified period of time. Costs that are not related to DRGs should be excluded at the highest aggregation level possible, i.e. at the level of cost elements, or at the cost centre level.[35]

Determining whether services are DRG-related

When calculating costs per case, the only costs to be taken into consideration are those that arise due to the performance of the DRG-related services. In general, all inpatient and day case services for each treatment case are DRG-related, with the exception of psychiatry, psychosomatic medicine, and psychotherapy. These services include medical treatment, nursing care, the provision of pharmaceuticals, cures, therapeutic appliances, and board and accommodation. In-hospital pre-care ('vorstationär') and after-care ('nachstationär') services associated with an inpatient stay are also included in the calculation of raw costs per case. In this event, the inpatient, pre-care, and after-care services are included in one single data set per case. Non-hospital outpatient services and pre-care services without subsequent inpatient stay are not covered by the G-DRG system.[35]

Extracting DRG-related costs

The following cost elements are excluded because they are not related to DRG services: extraordinary expenses and expenses relating to other periods; capital costs (exception: depreciation of fixed assets); core business expenses, insofar as these are not related to general inpatient services (e.g. costs of scientific research/teaching and costs of outpatient services are excluded); taxes, charges, insurance for operational sections of the hospital that do not provide general inpatient services, as well as tax on profits; specific and long-term allowance for bad debts; interest payable, insofar as this is not related to capital loans; imputed costs (e.g. hospital building).[34]

The DRG-related costs are extracted from the expense accounts or, in other words, from the profit and loss statement of the audited annual accounts. They represent basic costs with regard to cost accounting. Because imputed costs are not generally related to DRGs, the basic costs equal the operating expenses. As a result, the cost calculation can be described as a form of historical cost accounting and, therefore, as a process that treats expendable goods (e.g. medical supplies as historical costs).[34]

Direct DRG-related costs are those costs that can be identified specifically with a particular cost object and can be directly assigned to this cost object with a high degree of accuracy. When calculating raw costs per case, the individual treatment case is considered the cost object. The direct costs for cost-intensive material goods are either directly matched to this cost object, or indirectly matched to it by means of cost centre accounting. The matching principle (also known as the cause-and-effect principle) represents a fundamental standard in cost allocation. The costs are matched with the place (cost centre) where they occurred or the product (cost unit) for whose production they were incurred. This means that a cost object may only be matched with the costs that caused it.[34]

The extremely cost-intensive drugs, implants, or other material goods required for a large number of today's medical treatments represent a large percentage of total costs. As a result, direct cost allocation ('Einzelkostenzuordnung') has come to play an important role in the further development of the G-DRG system.

The requirements placed on cost allocation methods have thus been continually revised in the updates made to the Calculation Manual, allowing for more precise differentiation between the DRGs according to their costliness. Therefore, the Calculation Manual contains a list of articles products for which direct cost allocation is mandatory (see Kalkulationshandbuch InEK, Anlage 10, page 250).[46]

Direct cost allocation is the prerequisite for preparing a detailed breakdown of highly specialised and complex services so that these may be remunerated separately (e.g. through supplementary fees). For the calculation of data from the year 2005, direct costs are to be allocated according to actual consumption ('Ist-Verbrauch'). If an exact case-related allocation of direct costs is not possible, then allocation can be performed in certain instances on the basis of a hospital-specific clinical allocation model. This approach requires special approval from the Institute for Hospital Reimbursement that must confirm that the allocation methods used are sufficiently differentiated.[34]

DRG-related indirect costs are those costs that are incurred for common or joint objectives and thus cannot be readily identified with specific cost objects. DRG-related indirect costs are apportioned across the individual treatment cases via cost centre accounting and, subsequently, using cost drivers in the context of cost unit accounting.[34]

2.3.2.3 Cost centre accounting

This second step in the process for calculating raw costs per case asks where the costs occurred. All DRG-related indirect costs and, if applicable, all DRG-related direct costs are allocated to the place where they occurred (i.e. to the corresponding cost centre). In addition, the exchange of services and of benefits in kind among the various centres is recorded by means of step-down accounting. Cost centres are either described as sender cost centres or receiver cost centres. This differentiation is made so that the costs of these in-house services can be allocated according to their actual utilisation by receiver cost centres. In the allocation process, the sender cost centres are credited and the receiver cost centres debited. [35]

Excluding Non-DRG Services from Mixed Cost Centres

Non-DRG expenditures must be excluded prior to cost centre accounting. Overview of the various types of expenditures to be excluded from mixed cost centres:[35]

- Costs of psychiatric services, as well as services in psychosomatic medicine and psychotherapy
- Costs of non-hospital outpatient services including outpatient operations
- Costs of services provided to a patient's companion or family member whose stay is not medically necessary
- Costs of blood-clotting factors for haemophiliacs
- Costs of services provided to third parties
- Costs of providing staff to third parties
- Costs of board and lodging for staff members
- Costs of non-core business operations (e.g. restaurant, kiosk or flower shop)
- Costs of rent and lease
- Costs of ambulance staff
- Costs of supplementary service areas, such as short-term nursing care, old people's home, welfare centre, etc.
- Costs of academic teaching hospitals
- Costs of scientific research and teaching
- Costs of training centres and costs or additional costs of trainee remuneration

Implementation of Cost Centre Accounting

Cost centre accounting can be based on three different methods of which the step-down accounting method (bottom-up, micro-costing, ABC) has first priority in order to ensure that the calculations performed in each hospital are as differentiated as possible. The mixed calculation method between step-down accounting and gross-costing has second priority. Finally, the gross-costing method (top-down) should only be used if the base data are not sufficient to allocate costs using a differentiated approach like these.[35, 47]

When using the gross-costing method (and, in part, when using the mixed calculation method) the non-medical infrastructure costs are posted to a central cost centre which is created especially for this purpose and functions similarly to a collective cost centre.

2.3.2.4 Cost unit accounting

Cost unit accounting, being the third step in the process for calculating raw costs per case, identifies the products or services associated with the costs. After determining the activities occurring in any given cost centre, as well as the time spent on each activity over a specified period, the costs for each activity can be calculated by allocating the total costs of the cost centre to the individual activity according to the percentage of time spent on the activity. Dividing the activity costs by the number of product or services then results in the costs for one unit, a unit being a product or service.[35]

Direct costs are usually directly allocated to treatment cases. For the allocation of indirect costs, the Calculation Manual has made an obligatory list of which cost drivers (allocation bases) are to be used, depending on the cost centre and the cost element. Figure 4 gives an overview of these mandatory cost drivers. The Calculation Manual even prescribes alternative cost drivers in case the cost driver of first priority is unavailable. This way, the quality, validity, and comparability of the cost calculation is monitored.[35]

Weighted Cost Drivers

The main part of the obligatory cost drivers defined in the Calculation Manual is weighted.

For standard care units, the costs for nursing staff are allocated according to the weighted number of nursing minutes (PPR). PPR ('Pflege-Personal-Regelung') is a unique German methodology which stipulates the nursing manpower requirements for inpatient hospital care. The cost of one minute of nursing care is calculated and allocated to each case according to the intensity of care needed by each case. There are three levels of care for both general and special care, ranging from level 1 (basic care) to level 3 (extremely time-consuming care). The level of care assigned to each case is determined by the staff employed. Therefore, each combination of general and special care receives a certain number of nursing minutes.[48]

The costs for personnel and materials in Intensive Care Units are allocated according to the weighted number of hours the patient stayed in Intensive Care ('gewichtete Intensivstunden'). The residence time in Intensive Care is split up in accordance with the intensity of treatment i.e. surveillance, treatment, and ventilation. The weighing factors for these are, respectively, 0.57, 1.00, and 1.71.[46]

All costs in Dialysis Units are allocated according to the weighted dialyses ('Gewichtete Dialysen'). Weighing is based on the type of dialysis; intermittent procedures which concern regular cycles of dialysis (e.g. a cycle of 2 days containing 2 dialyses each taking 3 to 5 hours), or continuous procedures which may fluctuate in duration according to the patient's condition. Within each hospital, the average standard cost per procedure type is calculated. Finally, for intermittent procedures, this standard cost is multiplied by the number of dialyses. For continuous procedures, on the other hand, the standard cost is multiplied by the number of hours of dialysis.[46]

The costs in operating rooms are allocated in accordance with surgery and setting-up time, and in some cases, a simultaneity factor. Surgery time ('Schnitt-Naht-Zeit') starts with the first skin incision and ends when the last stitch is applied.

In cardiovascular procedures, surgery time is replaced by Heart-Lung-Machine time. Setting-up time ('Rüstzeit') includes the preparation before and after the operation. The simultaneity factor ('Gleichzeitigkeitsfaktor') indicates the number of staff simultaneously present during the operation.[46]

The cost driver for costs associated with anaesthesia is the anaesthesiology time (Anästhesiologizeit') which starts when the patient is admitted in the operating room until he is handed back to his care unit. The incidental setting-up times are part of the anaesthesiology time. When calculating the costs for clinical staff, this time is multiplied by the simultaneity factor.[46]

Costs of patients in maternity room are allocated according to their residence time there ('Aufenthaltszeit') which is defined as the period of intensive and almost continuous care by maternity room personnel. This is obviously the care associated with delivery, but it also applies to some prenatal therapeutic and diagnostic services.[46]

For cardiologic, endoscopic and other diagnostic and therapeutic hospital services, the primary cost driver is the procedure time ('Eingriffszeit') which often equals the surgery time (e.g. in a cardiologic intervention). When the information on the procedure time is unavailable, the secondary cost driver is the number of tariff points assigned to these services as listed in the corresponding tariff catalogues ('Punkte laut Leistungskatalog'). The Uniform Value Scale ('Einheitlicher Bewertungsmaßstab', EBM), the Catalogue of Tariffs for Physicians ('Gebührenordnung für Ärzte', GOÄ), and the Tariffs of associated costs of the German Hospital Association ('Deutsche Krankenhausgesellschaft – Nebenkostentarif', DKG-NT) are such tariff catalogues. In the case of costs for radiology and laboratory, the number of tariff points is the primary cost driver.[35, 46]

Unweighted Cost Drivers

Only a small part of the cost drivers are unweighted.

The number of bed days ('Pflegetage', length of stay) for the allocation of costs for physicians and for administrative or technical personnel in standard care units is an example of an unweighted cost driver. Costs booked to the central cost centre are also allocated according to the length of stay.[35]

The infrastructure costs for Intensive Care Units are allocated according to the unweighted number of hours the patient resided in Intensive Care ('ungewichtete Intensivstunden').[46]

Figure 4 : The modular approach of cost calculation in the G-DRG system (adapted version of Fig. 3 by Schreyögg)[34]

				Cost-Element Groups									
				Labour costs clinical staff	Labour costs nursing staff	Labour costs administrative & technical staff	Drug costs		Costs of implants and grafts	Material costs (without drugs, implants/grafts)		Medical infrastructure costs	Non-medical infrastructure costs
				1	2	3	4a	4b[i]	5	6a	6b[i]	7	8
				personnel costs			*material costs*					*infrastructure costs*	
Cost-Centre Groups	Standard care unit	1	*Hospital units with beds*	Length of stay (days)	Nursing minutes (PPR)	Length of stay (days)	Nursing minutes (PPR)	Actual costs Direct cost allocation	-	Nursing minutes (PPR)	Actual costs Direct cost allocation	Length of stay (days)	Length of stay (days)
	Intensive care unit	2		Weighted Hours in Intensive Care	Weighted Hours in Intensive Care	Weighted Hours in Intensive Care	Weighted Hours in Intensive Care	Actual costs Direct cost allocation	Actual costs Direct cost allocation	Weighted Hours in Intensive Care	Actual costs Direct cost allocation	Hours in Intensive Care	Hours in Intensive Care
	Dialysis unit	3		Weighted dialyses	Weighted dialyses	Weighted dialyses	Weighted dialyses	Actual costs Direct cost allocation	-	Weighted dialyses	Actual costs Direct cost allocation	Weighted dialyses	Weighted dialyses
	Operating rooms	4	*Diagnostic and treatment areas*	Surgery time * simultaneity factor + setting-up time	-	Surgery/HLM[ii] time * simultaneity factor + setting-up time	Surgery time + setting-up time	Actual costs Direct cost allocation	Actual costs Direct cost allocation	Surgery time + setting-up time	Actual costs Direct cost allocation	Surgery time + setting-up time	Surgery time + setting-up time
	Anaesthesia	5		Anaesthesiology time * simultaneity factor	-	Anaesthesiology time	Anaesthesiology time	Actual costs Direct cost allocation	-	Anaesthesiology time	Actual costs Direct cost allocation	Anaesthesiology time	Anaesthesiology time
	Maternity room	6		Residence time in maternity room	-	Residence time in maternity room	Residence time in maternity room	Actual costs Direct cost allocation	-	Residence time in maternity room	Actual costs Direct cost allocation	Residence time in maternity room	Residence time in maternity room
	Cardiac diagnostics & therapy	7		1. Procedure time 2.Points according to tariff catalogue	-	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue	Actual costs Direct cost allocation	Actual costs Direct cost allocation	1. Procedure time 2.Points according to tariff catalogue	Actual costs Direct cost allocation	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue
	Endoscopic diagnostics & therapy	8		1. Procedure time 2.Points according to tariff catalogue	-	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue	Actual costs Direct cost allocation	Actual costs Direct cost allocation	1. Procedure time 2.Points according to tariff catalogue	Actual costs Direct cost allocation	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue
	Radiology	9		Points according to tariff catalogue	-	Points according to tariff catalogue	Points according to tariff catalogue	Actual costs Direct cost allocation	Actual costs Direct cost allocation	Points according to tariff catalogue	Actual costs Direct cost allocation	Points according to tariff catalogue	Points according to tariff catalogue
	Laboratories	10		Points according to tariff catalogue	-	Points according to tariff catalogue	Points according to tariff catalogue	Actual costs Direct cost allocation	Actual costs Direct cost allocation	Points according to tariff catalogue	Actual costs Direct cost allocation	Points according to tariff catalogue	Points according to tariff catalogue
	Other diagnostic & therapeutic areas	11		1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue	Actual costs Direct cost allocation	Actual costs Direct cost allocation	1. Procedure time 2.Points according to tariff catalogue	Actual costs Direct cost allocation	1. Procedure time 2.Points according to tariff catalogue	1. Procedure time 2.Points according to tariff catalogue
	Central cost centre	12		-	-	-	-	-	-	-	-	-	Length of stay (days)

i individual costs/actual consumption; ii Hart-Lung-Machine

2.3.2.5 Quality of cost calculation doubtful

Until now, not many German hospitals have access to the quality of data required by the Calculation Manual. Therefore, from lack of specific cost drivers, a significant portion of costs is still allocated to cases on the basis of the length of stay. Schreyögg et al. confirmed this problem by demonstrating a strong correlation between the G-DRG cost weights and the mean length of stay. This implies that the reimbursements made by the G-DRG system are predominantly determined by the length of stay and that different consumption patterns between DRGs are probably not adequately represented between complex and les complex cases.[34]

Another problem in Germany is the so-called One Hospital Model ('Einhaus Model') which treats the case cost data from all participating hospitals as if they had come from a single hospital. Thus hospitals with different mixes or different sizes than the average might not be able to replicate costs due to economies of scope and other structural effects. Up till now, the German system does not adjust for such structural differences between hospitals.[34]

Third, the composition of the sample of German hospitals participating in the data sharing programme is not a good representation of all hospitals in Germany with medium-sized (300-600 beds) and large (over 600 beds) hospitals being over-represented.[34]

2.3.3 Data sample

The case-related cost data are calculated using a sampling of data from hospitals participating in a voluntary data sharing programme. In 2007, 249 hospitals agreed to participate in the data sharing programme and thus serve as the calculating base for cost weights in the G-DRG system (2008 version). This corresponds to **14.3% of the** 1 744 **hospitals** using DRGs in Germany, and to **21.3% of all cases**.[33] The medium-term goal set by the self-governing bodies is to be able to collect complete cost data information from all hospitals using DRGs in the country.[34]

Because the sample represents only a subset of the cases treated within the scope of the G-DRG system, the relative frequencies for each DRG from the participating hospitals' data have to be corrected by the actual number of all cases of all German hospitals.[35] The correction of the data sample's bias is done by weighting the average costs of inlier cases - as calculated in the data sample provided annually by a selection of German hospitals – for the total number of cases per DRG from claims data of all hospitals using DRGs in Germany.[34]

2.3.4 Quality of data

2.3.4.1 Quality checks of data sample

Since 2005, hospitals have been remunerated for participating in the data sharing programme and delivering the data to the Data Collection Centre, which then hands the data over to the Institute for the Hospital Remuneration System ('Institut für das Entgeltsystem im Krankenhaus', InEK). The reimbursement consists of a basic flat fee for all hospitals, plus a variable fee that depends on the number of cases that are not eliminated in plausibility checks. If in one year more than 35% of a hospital's delivered cases are eliminated in plausibility checks the variable reimbursement ceases.[34]

Enhancing the quality of the per-case cost data from the data sharing programme is essential for the further development of the G-DRG classification system. Therefore Germany applies a mathematical trimming method on the basis of inliers. Before the trimming is applied the data goes through a detailed and content-based plausibility checking process. All datasets are subject to this four-step plausibility checking process (see Table 19). Initially the Data Collection Centre checks the datasets for formal and technical errors. InEK conducts three further steps consisting of economic and medical plausibility checks. While the economic plausibility check for instance focuses on the ratios between different modules defined as cost accounting standards the medical plausibility checks control for adherence to the DRG-classification codes.

In G-DRG Version 2006 the plausibility checks of the Data Collection Centre led to an exclusion of 6% of the dataset and plausibility checks of InEK excluded another 18% of the total dataset. The datasets that remain following the plausibility checking process serve as the basis for determining the cost weights and trim points.[34]

Table 19 : The four steps of the plausibility checking process (adapted version of Table 1 by Schreyögg)[34]

Institution/name of the plausibility checks	Content of the plausibility checking process	Excluded cases in percent
Data Collection Centre	The task of the DRG Data Collection Centre is to collect the datasets of the participating hospitals and to conduct an electronic error checking and correction process which examines the datasets for formal errors.	6
1. Formal and technical error checks	• File compatibility, data encryption • All datasets have to contain service and cost data • Cases without DRG-relevance (e.g., psychiatry) are excluded	
InEK	The InEK subjects the data from the hospitals participating in the data sharing programme to a content-based error checking and correction procedure.	18
2. Economic plausibility checks	• Minimum and maximum amounts of costs per module (e.g., costs of the clinical staff per day, total cost of the hospital, etc.) • Ratios between module (e.g., costs of cost centre anaesthesia < costs of cost centre operating room)	
3. Medical plausibility checks	• Adherence to the German DRG-classification codes (e.g., ICD-10 classification, German operations and procedures codes)	
4. Economic and medical plausibility checks	• Coherence between medical and economic information (e.g., the costs per case of a hip replacement have to reflect material cost of implants; if radiology procedures are reported the costs have to be part of cost centre 9 "radiology")	

2.3.4.2 Audit

Regional medical review boards regularly review the assignment of cases to DRGs and their respective service utilization. They send teams to randomly selected hospitals that have to unclose their medical and coding practice. Case reviewing serves as a preventative measure against low-quality service provision, or "up coding". In instances where unintended up coding is revealed, the hospitals must return the respective additional revenues. If it is demonstrated that hospitals have intentionally used up coding as a means to increase profits, then in addition to their reimbursement fee they are required to make a penalty payment equal to the sum of their reimbursement fee.[25, 34]

2.4 OUTLIERS

2.4.1 Definition of outliers

Outliers are defined in terms of length of stay (LOS).

2.4.2 Lower trim point

The lower LOS-threshold is one-third of the mean value of the length of stay, or a minimum of two days.[34]

Lower trim point in Germany = round [min (2, arithmetic mean of LOS / 3)]

2.4.3 Upper trim point

The upper LOS-threshold is equal to the sum of the mean length of stay and two standard deviations from the mean; or it is calculated as the sum of the mean length of stay and the pre-selected maximum value. The maximum value is to be chosen in such a way that the surcharges for long-stay outliers equal approximately 5–6% of the total amount to be reimbursed via DRGs. The upper LOS-threshold is therefore inextricably linked to the choice of the long stay surcharge level. Following an iterative simulation, considering the mentioned dependencies, the maximum value was set at 17 days.[34]

Upper trim point in Germany = round [min (arithmetic mean of LOS + 2 * standard deviation of LOS, arithmetic mean of LOS + 17)].

After the upper and lower LOS-thresholds for reimbursement purposes are calculated for all cases upon which a DRG is based, a second LOS-threshold calculation is then carried out. While this utilizes the same methodology, threshold levels are delimited even more narrowly by means of a further variance reduction. The remaining inliers which are defined through these LOS-thresholds are applied in the final calculation of the cost weights.[34]

2.5 DETERMINING THE DRG TARIFF

2.5.1 Converting cost information into prices

In Germany, in stead of reporting price in monetary units, cost information is converted into a system of **national DRG cost weights** ('Bewertungsrelation', 'Kostengewicht', 'Relativgewicht'). The relative cost weights represent the average costliness of a particular DRG as related to a reference value. In Germany, this reference value is based on the weighted average of the per-case costs of the cases included in the cost calculation. Accordingly, cost weights do not express an absolute reimbursement value, but only the relative difference between the individual DRGs compared to a reference value.[35] This has the advantage that only the price for the DRG cost weight of 1.0 ('Bezugsgröße' in German, translated as allocation base by the Germans) has to be set or negotiated. Prices for all of the other DRGs are calculated automatically by multiplying the DRG cost weight attached to each DRG with the base rate.[3]

The cost weights make it also possible to quantify hospital's average costs per case in relation tot the specific resource utilization. This involves defining the case mix, which is equal to the sum of the cost weights of all DRGs performed over a specified time period. The average DRG cost weight for a particular hospital, or so-called case mix index, is calculated by dividing the case mix by the hospital's total number of cases. The hospital base rate ('Basisfallpreis', 'Basisfallwert'), in turn, represents the complexity-adjusted hospital-specific average DRG cost per case, and is calculated by dividing the hospital's total costs by the case mix.[34]

2.5.2 Calculation of DRG tariff

The calculation of the price for the DRG cost weight of 1.0 belongs to the range of duties of InEK. Ever since the Case Fees Catalogue 2006, it is calculated in such a manner that the sum of all cost weights (including those for outliers) on the national level (i.e. case mix for Germany) stays unchanged when an identical database is used. For the Case Fees Catalogue 2008 based on the 2006 data, the sum of all cost weights in Germany added up to 16 531 902, and the price for the DRG cost weight of 1.0 amounted to €2 680.80.[33]

The cost weight for each DRG is calculated by dividing the arithmetic mean of costs of all cases belonging to this DRG by the price for the DRG cost weight of 1.0.[33]

2.5.3 Specific adjustments of DRG tariffs

2.5.3.1 Adjusting for regional characteristics

Calculating DRG cost weights or the average costs per DRG automatically adjusts the price per case for resources used and, therefore, economic case "severity" (which is not necessarily the same as clinical severity; for example, treatment of a moribund patient will be palliative only). However, a second adjustment process is needed to account for regional differences (e.g. input prices), which may have an impact on the cost of service delivery. Because of this, the overall design of the German DRG classification system is performed on a national level by the InEK, but the prices and tariffs are set at the state or regional level (Länder).[3, 25]

2.5.3.2 Adjusting for hospital characteristics

G-DRG prices are not adjusted according to hospital ownership. The same reimbursement system is applied to all providers, in an attempt to encourage competition between public and private hospitals.[3] Nor do the G-DRG prices take hospital size into account, e.g. a tertiary care centre and a basic care hospital receive the same amount for a hip-replacement in the same DRG-category.[41]

2.5.4 Reimbursement of hospital stays

In summary, the only relevant variable for the reimbursement of low and high outliers is the length of stay. For hospital stays falling outside the low and high boundary points, the amount that is reimbursed per day is lower than the normal DRG payment. This reduced compensation is obtained by using adapted per diem cost weights which are provided in the Case Fees Catalogue.[29]

2.5.4.1 Reimbursement of day care

In Germany, the definition of day care is less strict than in other countries, i.e. patients admitted and discharged on the same day are not necessarily considered as day care.[49] The distinction between full-time ('vollstationär') and part-time ('teilstationär') hospital stays, for example, is not related with spending the night in hospital. Part-time inpatient stays differ from full-time stays in the way that patients stay in the hospital during the treatment itself but not throughout the whole duration of the treatment.[38] The Case Fees Catalogue 2008 held **five G-DRGs for part-time hospital stays** of which two related to complex geriatric treatment, and three were for renal failure with or without dialysis. Only one out of five 'teilstationär' DRGs was uniformly weighted (B2 in Figure 6). The fees for the remaining four DRGs had to be negotiated at the hospital level (D1 in Figure 6).[32, 33, 50] See Table 20.

Table 20: Part-time G-DRGs

DRG		Cost Weight
A90A	Teilstationäre geriatrische Komplexbehandlung, umfassende Behandlung	/
A90B	Teilstationäre geriatrische Komplexbehandlung, Basisbehandlung	/
L90A	Niereninsuffizienz, teilstationär, Alter < 15 Jahre	/
L90B	Niereninsuffizienz, teilstationär, Alter > 14 Jahre mit Peritonealdialyse	/
L90C	Niereninsuffizienz, teilstationär, Alter > 14 Jahre ohne Peritonealdialyse	0.094

Source: Case Fees Catalogue 2008 [32]

The 'Ein-Belegungstag-DRGs' are another example of how hazy the boundary is between inpatient and day care. Literal translation seems to indicate that it concerns DRGs where patients stay in hospital for one day. But again, this is not always the case. 'Ein-Belegungstag-DRGs' concern patients leaving the same day as well as patients staying for one night.[49] In the Case Fees Catalogue 2008, there were 19 explicit 'Ein-Belegungstag-DRGs', and 249 implicit 'Ein-Belegungstag-DRGs'. The former are called explicit because they have an average length of stay of one day; the latter are labelled implicit because their lower length of stay threshold equals two days (see page 51).[42] Table 21 gives an overview of the explicit Ein-Belegungstag-DRGs.

Table 21: Explicit Ein-Belegungstag-DRGs

DRG		Cost Weight
A60D	Versagen und Abstoßung eines Organtransplantates, ein Belegungstag	0.337
B60B	Nicht akute Paraplegie / Tetraplegie, ein Belegungstag	0.224
B70I	Apoplexie, ein Belegungstag	0.274
E64D	Respiratorische Insuffizienz, ein Belegungstag	0.188
I66E	Andere Erkrankungen des Bindegewebes, ein Belegungstag	0.177
I68E	Nicht operativ behandelte Erkrankungen und Verletzungen im Wirbelsäulenbereich, ein Belegungstag	0.171
J68Z	Erkrankungen der Haut, ein Belegungstag	0.183
K63E	Angeborene Stoffwechselstörungen, ein Belegungstag	0.241
L70A	Krankheiten und Störungen der Harnorgane, ein Belegungstag, Alter < 6 Jahre	0.251
L70B	Krankheiten und Störungen der Harnorgane, ein Belegungstag, Alter > 5 Jahre oder Niereninsuffizienz, ein Belegungstag ohne Dialyse	0.200
L71Z	Niereninsuffizienz, ein Belegungstag mit Dialyse	0.395
L90C	Niereninsuffizienz, teilstationär, Alter > 14 Jahre ohne Peritonealdialyse	0.094
O64B	Frustrane Wehen, ein Belegungstag	0.111
R65A	Hämatologische und solide Neubildungen, ein Belegungstag, Alter < 16 Jahre	0.308
R65B	Hämatologische und solide Neubildungen, ein Belegungstag, Alter > 15 Jahre	0.259
S60Z	HIVKrankheit, ein Belegungstag	0.240
U60A	Psychiatrische Behandlung, ein Belegungstag, Alter < 16 Jahre	0.222
U60B	Psychiatrische Behandlung, ein Belegungstag, Alter > 15 Jahre	0.170
Y63Z	Verbrennungen, ein Belegungstag	0.163

Source: Case Fees Catalogue 2008 [32]

Due to the separation of ambulatory and inpatient care, ambulatory surgery has long time been the privilege of office-based physicians. Hospitals have only been allowed to offer surgery on an ambulatory or day case basis since the Health Care Structure Act ('Gesundheitsstrukturgesetz') in 1993. Since then, their scope to provide ambulatory care has been extended increasingly resulting in several day care possibilities.[26]

First, hospitals can deliver **pre-care** ('vorstationär') **and after-care** ('nachstationär') services in day care. See section 2.6.13 (page 62).

Second, hospitals are allowed to offer **ambulatory surgery** ('Ambulantes operieren') which is **remunerated on a fee-for-service basis** and thus completely excluded from the G-DRG system. All procedures covered in the ambulatory sector (both hospital-based as office-based) are listed in the Uniform Value Scale ('Einheitlicher Bewertungsmaßstab', EBM) together with their relative weights for reimbursement.[26, 51] In 1993, additional items for pre- and post-operative care were introduced. In 2004, the German Hospital Organization and the various federal associations of sickness funds negotiated a contract widening the range of ambulatory surgery to more than 400 interventions.[52, 53] This contract even listed 150 diagnoses for which ambulatory surgery became obligatory, unless a physician explicitly argued for inpatient care. Since 2006, ambulatory surgery in hospitals as well as physicians' practices is evaluated on a routine basis by the Federal Office for Quality Assurance ('Bundesgeschäftsstelle Qualitätssicherung', BQS) as part of an anonymous benchmarking project with feedback to individual hospitals.[26, 50]

2.5.4.2 *Reimbursement of short-stay outliers (deductions)*

The per diem cost weight calculated for all DRGs that have a LOS-threshold of two days takes into account the mean costs of the cases with a one-night stay, insofar as there are at least 30 cases that can be included in the calculation. The deduction is calculated in such a way that the result equals the mean costs of cases with a one-night hospital stay (implicit 'Ein-Belegungstag-DRGs').[33-35]

If the lower LOS-threshold is higher than two days, the non-primary costs are deducted from the total costs of inliers. This way, only the differential costs for the respective DRG are taken into account to calculate the deduction for short stay outliers. These are the primary costs of standard care unit, intensive care unit, dialysis unit, radiology, laboratories and other diagnostic and therapeutic areas. The average differential costs per case are distributed equally among all treatment days below the lower LOS-threshold. Dividing these average costs per day by the allocation bases determines the per diem cost weight.[34, 35]

The calculation of the reduced per diem cost weights for short-stay outliers (SSO) can be summarized as follows:[34]

For short-stay outliers with a LOS threshold = 2 days:
Per diem cost weight = $(AMC_{Inlier} - AMC_{1\text{-day cases}})/AB$

For short-stay outliers with a LOS threshold > 2 days:
Per diem cost weight = ($AMC_{Differential}$ per day below lower LOS – threshold)/AB

Legend AMC = arithmetic mean of costs
AB = allocation base i.e. the price for the DRG cost weight of 1.0

2.5.4.3 *Reimbursement of long-stay outliers (surcharges)*

In order to determine the cost weights for long-stay outliers (LSO) two different methods are used.

The first formula i.e. the median of per diem costs is used if: the cost distribution of long-stay outliers clearly points to a structural funding gap; the attributes of a classificatory solution for the funding gap are not present; excluding the cost distribution of long-stay outliers would lead to deficiencies in the provision of services; or a relevant DRG-specific percentage of long-stay outliers are present.

The second formula is used in all other cases, especially when it is not possible to calculate the surcharge by using the first formula, e.g., due to high variance of costs incurred by long-stay outliers.

The calculation of surcharges for long-stay outliers can be summarized as follows:[34, 35]

For long-stay outliers, first formula:
Per diem cost weight = median ($AMC_{LOS/PD}$ / AB)

For long-stay outliers, second formula:
Per diem cost weight = ($AMC_{Differential}$ / AML) / AB

Legend AML = arithmetic mean of length of stay
AMC = arithmetic mean of costs
AB = allocation base i.e. the price for the DRG cost weight of 1.0
$AMC_{LOS/PD}$ = per diem costs of long-stay outliers

2.5.4.4 *Deductions in the event of patient transfer*

Deductions are to be made from the cost weight of a DRG if a patient is transferred before his or her length of stay reaches the mean length of stay and the DRG in the Case Fees Catalogue is not designated as "flat fee for patient transfer". In the G-DRG from the year 2008, the deduction normally made in the event of patient transfer is suspended if the mean length of stay of transferred patients is significantly shorter than the mean length of stay of non-transferred patients, and the mean costs of the transferred patients are significantly higher than the mean costs of the non-transferred patients, and both differences and the proportion of transferred patients are relevant.[35, 54]

2.5.4.5 *Example of reimbursement of hospital stays in G-DRG system*

The best way to demonstrate the reimbursement of low and high outliers in the G-DRG system is by means of an example. Figure 5 shows the remuneration (in €, on y-axis) of DRG O01A in function of the length of stay (in days, on x-asis). This DRG concerns a complicated Caesarean Section with a pregnancy duration ≤ 25 weeks or intra-uterine therapy. The Case Fees Catalogue 2008 provides following information for this DRG:[32]

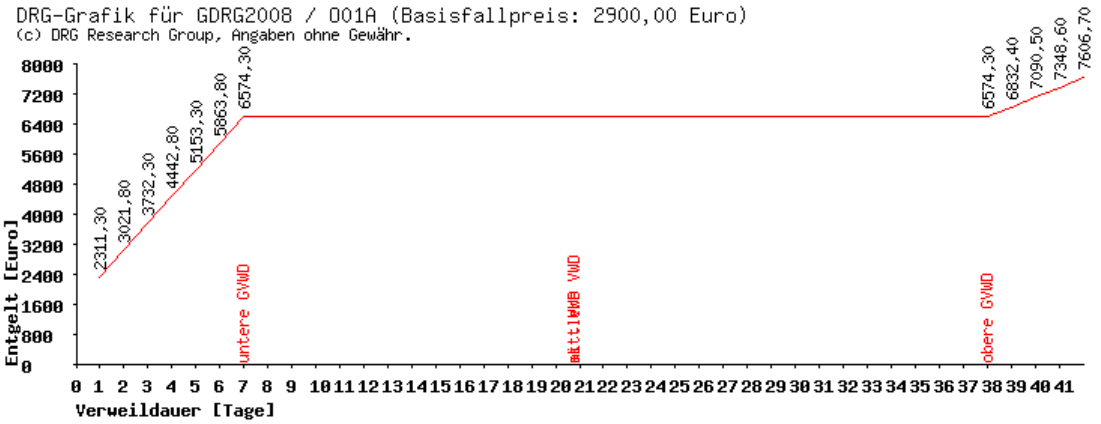
- cost weight = 2.257
- average length of stay = 20.8 days
- lower length of stay threshold = 6 days; per diem cost weight for short-stay outliers (SSO) = 0.245
- upper length of stay threshold = 39 days; per diem cost weight for long-stay outliers (LSO) = 0.089
- per diem cost weight in the event of patient transfer is not available

Assuming the hospital base rate is €2 900.00, the remuneration for an inlier stay will amount to €6 574.30. Formula = cost weight * hospital base rate.

For an outlier stay of 5 days which is two days less than the lower LOS threshold, the hospital will be financed less i.e. €5 153.30. Formula = remuneration inlier stay – (2 * (per diem cost weight for SSO * hospital base rate)).

For an outlier stay of 39 days which equals the upper LOS threshold, the hospital financing increases to €6 832.40. Formula = remuneration inlier stay + (1 * (per diem cost weight for LSO * hospital base rate)).

Figure 5 : Remuneration of G-DRGs in function of the length of stay – DRG O01A as an example



Source: Prof. Dr. Norbert Roeder (Ärztlicher Direktor des Universitätsklinikums Münster), Dr. Marcel Müller (Universitäts-Hautklinik, Universitätsklinikum Freiburg) [55]

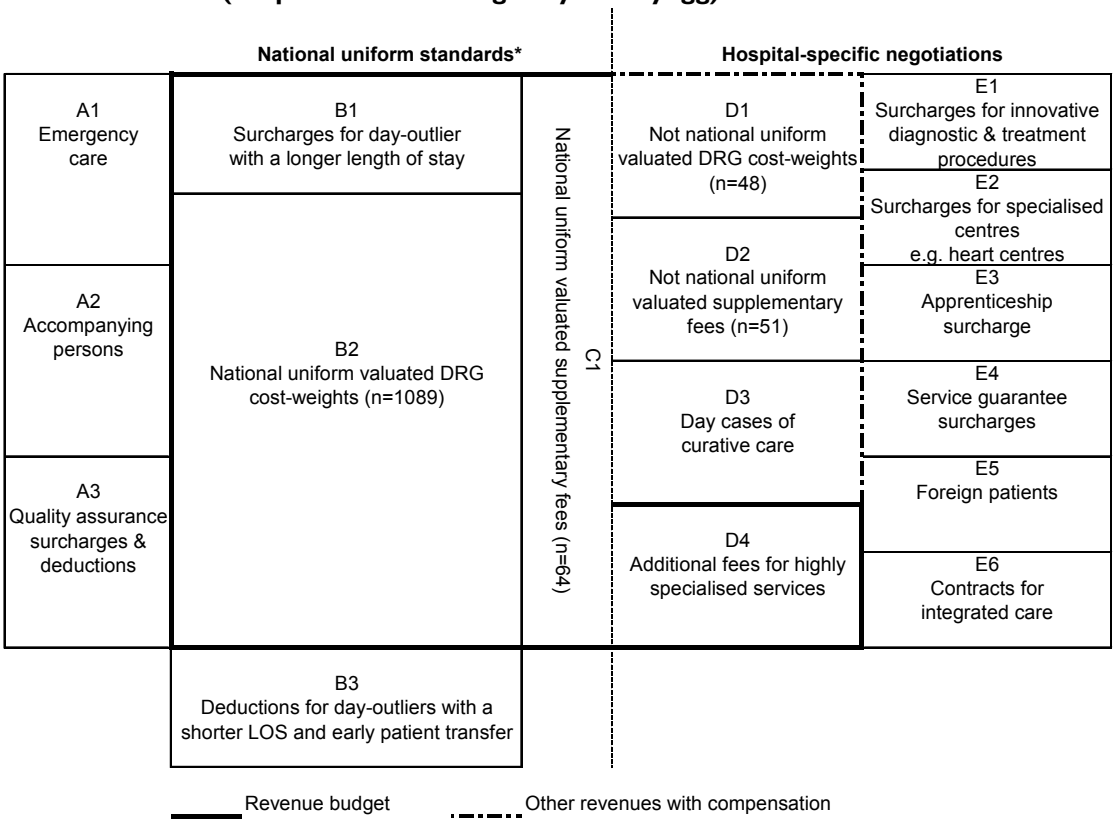
2.6 FUNDING CHARACTERISTICS OF SPECIFIC HOSPITAL ACTIVITIES

2.6.1 Share of hospital revenue that is activity-based

The hospital funding is a combination of activity-based funding (G-DRGs), specific supplementary fees and surcharges for some G-DRGs, and specific budgets/grants.[25]

- The G-DRGs are used in all acute hospitals (private and public) for all types of services except for certain defined services and for care in departments of psychiatry and psychosomatic medicine, where per diem charges continue to apply for inpatient services as well as pre- and post-hospital care.[26] DRGs do not cover capital costs.
- Additionally, supplementary fees ('Zusatzengelte') and surcharges are allocated to specific G-DRGs to compensate for highly complex cases or very expensive drugs associated with longer lengths of stay and/or higher costs. These supplementary fees are typically attached to specific G-DRGs and therefore account for the volume of cases.[25, 34]
- Finally, grants/budgets are used for sectors and services for which it is difficult to assign costs and/or that involve costs not sufficiently captured though DRGs. These grants are not attached to specific G-DRGs. Examples include activities related to teaching, and quality improvement.[25]

Figure 6 : Components of hospital remuneration in Germany in the year 2008 (adapted version of Fig. 2 by Schreyögg)[34]



* Exception: classification as a special facility

Figure 6 gives a detailed overview of the different remuneration components of inpatient care in Germany. An overview of the regulations or sources of information behind the different components is provided in Appendix 6.

2.6.1.1 Costs covered by the DRGs

DRGs are meant to cover medical treatment, nursing care, the provision of pharmaceuticals and therapeutic appliances, as well as board and accommodations.[34]

Components B1 to B3 in Figure 6 represent the uniformly weighted DRGs. In the Case Fees Catalogue for 2008 ('Fallpauschalen-Katalog', Anlage 1), there are 1089 DRGs with national uniform cost weights (B2 in Figure 6).[32, 33] Exceeding the defined upper length of stay will accrue a daily surcharge (B1), while discharges or referrals to other wards or institutions before the defined lower length of stay will incur reductions (B3), as described above.[26, 34] The DRG shall also be modified if part of the hospital stay is shortened by delivering pre-hospital care (day-care services before the hospital stay) or post-hospital care (day-care services following a hospital stay).[26]

In 2008, the Case Fees Catalogue (Anlage 3a and 3b) lists 48 DRGs without national cost weights (D1 in Figure 6).[32, 33] These DRGs were excluded from the DRG national cost weights because their sample size was insufficient for calculation, or their cost variance was too large (e.g. implantation of hearing device, operation for transsexual transformation, polytrauma with ventilation or craniotomy). The fees for these 48 DRGs are individually negotiated with each hospital.[34]

Altogether, the G-DRG system contained 1 137 DRGs in 2008.[33]

2.6.1.2 Costs not covered by the DRGs

Due to the lack of sufficient data for calculating certain DRGs, and the limited appropriateness of the cost weights in terms of reflecting actual costs incurred, several costs are excluded from the DRGs and are financed with supplementary fees ('Zusatzengelte') or, on the other hand, surcharges:[34]

- Supplementary fees for expensive drugs, medical devices and procedures (C1 and D2 in Figure 6, explained in detail in next chapter);
- Surcharges for innovative diagnostic and treatment procedures ('Neue Untersucherungs- und Behandlungs-methoden', NUB) (E1 in Figure 6, explained in detail in next chapter);
- Day cases of curative care (D3 in Figure 6, explained in detail in next chapter);
- In addition, contracting parties were authorized to negotiate additional supplementary fees for highly specialized services if it could be proved that the service in question could not be appropriately reimbursed through DRGs or resolved using the supplementary fees sections of the Case Fees Catalogue (D4 in Figure 6).[34] These additional fees are mostly negotiated for expensive diagnostic procedures, and in academic hospitals. Negotiations are conducted on a local level i.e. between hospital and health insurers.
- Surcharges for specialised centres ('Zentren und Schwerpunkte') e.g. heart centres, cancer centres, geriatric centres (E2 in Figure 6). Hospitals have to negotiate about these surcharges on an individual basis by proving that their cost structure deviates from normal structures.

Finally, hospitals may qualify for grants/budgets which are not attached to specific G-DRGs but which depend on their infrastructure or function:

- Hospitals can apply for a grant for training facilities (E3 in Figure 6) On the Länder level; a compensation fund is financed by a surcharge per case by all hospitals in the Land. From these funds, the teaching hospitals receive contributions for their teaching facilities.[26]
- Other activities incurring surcharges or deductions include emergency services (A1 in Figure 6), accommodation costs of accompanying persons (A2 in Figure 6), securing the necessary provision of services or excessively limited demands for care (E4 in Figure 6), and care for foreign patients (E5 in Figure 6).[26]

- Grants may also be awarded to compensate for the costs associated with quality improvement measures (A3 in Figure 6).[25] Since 2000, hospitals have been obliged to run internal management programmes and to negotiate contracts with sickness funds on external quality assurance measures. In the contract, providers are committed to participate in quality assurance measures with special emphasis on documenting quality indicators in a standard way that allows for comparative analysis. The Federal Office for Quality Assurance ('Bundesgeschäftsstelle Qualitätssicherung', BQS) assists the contract partners in choosing and developing the quality indicators to be monitored and collects the data and presents them in a comparable way. As of now, the contracts oblige the providers to document quality for a set of surgical procedures (such as hip replacement and hip fracture surgery, hernia surgery, cataract surgery) and invasive medical procedures (PTCA, pacemaker implantation).[26] The financing of quality assurance projects is realized through an additional deduction, the so-called 'Qualitätssicherung -Zuschlag' amounting to €0.58 per case billed in 2008 (A3 in Figure 6).[56]
- Hospitals may also receive additional funding from integrated care contracts (E6 in Figure 6) in which sickness funds negotiate selective contracts with outpatient and inpatient providers. Integrated care contracts offer new opportunities for hospitals to become active in ambulatory care and concern for example disease centred programmes at the interface between acute hospital care and rehabilitative care, involving office-based specialists, physiotherapists and family physicians.[26]

Certain special facilities and hospital departments ('Besondere Einrichtungen') are completely excluded from the G-DRG system and are financed through individually negotiated budgets (not included in Figure 6).[34] This exclusion is reserved for facilities that offer highly innovative diagnoses and treatments and if the hospital is able to demonstrate that these procedures are not sufficiently reimbursed through activity based funding. These facilities are then financed through individually negotiated fees.[25] In 2008, the Agreement on Special Facilities ('Vereinbarung zur Bestimmung von Besonderen Einrichtungen', VBE) listed services associated with palliative care, rheumatology (for children and adolescents), neonatology, tropical medicine, multiple sclerosis, Parkinson disease, epilepsy, severely burned patients, and isolation units for severely infected patients.[57]

Although it was the **intent** of the German legislature **that hospitals would be reimbursed solely through DRGs**, Schreyögg et al. calculated that all reimbursement components besides the DRGs accounted for approximately 20% of the total reimbursement for non-psychiatric inpatient care in the year 2005.[34] This implies that **80% of hospital revenue is activity-based**.

2.6.2 Capital costs

G-DRGs do not cover capital costs that are paid by the federal states through taxation. The Länder governments are responsible for maintaining hospital infrastructure which they do through "hospital plans" and their funding. The investments are paid for independently of actual ownership of the hospitals and according to the priorities of the Land government. While the responsibility for major investments (buildings and large-scale medical technology) is undisputed, sickness funds are now responsible for financing building maintenance and repairs, by adding 1.1% to the negotiated hospital budget. With the exception of Bavaria, all Länder have refused to pay for maintenance and repairs since 1993.[26]

2.6.3 Intensive care

Intensive care ('Intensivmedizin') is **included** in the G-DRG system. The German DRGs are so detailed and comprehensive that intensive care can be taken into account as a **split criterion**. The example in Table 22 shows that the cost weight for a hospital stay of a polytrauma patient who is ventilated for more than 263 hours is almost the double of the cost weight of a similar patient who needs less ventilation.

Table 22: Example of how intensive care is taken into account in G-DRG

DRG		Cost Weight
W01B	Polytrauma mit Beatmung oder Kraniotomie, ohne Frührehabilitation, mit Beatmung > 263 Stunden	13.563
W01C	Polytrauma mit Beatmung oder Kraniotomie, ohne Frührehabilitation, ohne Beatmung > 263 Stunden	7.873

Source: Case Fees Catalogue 2008 [32]

In addition, there are **specific DRGs for intensive care stays**, without the diagnosis being specified. Patients with more than 96 hours of ventilation are categorised into specific ventilation-DRGs belonging to the pre-MDCs.[58] This results in five basic DRGs i.e. DRG A06 '≥1800 Hours', DRG A07 ,'≥1000 to <1800 Hours', DRG A09 '≥500 to <1000 Hours', DRG A11 '≥250 to <500 Hours', and finally DRG A13 '≥96 to <250 Hours'. These basic DRGs are in turn subdivided according to a number of split criteria ('Splitkriterien'): surgical procedure, complicated intensive care treatment ('Intensivmedizinische Komplexbehandlung'), age, diagnosis (congenital malformations, cancer, polytrauma), and complicated procedures ('Komplizierende Prozeduren').

In 2008, this resulted in 24 ventilation-DRGs belonging to the pre-MDCs as listed in Table 23.[33] Patients who needed none or less than 96 hours ventilation are, on the other hand, categorized into one of the 23 Major Disease Categories (MDC) in accordance with their diagnosis, as aforementioned.[58]

Table 23: Intensive Care Ventilation-DRGs belonging to the pre-MDCs

DRG		Cost Weight
A06A	Beatmung > 1799 Stunden mit komplexer OR-Prozedur oder Polytrauma, mit hochkomplexem Eingriff oder intensivmedizinischer Komplexbehandlung > 3680 Aufwandspunkte	62.282
A06B	Beatmung > 1799 Stunden mit komplexer OR-Prozedur oder Polytrauma, ohne hochkomplexen Eingriff, ohne intensivmedizinische Komplexbehandlung > 3680 Aufwandspunkte oder ohne komplexe OR-Prozedur, ohne Polytrauma	49.730
A07A	Beatmung > 999 und < 1800 Stunden mit komplexer OR-Prozedur oder Polytrauma, mit hochkomplexem oder dreizeitigem komplexen Eingriff oder intensivmedizinischer Komplexbehandlung > 3680 Aufwandspunkte	37.832
A07B	Beatmung > 999 und < 1800 Stunden mit komplexer OR-Prozedur, mit Polytrauma oder komplizierenden Prozeduren oder Alter < 16 Jahre oder ohne komplexe OR-Prozedur, ohne Polytrauma, Alter < 16 Jahre	32.508
A07C	Beatmung > 999 und < 1800 Stunden mit komplexer OR-Prozedur, ohne Polytrauma, ohne komplizierende Prozeduren, Alter > 15 Jahre oder ohne komplexe OR-Prozedur oder Polytrauma, Alter > 15 Jahre, mit intensivmedizinischer Komplexbehandlung > 2208 Punkte	28.298
A07D	Beatmung > 999 und < 1800 Stunden ohne komplexe OR-Prozedur, ohne Polytrauma, ohne intensivmedizinische Komplexbehandlung > 2208 Aufwandspunkte, Alter > 15 Jahre	21.260
A09A	Beatmung > 499 und < 1000 Stunden mit komplexer OR-Prozedur oder Polytrauma und hochkomplexem Eingriff oder Alter < 16 Jahre oder ohne komplexe OR-Prozedur, ohne Polytrauma, mit angeborener Fehlbildung oder Tumorerkrankung, Alter < 3 Jahre	24.840
A09B	Beatmung > 499 und < 1000 Stunden mit komplexer OR-Prozedur oder Polytrauma, ohne hochkomplexen Eingriff, Alter > 15 Jahre, mit sehr komplexem Eingriff oder komplizierenden Prozeduren	21.521
A09C	Beatmung > 499 und < 1000 Stunden mit komplexer OR-Prozedur, Polytrauma oder intensivmedizinischer Komplexbehandlung > 3220 Punkte, ohne hochkomplexen Eingriff, Alter > 15 Jahre, ohne komplizierende Prozeduren, ohne sehr komplexen Eingriff	17.786
A09D	Beatmung > 499 und < 1000 Stunden ohne komplexe OR-Prozedur, ohne Polytrauma, ohne angeborene Fehlbildung oder Tumorerkrankung oder Alter > 2 Jahre, mit komplizierenden Prozeduren, intensivmed. Komplexbehandlung 2209 bis 3220 Punkte oder Alter < 16 Jahre	18.467

A09E	Beatmung > 499 und < 1000 Stunden ohne komplexe OR-Prozedur, ohne Polytrauma, ohne angeborene Fehlbildung oder Tumorerkrankung oder Alter > 2 Jahre, ohne komplizierende Prozeduren, Alter > 15 Jahre, mit intensivmed. Komplexbehandlung 1381 bis 2208 Punkte	15.904
A09F	Beatmung > 499 und < 1000 Stunden ohne komplexe OR-Prozedur, ohne Polytrauma, ohne angeborene Fehlbildung oder Tumorerkrankung oder Alter > 2 Jahre, ohne komplizierende Prozeduren, Alter > 15 Jahre, ohne intensivmed. Komplexbehandlung > 1380 Punkte	12.727
A11A	Beatmung > 249 und < 500 Stunden mit hochkomplexem Eingriff oder intensivmed. Komplexbeh. > 1656 Punkte oder mit Eingriff bei angeborener Fehlbildung, Alter < 2 Jahre oder mit bestimmter OR-Proz. und kompliz. Proz., mit intensivmed. Komplexbeh. > 1656 P.	17.680
A11B	Beatmung > 249 und < 500 Stunden mit komplexer OR-Proz., mit kompliz. Prozeduren od. sehr komplexem Eingr., ohne Eingr. bei angeborener Fehlbildung od. Alter > 1 J. od. ohne komplexe OR-Proz., mit Tumorerkrankung od. angeborener Fehlbildung, Alter < 3 J.	13.547
A11C	Beatmung > 249 und < 500 Stunden ohne komplexe OR-Prozedur, ohne Tumorerkrankung oder angeborene Fehlbildung, Alter < 3 Jahre, mit bestimmter OR-Prozedur und komplizierenden Prozeduren, ohne intensivmedizinische Komplexbehandlung > 1656 Punkte	12.663
A11D	Beatmung > 249 und < 500 Stunden mit komplexer OR-Prozedur, ohne hochkomplexen oder sehr komplexen Eingriff, ohne intensivmedizinische Komplexbehandlung > 1656 Punkte, ohne komplizierende Prozeduren	11.335
A11E	Beatmung > 249 und < 500 Stunden ohne komplexe OR-Prozedur, mit bestimmter OR-Prozedur oder komplizierenden Prozeduren oder intensivmedizinischer Komplexbehandlung > 1104 Aufwandspunkte oder Alter < 6 Jahre	10.404
A11F	Beatmung > 249 und < 500 Stunden ohne komplexe OR-Prozedur, ohne bestimmte OR-Prozedur, ohne komplizierende Prozeduren, ohne intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte, Alter > 5 Jahre	7.757
A13A	Beatmung > 95 und < 250 Stunden mit hochkomplexem Eingriff oder intensivmedizinischer Komplexbehandlung > 1656 Punkte oder > 1105 Punkte mit komplexer OR-Prozedur oder komplizierenden Prozeduren und bestimmter OR-Prozedur oder bei Lymphom und Leukämie	13.242
A13B	Beatmung > 95 und < 250 Stunden ohne hochkompl. Eingriff, ohne int. Komplexbeh. > 1104 P., mit kompliz. Proz. od. sehr kompl. Eingriff oder bei angebor. Fehlbild., Alter < 2 J. oder ohne kompl. OR-Proz., mit int. Komplexbeh. > 1104 P., mit kompliz. Proz.	10.309
A13C	Beatmung > 95 und < 250 Stunden ohne kompl. OR-Proz., mit intensivmed. Komplexbeh. 1105 bis 1656 P., außer bei Leukämie und Lymphom, ohne komplizierende Prozeduren oder mit bestimmter OR-Proz. und kompliz. Proz., ohne intensivmed. Komplexbeh. > 1104 P.	9.194
A13D	Beatmung > 95 und < 250 Stunden mit komplexer OR-Prozedur, ohne hochkomplexen od. sehr komplexen Eingriff, ohne intensivmedizin. Komplexbehandlung > 1104 Punkte, ohne komplizierende Prozeduren, ohne Eingriff bei angeborener Fehlbildung od. Alter > 1 Jahr	8.001
A13E	Beatmung > 95 und < 250 Stunden ohne komplexe OR-Prozedur, ohne Eingriff bei angeborener Fehlbildung od. Alter > 1 Jahr, mit bestimmter OR-Proz. oder komplizierenden Proz. oder intensivmed. Komplexbeh. 553 bis 1104 Punkte oder Alter < 16 Jahre	6.620
A13F	Beatmung > 95 und < 250 Stunden ohne komplexe OR-Prozedur, ohne Eingr. bei angebor. Fehlbildung od. Alter > 1 J., verstorben od. verlegt < 9 Tage od. ohne bestimmte OR-Proz., ohne kompliz. Proz., ohne intensivmed. Komplexbeh. > 552 Punkte, Alter > 15 J.	3.850

Source: Case Fees Catalogue 2008 [32]

Thirdly, the G-DRG system developed special **DRGs for complicated intensive care treatments** ('Intensivmedizinische Komplexbehandlung'). Only hospital stays with a certain number of severity points ('Aufwandspunkte') can be bestowed to these DRGs. The points are collected over the period spent on the intensive care unit and are based on the clinical condition of the patient, and on his need of sophisticated treatments or procedures. Both criteria are assessed on a daily basis and points are collected each 24 hours. The clinical condition of the patient is assessed with the use of the SAPS II, which stands for Simplified Acute Physiology Score i.e. without Glasgow-Coma-Scale. When a patient's heart rate is <40 beats/minute, for example, this accounts for 11 severity points; a body temperature of $\geq$39°C is valued at 3 points. On the other hand, there is a list of ten treatments and procedures. A patient in need of mechanical ventilation, accounts for 5 severity points/day; a tracheotomy is also valued at 5 points.[59] In 2008, the Case Fees Catalogue listed 16 DRGs for complicated intensive care treatments belonging to 12 MDCs (see Table 24).

Table 24: DRGs for complicated intensive care (Intensivmedizinische Komplexbehandlung)

DRG		Cost Weight
A36Z	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte bei bestimmten Krankheiten und Störungen	11.384
B36A	Intensivmedizinische Komplexbehandlung > 1656 Aufwandspunkte oder > 1104 Aufwandspunkte mit bestimmter OR-Prozedur bei Krankheiten und Störungen des Nervensystems	19.128
B36B	Intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte und < 1657 Aufwandspunkte ohne bestimmte OR-Prozedur oder > 552 Aufwandspunkte und < 1105 Aufwandspunkte mit bestimmter OR-Prozedur bei Krankheiten und Störungen des Nervensystems	11.052
E36Z	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte bei Krankheiten und Störungen der Atmungsorgane	7.498
F36A	Intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte bei Krankheiten und Störungen des Kreislaufsystems, mit bestimmter OR-Prozedur	18.459
F36B	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte und < 1105 Aufwandspunkte bei Krankheiten und Störungen des Kreislaufsystems, mit bestimmter OR-Prozedur	11.668
G36Z	Intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte bei Krankheiten und Störungen der Verdauungsorgane	17.259
H36Z	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte bei Krankheiten und Störungen an hepatobiliärem System und Pankreas	9.620
I26Z	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte bei Krankheiten und Störungen an Muskel-Skelett-System und Bindegewebe	11.317
L36Z	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte bei Krankheiten und Störungen der Harnorgane	7.387
R36Z	Intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte bei hämatologischen und soliden Neubildungen	18.636
T36Z	Intensivmedizinische Komplexbehandlung > 552 Aufwandspunkte bei infektiösen und parasitären Krankheiten	7.869
W36Z	Intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte bei Polytrauma	19.283
Y02A	Andere Verbrennungen mit Hauttransplantation bei Sepsis oder mit komplizierenden Prozeduren, hochkomplexem Eingriff, vierzeitigen bestimmten OR-Prozeduren oder intensivmedizinischer Komplexbehandlung > 552 Aufwandspunkte	14.943
Y02B	Andere Verbrennungen mit Hauttransplantation außer b. Sepsis, ohne kompliz. Proz., ohne hochkompl. Eingr., ohne vierzeitige best. OR-Proz., ohne intens. Komplexb. > 552 P., mit äußerst schw. CC, kompliz. Diagn., kompl. Proz., Dialyse od. Beatm. > 24 Std.	6.588
Y02C	Andere Verbrennungen mit Hauttransplantation ohne äußerst schwere CC, ohne komplizierende Diagnose, ohne komplexe Prozedur, ohne Dialyse, ohne Beatmung > 24 Stunden, ohne komplizierende Prozeduren, ohne intensivmedizinische Komplexbehandlung > 552 Punkte	3.216

Source: Case Fees Catalogue 2008 [32]

2.6.4 Medical devices, high cost drugs, chemotherapy, radiotherapy, interventional radiology, diagnostic imaging

In principle, DRGs are meant to cover the provision of all pharmaceuticals and therapeutic appliances, but for expensive/innovative drugs, medical devices and procedures, additional surcharges can be allocated to specific G-DRGs.

For **expensive drugs, medical devices and procedures** (C1 and D2 in Figure 6) supplementary fees ('Zusatzengelte') have been implemented in 2004.[31] These supplementary fees are listed in the Case Fees Catalogue ('Fallpauschalen-Katalog') by the Institute for the Hospital Remuneration System (InEK) and updated on a yearly basis.

In order to be added to the Case Fees Catalogue, products and procedures have to meet several criteria:

- spread over several DRGs;
- occurring sporadically without typical correlation to certain DRG(s);
- relevant level of cost;
- distinct attribute (e.g. a specific procedure code allowing case identification for calculation and billing);
- structural imbalance in service provision.[29, 31, 60]

In 2008, these supplementary fees applied to 115 products and procedures.

- In the category drugs and blood products, it concerned oncology drugs (e.g. cytotoxic chemotherapy, growth factors, and antibodies), drugs used after transplantation (e.g. antifungal agents, immunoglobulins), and drugs in the domain of internal medicine (e.g. sepsis medication, substitution of genetic enzyme deficiencies), immune system drugs (e.g. immune modulators) and blood products (erythrocytes, thrombocytes).
- The category medical devices consisted of , for example, coil embolisation of head and neck vessels, drug eluting stents, vertebral implants, neurostimulator implants, penile prostheses, aortic endoprostheses, basin implants, artificial heart implants, .
- In the category procedures, it concerned renal dialysis and similar procedures (e.g. hemofiltration, plasmapheresis), liver dialysis, surgical procedures (e.g. retransplantation), interventional procedures (e.g. Extracorporeal Membrane Oxygenation), implantable drug pump, special types of radiotherapy, complex diagnostic procedures for haematological or oncologic illnesses with children, and complex palliative treatments.[31, 32]

Although the list of supplementary fees is defined at the national level, the amounts of the additional payments can only be fixed by InEK when it has enough cost data at its disposal. In 2008, this was the case for 64 supplementary fees (C1 in Figure 6) where the amounts were fixed on the national level in the 2008 Case Fees Catalogue (Anlage 2 and 5).[32, 33] The other 51 supplementary fees (D2 in Figure 6), listed in Anlage 4 and 6 of the 2008 Case Fees Catalogue, were to be negotiated on a hospital-by-hospital basis in contracts between hospitals and sickness funds.[32, 33] Since the introduction of these supplementary fees, their numbers have increased from 26 in 2004 to 82 in 2006 and, finally, 115 in 2008.[60]

In 2005, the surcharge for **innovative diagnostic and treatment procedures** ('Neue Untersucherungs- und Behandlungsmethoden', NUB) (E1 in Figure 6) was introduced, allowing an additional financing of recently authorized or not yet authorized drugs, medical devices and operative/interventional procedures for a duration of maximum one year.[31] Individual hospitals can apply for specified services to be acknowledged by IneK as a "new diagnostic method or treatment form" (NUB).

The criteria to be eligible for this NUB system is not the cost but the new and innovating feature of the diagnostic method or treatment form. Questions to be answered by the applying hospital are, for example:

- 'Which old service is replaced by the new one?'
- 'When has the service been implemented?'
- 'What are the additional costs of the new service in comparison to the old service?'
- 'Why is the service not yet adequately reimbursed?'

IneK receives between 4 000 and 6 000 demands each year from about 600 hospitals and concerning 700 different items. Each demand is analyzed by InEK that gives an advice on the opportunity of creating a supplementary payment. On the basis of the InEK advice (published on its website), the amount of the additional payment has to be negotiated under local contracts between hospitals and sickness funds. During the year the additional payment is allocated for the technology considered as innovating according to the NUB procedure, data are collected and analyzed by the InEK in order to integrate the technology the next year either within the DRG classification or within the supplementary fees list for high cost products and procedures. If the data collected do not allow such integration, hospitals have the possibility to send another NUB-application for the next year. In 2005, 26 services were acknowledged as NUB and compensated. This number rose to 54 NUB services in 2006 and 70 in 2007.[29, 31, 60, 61]

2.6.5 Major burns

Burns are **included** in the G-DRGs, namely in MDC 22 'Verbrennungen'.[32]

Units for severely burned patients can be excluded from the G-DRG system and financed through individually negotiated budgets ('Besondere Einrichtungen').[57]

2.6.6 Multiple trauma

All patient stays due to polytrauma are **included** in the G-DRGs. Polytrauma patients are allocated to the pre-MDCs (see Table 23 on page 56) or to MDC 21A 'Polytrauma' (see Table 25).

Table 25: DRGs for polytrauma belonging to MDC 21A

DRG		Cost Weight
W01B	Polytrauma mit Beatmung oder Kraniotomie, ohne Frührehabilitation, mit Beatmung > 263 Stunden	13.563
W01C	Polytrauma mit Beatmung oder Kraniotomie, ohne Frührehabilitation, ohne Beatmung > 263 Stunden	7.873
W02A	Polytrauma mit Eingriffen an Hüftgelenk, Femur, Extremitäten und Wirbelsäule mit komplizierenden Prozeduren oder Eingriffen an mehreren Lokalisationen	6.271
W02B	Polytrauma mit Eingriffen an Hüftgelenk, Femur, Extremitäten und Wirbelsäule, ohne komplizierende Prozeduren, ohne Eingriffe an mehreren Lokalisationen	3.494
W04A	Polytrauma mit anderen OR-Prozeduren mit komplizierenden Prozeduren oder Eingriffen an mehreren Lokalisationen	4.892
W04B	Polytrauma mit anderen OR-Prozeduren ohne komplizierende Prozeduren, ohne Eingriffe an mehreren Lokalisationen	3.036
W36Z	Intensivmedizinische Komplexbehandlung > 1104 Aufwandspunkte bei Polytrauma	19.283
W60Z	Polytrauma, verstorben < 5 Tage nach Aufnahme	1.778
W61Z	Polytrauma ohne signifikante Eingriffe	1.735

Source: Case Fees Catalogue 2008 [32]

2.6.7 Renal dialysis

In-hospital renal dialysis is **included** in the G-DRGs. The dialysis can be included in the DRG of the main diagnosis where it can be a split criterion. The example in Table 26 shows that the cost weight for a hospital stay of a patient suffering from cardiac failure who is in need of dialysis is higher than of a similar patient without dialysis.

Table 26: Example of how dialysis is taken into account in G-DRG

DRG		Cost Weight
F62A	Herzinsuffizienz und Schock mit äußerst schweren CC, mit Dialyse oder Reanimation oder komplizierender Diagnose	1.576
F62B	Herzinsuffizienz und Schock mit äußerst schweren CC, ohne Dialyse, ohne Reanimation, ohne komplexe Diagnose	1.303

Source: Case Fees Catalogue 2008 [32]

In addition, there are specific DRGs for patients with renal failure in need of dialysis (see Table 27).

Table 27: DRGs for dialysis belonging to MDC 11

DRG		Cost Weight
L60A	Niereninsuffizienz, mehr als ein Belegungstag, mit Dialyse, akutem Nierenversagen und äußerst schweren CC oder mit Dialyse und akutem Nierenversagen oder äußerst schweren CC, Alter < 16 Jahre	3.182
L60B	Niereninsuffizienz, mehr als ein Belegungstag, mit Dialyse und akutem Nierenversagen oder äußerst schweren CC, Alter > 15 Jahre	2.366
L60C	Niereninsuffizienz, mehr als ein Belegungstag, mit Dialyse oder äußerst schweren CC	1.578
L60D	Niereninsuffizienz, mehr als ein Belegungstag, ohne Dialyse, ohne äußerst schwere CC	0.967
L71Z	Niereninsuffizienz, ein Belegungstag mit Dialyse	0.395
L90C	Niereninsuffizienz, teilstationär, Alter > 14 Jahre ohne Peritonealdialyse	0.094

Source: Case Fees Catalogue 2008 [32]

Finally, supplementary fees can be allocated to complicated cases (see Chapter 2.6.4 on page 58). The Case Fees Catalogue 2008 mentions, for example, a supplementary fee ('Zusatzentgelt') of €222.12 in case of haemodialysis in patients older than 15 years and of €408.50 in younger patients.[32]

2.6.8 Transplants

Transplantations are **included** in the G-DRGs (see Table 28), although supplementary fees can be allocated to some complex transplantations e.g. retransplantation of organs during the same hospital stay, and chondrocyte transplantations (see Chapter 2.6.4 on page 58).

Table 28: DRGs for organ transplantation belonging to pre-MDC

DRG		Cost Weight
A01A	Lebertransplantation mit Beatmung > 179 Stunden	31.381
A01B	Lebertransplantation mit Beatmung > 59 und < 180 Stunden oder mit Transplantatabstoßung	16.709
A01C	Lebertransplantation ohne Beatmung > 59 Stunden, ohne Transplantatabstoßung	11.522
A02A	Transplantation von Niere und Pankreas mit Transplantatabstoßung	20.939
A02B	Transplantation von Niere und Pankreas ohne Transplantatabstoßung	12.179
A03A	Lungentransplantation mit Beatmung > 179 Stunden	30.426
A03B	Lungentransplantation ohne Beatmung > 179 Stunden	15.769
A04A	Knochenmarktransplantation / Stammzelltransfusion, allogen, außer bei Plasmozytom, mit In-vitro-Aufbereitung	34.637
A04B	Knochenmarktransplantation / Stammzelltransfusion, allogen, außer bei Plasmozytom, ohne In-vitro-Aufbereitung, HLA-verschieden	34.390
A04C	Knochenmarktransplantation / Stammzelltransfusion, allogen, außer bei Plasmozytom, ohne In-vitro-Aufbereitung, HLA-identisch	29.009
A04D	Knochenmarktransplantation / Stammzelltransfusion, allogen, bei Plasmozytom	18.438
A05A	Herztransplantation mit Beatmung > 179 Stunden oder Alter < 16 Jahre	37.362
A05B	Herztransplantation ohne Beatmung > 179 Stunden, Alter > 15 Jahre	17.903
A15A	Knochenmarktransplantation / Stammzelltransfusion, autogen, außer bei Plasmozytom, Neubildung unsicheren Verhaltens, Lymphom oder bösartiger Neubildung von Hoden und Ovar, Alter < 18 Jahre oder mit In-vitro-Aufbereitung oder Alter < 16 Jahre	16.408
A15B	Knochenmarktransplantation / Stammzelltransfusion, autogen, außer bei Plasmozytom, Neubildung unsicheren Verhaltens, Lymphom oder bösartiger Neubildung von Hoden und Ovar, Alter > 17 Jahre, ohne In-vitro-Aufbereitung	8.076
A15C	Knochenmarktransplantation / Stammzelltransfusion, autogen, bei Neubildung unsicheren Verhaltens, Lymphom oder bösartiger Neubildung von Hoden und Ovar, Alter > 15 Jahre	6.751
A15D	Knochenmarktransplantation / Stammzelltransfusion, autogen, bei Plasmozytom	5.716
A17A	Nierentransplantation mit postoperativem Versagen des Nierentransplantates oder Alter < 16 Jahre	9.262
A17B	Nierentransplantation ohne postoperatives Versagen des Nierentransplantates, Alter > 15 Jahre	6.383
A18Z	Beatmung > 999 Stunden und Transplantation von Leber, Lunge, Herz und Knochenmark oder Stammzelltransfusion	68.986

Source: Case Fees Catalogue 2008 [32]

2.6.9 Mental health

Services provided in psychiatric care, psychosomatic medicine and psychotherapy are **excluded** from G-DRGs.

2.6.10 Rehabilitation

Inpatient and outpatient rehabilitation are **not included** in the G-DRG system. The system of rehabilitative care in Germany is highly fragmented with medical rehabilitation benefits being financed by the statutory health insurance (25%), the statutory retirement insurance (65%), and the statutory accident insurance (5%).[35]

2.6.11 Palliative care

Palliative units with at least five beds are **excluded** from the G-DRG system and are financed through individually negotiated budgets ('Besondere Einrichtungen').[57]

Hospitals are also allocated supplementary fees for complex palliative treatments ('Palliativmedizinische Komplexbehandlung') for terminal patients.[31, 32]

2.6.12 Accident and Emergency Department

The emergency services (A1 in Figure 6) are financed through **grants/budgets** which are not attached to specific G-DRGs.[26]

2.6.13 Outpatient (ambulatory) services

Outpatient services and operations are **not included** in the G-DRG system, but are separately reimbursed through fee-for-service systems.[25, 35] Within the statutory health insurance settings, all procedures covered in the ambulatory sector are listed in the Uniform Value Scale ('Einheitlicher Bewertungsmaßstab', EBM) together with their relative weights for reimbursement.[26, 31, 51] In private delivery settings, private patients are charged for outpatient services according to the German Catalogue of Tariffs for Physicians ('Gebührenordnung für Ärzte', GOÄ).[26]

Although outpatient services are excluded from the G-DRG system, there is an exception to this rule: **pre-care** ('vorstationär') **and after-care** ('nachstationär') **services associated with an inpatient stay** are not financed separately but are included in the DRG of the corresponding hospital stay. Both are provided without board and accommodation and have to be associated with a hospital stay. Pre-care services may not exceed more than three days and have to be performed within five days before the patient is admitted. After-care services may not take more than seven days and have to take place within 14 days after the end of the hospitalization. In the case of organ transplantations, this period is extended to three months. Pre-care services which are performed within more than five days before the inpatient stay or not followed by and inpatient stay (e.g. ambulatory surgery) are not covered by the G-DRG system but financed through the fee-for-service system.[35, 50, 38]

3 FRANCE

3.1 GENERAL INFORMATION ON HEALTHCARE SYSTEM

3.1.1 Type of healthcare system

Compulsory statutory health insurance system for all citizens.[62]

3.1.2 Status or ownership of hospitals

In France, 66% of beds are public but public hospitals count for 57% of acute beds; 14% of beds are private not for profit but private not for profit count for 12% of acute beds; 20% of beds are for profit but for profit hospitals count for 31% of all acute beds.[1]

3.1.3 Hospital financing

French hospitals were previously financed differently according to the type of ownership. Public hospitals and private non-profit hospitals were financed on a global budget basis and private-for profit hospitals were reimbursed a fixed amount for each budget line item ("line-by-line funding") and a per diem rate.[63]

The case mix-based payment system ("Tarification à l'Activité", T2A) has been applied to all activities carried out at medical, surgical and obstetric (MSO) wards at private-for-profit hospitals since 1 March 2005, and previously to about 25% of these activities at public and private-non-for-profit hospitals since 1 January 2004.

Currently, the per-case payment system applies to hospital activities in medicine, surgery and obstetrics (MSO), thus excluding psychiatry, rehabilitation, long term care, etc. It is subject to an overall price-volume regulation, i.e. if the overall hospital activity increases in year n, the national tariffs will be decreased in year n+1 to ensure that the overall hospital targeted budget will not be exceeded.

Tariffs are subject to a macro economic system of regulation via 'health insurance spending objectives': hospital expenditure reimbursed by health insurance funds still has to comply with the French national health insurance spending objective (ONDAM).[64]

Regional hospital agencies ('Agence Régionale d'Hospitalisation', ARH) allocate hospital budgets. Each ARH can decide for itself and the way in which hospital budgets are defined therefore varies between regions.[62]

3.1.4 Employment of physicians

Doctors working in private hospitals are paid directly for their hospital activities on a separate, fee-for-service basis. Doctors working in public hospitals have an employee status and are paid salaries.

3.2 DRG CLASSIFICATION SYSTEM

3.2.1 Name of DRG classification system

The **GHS** classification system (**'Groupe Homogène de séjours'**) is common to the private and the public sector.

3.2.2 Origin of DRG classification system

The classification system was first developed on top on the third version of the Health Care Financing Group (HCFA)-DRG system of classification. The first version of French DRGs was published in 1986. New DRGs were then introduced independently of the US system of classification but consistently with analyses of the National Cost Study ('Etude Nationale des Coûts', ENC).[3, 64]

3.2.3 Reasons to introduce DRG classification system

There were several reasons to introduce the GHS system in France. First, harmonize public and private financing system with a convergence of tariffs between the sectors of for profit and not for profit hospitals and convergence of tariffs within each sector. Second, adapt the budget to the real hospital activity. Third, give an incentive for hospitals to analyse their case mix, their medical performances and the cost structures. Fourth, promotion of certain activities (chirurgical day cases) and stop the continuous growth of other activities.[1]

3.2.4 Scale on which DRG classification system is used

Nationwide; 100% of hospitals are using GHS classification system.

3.2.5 Transition

In 1993, the GHS system was introduced for hospital financing, i.e. for the adaptation of the global hospital budget. In 2004, it was introduced for prospective payment.[1]

Private-for-profit hospitals have been funded entirely by a prospective payment system since March 2005.

The prospective payment system was implemented in 2004 for public hospitals, covering on average 10% of acute care activity. A maximal period of transition of 8 years (2004-2012) and in 2007, 50% of activity was covered by the prospective payment system.[64] In order to reduce the still large disparities between public and private-for-profit financing systems, the Ministry of Health decided in 2007 to end the period of transition. Public hospitals are therefore funded entirely by PPS since January 2008.

DRG national tariffs for private hospitals diverge from DRG tariffs for the public sector, because of the distinct methodologies used to calculate tariffs, and because the area covered is different (medical fees are not included in the PPS for private-for-profit hospitals). The objective is to harmonize the tariffs between public and private sectors for 2012, with an application of a common methodology for the cost study. The area covered by the PPS will however still differ for the public and the private sector.

3.2.6 Refinement of DRG classification system

The DRG classification algorithm is updated annually to take into account any changes in the practice and medical techniques used.[64]

3.2.7 Grouping process

Version 10 of the GHS consists of 780 DRGs.[65]

Stays are classified into homogenous groups according to length of stay, diagnosis, procedures and severity of illness. The format of a GHS is an alphanumerical code with 6 digits. The first digits 01 to 90 represent the MDCs. The third digit allows a differentiation between surgical procedures (C), other procedures (K), and medical procedures (M) carried out during the hospital stay. The fourth and fifth digits are based on primary diagnosis and age. The sixth and last digit, which is again a letter, indicates the severity in terms of complications or co-morbidities. There are three degrees of severity: the letter 'V' indicates that there are no complications or co-morbidities; the letter 'W' indicates the opposite; the letter 'S' stands for the presence of severe complications or co-morbidities; the letter 'Z' is used when there are no severity levels to split the DRG.[65, 66] Appendix 7 provides an example of GHS codes.

The first decision criterion is the principal diagnosis which allows to define the major diagnostic category (MDC).[64] The GHS system is subdivided into 26 Major Disease Categories (MDC) which refer to a body system or a disease aetiology, and are associated with a specialist field of medicine. Exceptional cases are assigned to the so-called MCs (Major Categories), irrespective of the major diagnosis. The MCs include hospital stays shorter than two days (MC24) and transplantations (MC27). Cases that can not be grouped under a specific category and errors are assigned to MC90.[65, 66]

Appendix 8 gives an overview of the French MDCs. Appendix 9 illustrates how hospitals stays are assigned to a certain MDC.

Secondly, hospital stays are differentiated into surgical or medical DRGs according to the procedure performed during the stay. The codification of the procedures is performed on the basis of the 'Classification commune des actes médicaux' (CCAM). Finally, stays are attributed to their final GHS according to primary and secondary diagnoses (CIM-10, which is the French version of ICD-10) and age of the patient.[65, 66]

3.3 CALCULATION OF COSTS

3.3.1 Method of costing

Hospital costs per stay are calculated using a **top-down** and a full costing approach.

3.3.2 Cost allocation

3.3.2.1 Cost centre accounting

Defining Cost Centre Categories

The hospital is divided into cost centres (cost centre groups):[67, 68]

- Clinical cost centres ('Section d'Analyse Clinique', SAC) : urology, neurology, general surgery, etc ;
- Technical cost centres ('Section d'Analyse Medico-Technique', SAMT): laboratory, diagnostic imaging, interventional radiology, operating theatre;
- Mixed technical and clinical cost centres ('Section d'Analyse Mixte', SAMX): reanimation, radiotherapy, dialysis, day surgery;
- Medical logistic centres: pharmacy, sterilization, medical equipment maintenance, hospital hygiene;
- General logistic and management: catering, laundry, and others (personnel administration, patient administration, hostelry, maintenance, IT, medical information);
- Structural costs: capital charges and building charges.

Allocation of Costs to cost centres

Allocation of costs to cost centres is very complex and has recently changed. Therefore, this chapter will only present general rules followed.[67, 68]

- Direct medical costs such as drugs, blood, medical devices are allocated directly to each stay and to medical or technical cost centres.
- Personnel costs (medical staff, nursing staff and other staff) are allocated to the various cost centres as a function of time devoted to each cost centre.
- Medical equipment depreciation and maintenance are allocated to clinical and technical cost centres according to use of equipment.
- Capital charges and building charges are allocated to the "structural cost centre"
- Other overhead costs are allocated to "logistic" cost centres, with an attempt to allocate specifically some expenses to the laundry and catering cost centres.

As a result, medical and technical cost centres are allocated only direct medical costs, personnel cost, medical furniture and depreciation and maintenance of medical equipment.

Table 29: Allocation of costs to cost centres

	Struc-ture	Logistic			Medical cost centres (SAC)	Technical or mixed cost centres (SAMT or SAMX)	Medical logistic
		laun-dry	cate-ring	others			
Drugs					X	X	
Blood						X (operating theatre)	
Medical furniture					X	X	X (allocated to pharmacy)
Prosthesis						X (operating theatre	
Food			X				
Fuel				X			
Water		X	X	X			
Electricity		X	X	X			
Office furniture				X			
Consumables – hostel		X	X	X			
Non medical furniture		X	X	X			
Medical furniture					X	X	
Building maintenance				X			
Equipment maintenance					X	X	
Personnel costs		X	X	X	X	X	X
Equipment depreciation		X	X	X	X	X	
Building depreciation	X						
Capital costs	X						

Medical costs directly attributed to stay are then isolated (to avoid double counting).

Costs of the "medical logistic centre" are then allocated to clinical and technical cost centres according to various method of apportionment.

Table 30: Allocation of costs of the medical logistic centres

Medical logistic centres	Method of apportionment to medical and technical cost centres
Pharmacy	Sum of medical furniture, drugs, blood
Sterilization	M^3 sterilized
Medical equipment maintenance	Medical equipment value
Hospital hygiene	Sum of medical furniture, drugs, blood

Allocation of costs to stays

Laundry and catering costs, building costs and capital costs are allocated to each stay according to the total length of stay.[67, 68]

For patient administration and medical information, an average cost per stay is calculated.

Direct medical costs (drugs, blood and medical devices) are directly allocated to each stay.

Costs of medical cost centres (SAC), excluding direct medical costs but including costs of medical logistic, are allocated to stay according to the length of stay in each SAC.

Cost of technical and mixed cost centres are allocated according to various cost drivers.

Table 31: Allocation of technical and mixed cost centres according to cost drivers

SAMT	**Cost driver**
Laboratory	B or P (nomenclature letter keys)
Imaging departments	ICR (Relative cost index)
Operating theatre	ICR
Functional exploration units (interventional radiology)	ICR
Anaesthesiology	ICR
SMUR (mobile emergency unit) - terrestrial	½ h of transport
SMUR – aerial	Minutes of transport
SAMX	**Cost driver**
Reanimation	Omega CCAM or length of stay
Radiotherapy	ICR
Dialysis	ICR
Day surgery	ICR

The method adopted to define relative cost index (ICR) consisted in defining a composite index to assign costs to each type of resource relative to other resources, e.g., doctors, nurses and equipment. This index is expressed in "points" and contains three components: a medical activity index (IAM), a nursing staff activity index (IAS) and an index for measuring material resources consumption (ICRM).[64]

ICR = IAM + IAS + ICRM

Where:

IAM is based on (the number of physicians X numbers of hours worked)

IAS is based on (the number of nursing staff X numbers of hours worked)

ICRM is given by (the hourly cost of the equipment X time for which the equipment is used)

The "Omega CCAM" is an index calculated on basis of the length of stay in reanimation unit and on basis of the ICR index for reanimation units.

The total cost of the stay is thus the sum of the daily costs incurred at each SAC, the directly attributable medical costs, the cost of the SAMT and SAMX in proportion of the total number of ICRs used and the laundry, catering , infrastructure and structural costs, pro rata for the total acute care length of stay.

Example of calculation of a stay total cost:

LOS in urology (SAC1): 3 days; LOS in neurology (SAC2): 2 days; ICR consumed in operating theatre: 30; B consumed in laboratory: 850; drugs, blood and medical devices: 200€

Urology	Total cost of urology 1.000.000€	Total of days in urology (for the hospital) 1000 days	Average cost per day in urology 1000€
Neurology	Total cost of neurology 400.000€	Total of days in neurology (for the hospital) 2.000 days	Average cost per day in neurology 200€
Operating theatre	Total cost of operating theatre 1.500.000€	Total of operating theatre ICR 125.000	Average cost per ICR 12€
Laboratory	Total cost of laboratory 450.000€	Total of laboratory B 1.500.000	Average cost per B 0.3€
Laundry	Total cost for the hospital 150.000€	Total of days for the hospital 20.000	Average cost per day 7.5€
Catering	Total cost for the hospital 250.000€	Total of days for the hospital 20.000	Average cost per day 12.5€

Other general logistic	Total cost for the hospital 760.000€	Total of days for the hospital 20.000	Average cost per day 38€
Capital costs and building costs	Total cost for the hospital 300.000€	Total of days for the hospital 20.000	Average cost per day 15€
Blood, drugs and medical devices			Total cost for the stay 200€

Total cost of the stay: (3X1.000) + (3X200) + (30X12) + (850X0.3) + (7.5X5) + (12.5X5) + (38X5) + (15X5) + 200 = €4 780.

As a result of this methodology of allocation, about 60% of costs are allocated according to LOS.[69]

Correction for cost outliers

A stay truncation is applied to the stays, identifying low and high outliers trim points. Outliers are stays costing either more or less than the trim points. These outliers are then discarded according to a Maximum Allowed Deviation (MAD) method. This method is applied because the cost distribution is asymmetric and has a positive skew. To resolve this problem, the costs should follow a log-normal distribution. The trim points are calculated as follows:

Lower bound equals exp $^{mean[log(LOS)]+SD[log(LOS)]+Q5-median[log(LOS)]}$

Upper bound equals exp $^{mean[log(LOS)]+SD[log(LOS)]+Q95-median[log(LOS)]}$

The rationale behind the MAD methodology is to eliminate the aberrant points arising from coding errors or situations outside the limits defined by experts. This procedure discards about 1.2% of the total number of stays declared (data 2004-2005).[70]

Application of the DRG reimbursement method ('méthode T2A') to the cost data[d]

This procedure consists to deduce costs which are not covered by the prospective payment system, namely:[71]

- The cost of expensive drugs and medical devices (which are paid for in addition to the GHS-tariff);
- Dialysis, radiotherapy performed during hospitalisation (which are paid for in addition to the GHS-tariff);
- Further daily expenses for reanimation/intensive care, continuous care and neonatology (which are paid for in addition to the GHS-tariff);
- Teaching and research expenses (i.e. budget allowed for this type of expenses)
- Additional geographical indices applied to the GHS-tariffs in Paris and the surrounding area, Corsica, and the French overseas territories.

Correction of sample bias [c]

This step consists in adjusting the proportion of costs assigned per day by applying the ratio between the National average length of stay (ALOS) and the sample ALOS. This calculation is carried out per type of hospital for which the case mix differs. Five types of hospital are defined for this purpose: hospitals producing less than 16 000 discharge summaries per year; hospitals producing more than 16 000 discharge summaries (excluding sessions); teaching hospitals ('Centre hospitalier universitaire', CHU) ; cancer treatment centres ('Centres de lutte contre le cancer', CLCC); private non-for-profit hospitals participating in the French public hospital service, apart from cancer centres.

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[d] The methodology used has recently changed but is not yet published. This chapter is therefore based on the methodology published in 2005.

The first correction is carried out by substituting the national average length of stay for the sample average used in the following formula. The adjustment is based on 2004 PMSI data. The ALOS per GHM and per type of hospital are calculated by excluding all inpatient stays with an ALOS falling outside the pre-defined statistical limits.

In 2007, the calculation rules for both public and private hospitals were as follows:[72]

When the average LOS (ALOS) is less than 8 days, there is no lower trim point.

When ALOS is 8 days or more, lower trim point equals min [(ALOS/2.5);7;(modeLOS-1)].

When ALOS is less than 8 days, the upper trim point equals min [15; upper bound].

When ALOS ≥ 8 days, the upper trim point equals min [2.5 x ALOS; upper bound].

The upper bound equals exp $^{\text{mean[log(LOS)]+SD[log(LOS)]+Q95-median[log(LOS)]}}$.

Hence, the stays where LOS is strictly greater than the upper bound or strictly lower than the lower bound are discarded.[64]

The average cost for GHM_i and hospitals $type_j$ is given by the following formula:

$$C_{ij} = \frac{\sum_k Cdirect_{ijk}}{NBstays_{ij}} + ALOSnat_{ij} \times \frac{\sum_k CLOS_{ijk}}{\sum_k LOS_{ijk}}$$

Legend $ALOSnat_{ij}$ is the national average LOS of the GHM_i for hospitals $type_j$
$Cdirect_{ijk}$ is the direct cost of GHM_i for hospitals $type_j$ for a stay k
$NBstays_{ij}$ is the number of stays for GHM_i for hospitals $type_j$
$CLOS_{ijk}$ is the costs allocated per day of stay
LOS_{ijk} is the LOS for GHM_i for hospitals $type_j$ for a stay k

The cost of GHM is then calculated using the weighted means of adjusted costs per type of hospital. Hence, the cost per GHM is:

$$C_i = \frac{\sum_j C_{ij} \times NBstays_{ij}}{\sum_j NBstays_{ij}}$$

Legend: $NBstays_{ij}$ is the number of stays in the 2004 national database on GHM_i for hospitals $type_j$

This gives the relative scale of costs per GHM, named "pre-tariff scale". This scale is then used to set the prices.[71]

3.3.3 Data sample

A national cost study (ENC) for the public sector was introduced in 1992 on a voluntary basis. Each hospital uses the same cost accounting model. At present (2005 activity data's), the ENC covers 36 establishments out of the 691 public establishments carrying out acute care activities (**5%**).[70] The sample is therefore rather small. However, the ENC includes 3 or 4 hospitals in representing each of main existing groups and the establishments are fairly distributed throughout France.[64] Adjustments are made to correct the sample bias. The Technical Agency for Hospital Information ('Agence Technique de l'Information Hospitalière', ATIH), responsible of the ENC, is studying other possibilities of adjustments.[73]

GHS-tariffs for the private sector were not calculated on basis of costs and a national cost study for private hospitals was only introduced in 2004-2005. Forty-two hospitals were participating on a voluntary basis in 2004-2005, and 52 hospitals in 2005-2006.[74]

A National Cost study with a common methodology for the public and the private sector ('Etude Nationale des Coûts à méthodologie Commune', ENCC) was introduced in 2007.

3.3.4 Quality of data

A national program of data control is elaborated each year. A systematic control of some data of all hospitals is realized in order to find atypical cases or hospitals.

A control "on site" is then realized on some spotted hospitals or on randomly selected hospitals. Case reviewing serves as a preventive measure against up coding. If unintended up coding is revealed, the hospital must reimburse the respective additional revenues. If it is demonstrated that hospitals have intentionally used up coding to increase profits, additional penalties can be applied. In 2006, 534 of the total 1 400 French hospitals have been controlled.[75]

3.4 OUTLIERS

3.4.1 Definition of outliers

Outlier cases are those that are not treated within the standard length of stay (LOS). The standard LOS is demarcated by a lower threshold an upper threshold, between which the average treatment cases are expected to be located.

3.4.2 Lower trim point

When the average LOS (ALOS) is less than 8 days, there is no lower trim point.

When ALOS is 8 days or more, lower trim point equals min [(ALOS/2.5);7;(modeLOS-1)].[72]

3.4.3 Upper trim point

When ALOS is less than 8 days, the upper trim point equals

$$\min [15; \exp^{\text{mean}[\log(LOS)]+SD[\log(LOS)]+Q95\text{-median}[\log(LOS)]}]$$

When ALOS $\geq$ 8 days, the upper trim point equals

$$\min [2.5 \times ALOS; \exp^{\text{mean}[\log(LOS)]+SD[\log(LOS)]+Q95\text{-median}[\log(LOS)]}]$$

3.5 DETERMINING THE DRG TARIFF

3.5.1 Converting cost information into prices

In France, the cost information is converted into a **national DRG price which reflects an average cost per HRG**.

3.5.2 Calculation of hospital DRG tariff

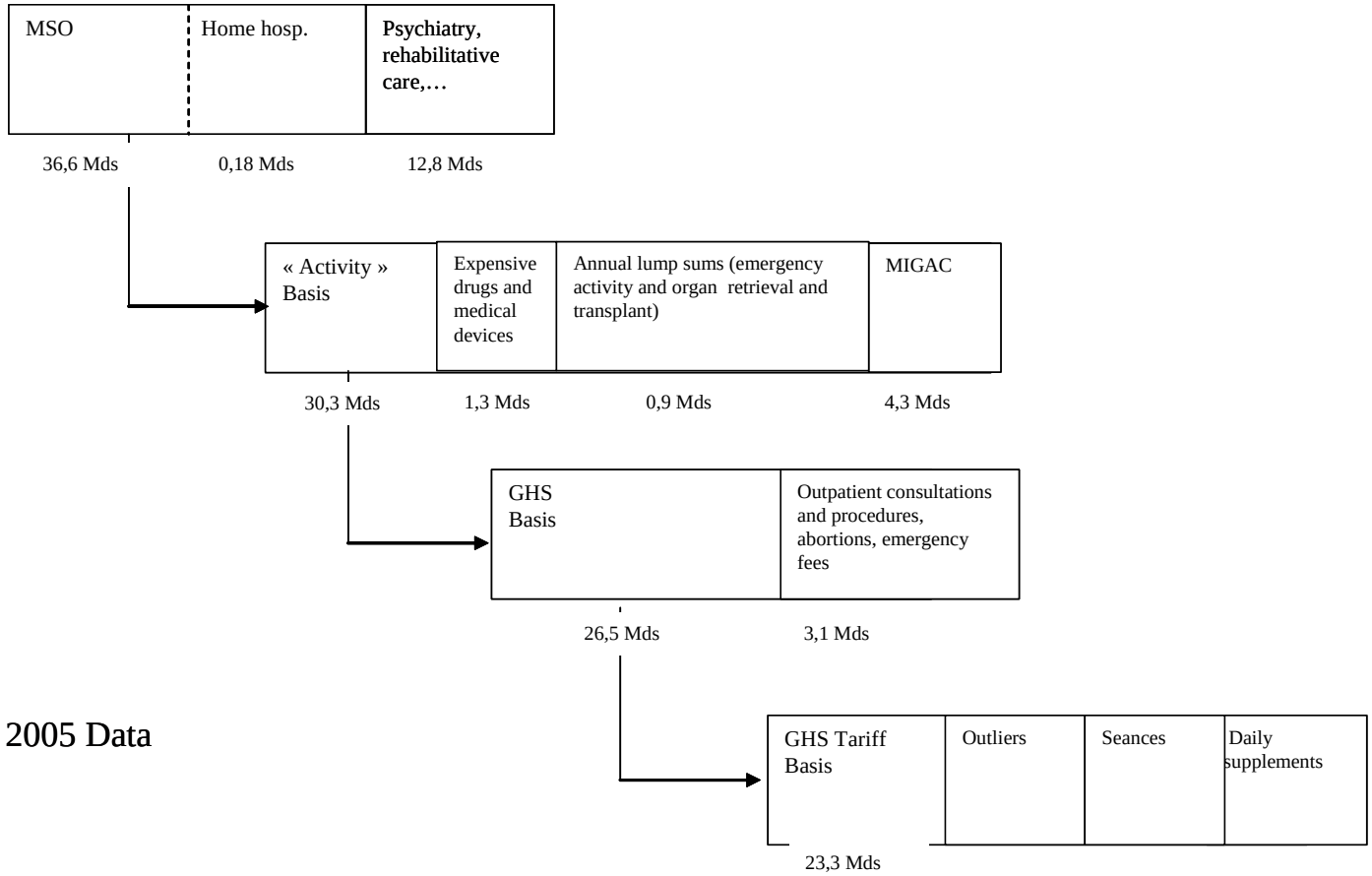
The costs of private-for-profit hospitals were not known until 2005. Definition of reimbursement per GHS have thus simply consisted so far in adding together for each GHS all the fees which result from billing all patient stays in each category.[64] With the new national cost study with a common methodology for the private and public sector, it should change in the future. The GHS-tariff for private-for-profit hospitals does not include medical fees.

For the public sector, an average cost per DRG is calculated in three stages.

First stage

This first stage in the process is designed to identify the costs which are covered by GHS-tariffs. The tariff basis of hospitals is obtained by deducting, from the national hospital budget, the rehabilitative care budget and the psychiatry budget and then by deducting from the MSO (medicine, surgery and obstetric) budget, the activities which are not paid for on the basis of GHS-tariffs, i.e. general welfare missions and contractual activities (known as MIGAC); emergency activities and organ retrievals and implants; expensive drugs and medical devices (DMI); outpatient consultations and procedures; abortions; paramedical schools; and the part of reanimation/intensive care, continuous care and neonatology funded in the form of daily supplements. Additional geographical indices applied to the GHS tariff basis, are also deducted.[76]

Figure 7 : First stage in the definition of the hospital tariff basis



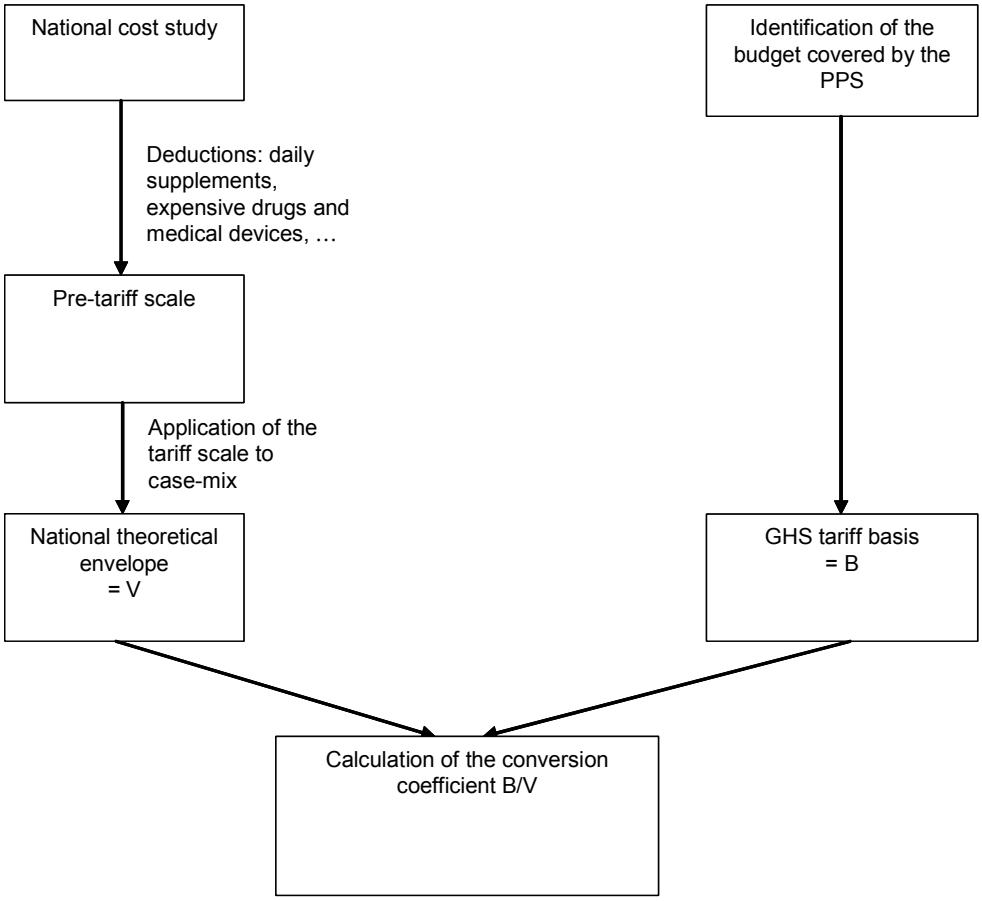
Second stage

The national theoretical envelope is calculated by applying the relative pre-tariff scale to rate the hospitals' case mix. An adjustment is then made by adding the rated cost of "outliers" and the cost of dialysis and radiotherapy performed during hospitalization, which are paid for in addition to the GHS-tariffs.

Third stage

The ratio between these two budgets gives a conversion coefficient which is systematically applied to the adjusted scale of costs per GHS and is used to calculate the final GHS tariffs.[76]

Figure 8 : Third stage in the definition of the hospital tariff basis



3.5.3 Specific adjustments of DRG tariffs

3.5.3.1 Adjusting for regional characteristics

There is an adjustment of GHS tariff according to input prices for some geographical areas such as Paris and its surrounding region (Ile de France 7%), Corsica (5%) and overseas areas (25% for Guadeloupe, Martinique and French Guyana; 30% for Réunion).[77]

3.5.4 Reimbursement of hospital stays

3.5.4.1 Reimbursement of day care

Day care patients have the **same tariff as elective inpatients**, giving a financial incentive to transfer services to day care.

3.5.4.2 Reimbursement of short-stay outliers

Stays below the lower threshold are reimbursed at **50%** of the GHS tariff (except if the patient is deceased).

3.5.4.3 Reimbursement of long-stay outliers

Days above the upper threshold are reimbursed on the basis on **75%** of the daily average tariff i.e. the GHS-tariff divided by the corresponding average length of stay.

3.6 FUNDING CHARACTERISTICS OF SPECIFIC HOSPITAL ACTIVITIES

3.6.1 Share of hospital revenue that is activity-based

Private-for-profit hospitals have been funded entirely by a prospective payment system since March 2005. In public hospitals, **100%** of their activity is funded by PPS since January 2008.

3.6.2 Capital costs

All capital costs are **included** in the prospective payment system.

3.6.3 Research, training and medical education

A national budget is yearly defined for financing general interest, or "public utility" missions and promoting contractual activities ('MIGAC' envelope). This specific funding system does **not** come under the activity-based payment system. These activities and missions are defined by ministerial order.[64]

3.6.3.1 Teaching, research, recourse and innovation

French term is 'Missions d'enseignement, de recherche, de reference et d'innovation' (MERRI). Hospitals are funded by a fixed budget, representing a percentage of the total of MSO budget. This percentage varies according to the type of hospitals. Hospitals are classified in three categories, depending on acknowledged research criteria. Additional funding are allowed for a list of missions and activities defined by ministerial order, e.g. reference centre for hepatitis C, cochlear implants, cystic fibrosis, antenatal diagnosis.[78]

3.6.3.2 Other public utility missions

The list of these other public utility missions is clearly defined each year by ministerial order. These missions have two characteristics: it can not be related to a specific patient or stay and it can not be financed only on basis of activity because this type of mission has to continue to exist even if the level of activity is very low or null. Examples of these missions are mobile emergency units (SMUR), district emergency regulation centres (SAMU), sperm and ovocyte banks, palliative mobile teams.[78]

3.6.3.3 Contractual activities i.e. hospital activities promoted by contract with regional hospital agencies

Regional hospital agencies ('Agence Régionale d'Hospitalisation', ARH) allocate resources for contracting promotion schemes on the basis of regionally defined criteria depending on regional planning priorities and quality of care.

3.6.4 Intensive care

Neonatology, resuscitation care, intensive care and continuous care benefit from additional **daily supplements** on top off the GHS-tariff. The Regional hospital agencies (ARH) have to authorize hospitals to perform these activities. Calculation of the daily supplement is based on a comparison between daily cost with and without intensive care. A relative scale of supplement has been created on basis of standard staff needed by bed (resuscitation care: 100; intensive care: 50; continuous care: 30; neonatology resuscitation care: 100; neonatology intensive care: 70; neonatology: 50).

To benefit from the resuscitation care daily supplement, the hospital has to justify a resuscitation treatment in a defined list of treatments and a severity index ('Indice de Gravité Simplifié', IGS) ≥15. For the other supplements, the hospital has only to justify one day of stay in one of the units considered.[77]

3.6.5 High cost drugs

Some expensive drugs do not come within the scope of the GHS- tariffs and are **billed in addition to the GHS-tariff** on the basis of hospitals' "real costs". These expensive drugs have to be defined by the National union of health insurance funds (UNCAM). These are funded on the basis of the reference price ('tarif de responsabilité'), which corresponds either to the price declared by the laboratory or, if this price is questioned, to the price fixed and published by the Committee for Medical products (CEPS).

In order to be reimbursed on basis on real cost, a drug has to be expensive and its prescription has to be highly variable within a GHS (and thus induce cost heterogeneity within a GHS).

In order to be fully reimbursed for the cost of these drugs, hospitals will have to agree with the ARH on a "proper use of expensive drugs contract" ('contrat de bon usage'). The 'proper use' is defined according to nationally or internationally accepted medical standards. If hospitals do not comply with the contract conditions, they will be given lower reimbursement rates (e.g. 70% instead of 100% in some cases). Contracts can also include a set up of guidelines, a nominative prescription or a future computerization of drugs delivering.

Drugs reimbursed on basis of real costs are mostly anti cancer drugs, expensive anti-fungals and blood products. The list of these drugs is similar for the public and the private sector.[63, 77]

3.6.6 Medical devices

In principle, reimbursement of inpatient medical devices is integrated in the GHS-tariff. Nevertheless, with the current definition of GHS, integration of all medical devices in the GHS tariffs would lead to a great heterogeneity of costs. As a response to this issue, the French health authorities have established in 2005 a system of "**exclusion lists**". A limited number of medical devices are then **reimbursed on top of GHS' tariffs**, provided they fulfil the following criteria:[79]

- Previous positive reimbursement decision by the health authorities (i.e. being on the 'Liste des Produits et Prestations Remboursables' , LPPR) ;
- A high cost per unit and/or a non-generalized use, resulting in a great heterogeneity of costs within the GHS tariff to which they are attached.

Exclusion lists differed according to hospital status: more medical devices were included in the list for private-for-profit hospitals. This difference is now less marked and a convergence of the two lists is planned in the future.

In order to be fully reimbursed for the cost of these medical devices, hospitals have to agree with the ARH on a "proper use contract" ('contrat de bon usage'). Contracts can include implementation of guidelines, computerization of prescriptions, set up of nominative prescription, etc. The principle (and often the contract) is the same as for the prescription of expensive drugs.

Table 32: Medical devices included in exclusion lists[80]

implantable cardiac defibrillators
cardiac stimulators
coronary stents
endovascular stent grafts
aortic stent grafts
heart valve prosthesis
some vascular grafts
hip prosthesis (cup, ball and stem)
shoulder prosthesis (cup, ball and stem)
knee prosthesis
wrist prosthesis
elbow prosthesis
finger prosthesis
ankle bone implant, graft, talus (astragale) and tibia implant
ostheosynthesis devices
bone grafts
spinal implants
spinal cord stimulator
vagus nerve stimulator
deep brain stimulator
gastroplasty rings

3.6.7 Organ retrievals and transplants

Transplant services are **included** in the GHS system, **but there are additional budgets**.

3.6.7.1 Annual lump sum for organ retrieval coordination

An annual lump sum is paid to cover the hospital coordination costs involved in making organ retrievals. This lump sum is mainly intended to cover the cost of the staff involved and cost of maintaining multidisciplinary teams who have to be permanently present in the case of organ retrieval. The rules for setting this lump sum are defined at national level. Five different tariff levels exist for organ retrievals, depending on the nature of the authorization delivered by the Regional hospital agencies (ARH) and on the hospital activity.[77]

3.6.7.2 Fee per organ retrieved

An additional fee per organ retrieval is paid to hospitals. Three different fees exist, depending on the nature of the organ retrieved: liver or kidney(s); liver and kidneys and heart and lungs and pancreas or intestine or at least seven organs; other organ retrievals.[77]

3.6.7.3 Annual lump sum for organ transplantation coordination

An annual lump sum is paid to cover the hospital coordination costs involved in making transplants. As for organ retrievals, this lump sum is mainly intended to cover the cost of the staff involved and cost of maintaining multidisciplinary teams who have to be permanently present in the case of transplants. Six different tariff levels exist for organ retrievals, depending on the nature of the authorization delivered by the Regional hospital agencies (ARH) and on the nature and the number of transplants realized by the hospitals.[77]

3.6.8 Mental health

Mental health is **not covered** by the prospective payment system.

3.6.9 Rehabilitation

Rehabilitation is **not covered** by the prospective payment system.

3.6.10 Admission through Accident and Emergency Department

Patients admitted in emergency and hospitalized (non elective inpatients) have the **same GHS-tariff as elective patients**.

3.6.11 Visits to Accident and Emergency Department (without admission)

Each hospital that has an A&E Departments receives an **annual lump sum** which partly covers the fixed costs. The rules whereby this lump sum is calculated are defined at national level. A single tariff is applied up to a certain number of annual admissions and this sum is increased by a standard amount for the first block of 5 000 additional yearly admissions and then for each further block of 2 500 admissions.

In addition, **a single national tariff is applied for each patient's episode in an A&E Departments which is not followed by hospitalization**.[71]

3.6.12 Outpatient (ambulatory) services

The funding of outpatient consultations and procedures is based on article L.162-26 of the social security code introduced by the Social Security Act for 2005 ('Loi de financement de la sécurité sociale', LFSS). According to this article, consultations and planned procedures performed in outpatient wards as well as episodes dealt with in A&E Departments are paid on a **fee-for-service** basis (CCAM nomenclature).[71]

4 DENMARK

4.1 GENERAL INFORMATION ON HEALTHCARE SYSTEM

4.1.1 Type of healthcare system

The Danish health care system can be characterised as **public and tax financed**. It is a national health service, where both the financing and the provision of health services are to a large extent the responsibility of the public sector. It is also a **decentralized** system. Until 2007 the counties (14) and the Municipalities of Copenhagen and Frederiksberg were responsible for the financing and provision of the health care services. Since January 2007, the 14 Danish counties have been replaced by 5 regions and the 271 municipalities have been reduced to 98 new municipalities. The regions run the hospitals, but the regional taxes have been abolished. Instead regions are financed partly by the state (block grants and activity based financing) and partly by the municipalities (activity based). The government sets out the general legislative framework. Most hospitals are owned by the regions, there are only few private hospitals. Hospital services and outpatient consultations are free for all citizens; however some health care services are subject to patient co-payment (e.g. pharmaceuticals, dental services).[12, 81]

4.1.2 Status or ownership of hospitals

In Denmark, 95.9% of beds are public and 4.1% of beds are private. Public hospitals cover 98% of bed days. Private hospitals count for 2% of bed days.[1]

4.1.3 Hospital financing

The Danish hospital sector is characterised by **five different funding arrangements** according to the purchaser provider relation.[12, 81, 82]

- The most important funding relation is the one between the region and the public hospitals.
- Regions can also purchase hospital services from private hospitals in two cases. The free choice of hospital includes private hospitals if the local hospital can not offer treatment within one month. Patients have also a free choice of treatment at certain specialized private non-profit hospitals (e.g. rehabilitation centres, sclerosis and arthritis sanatoria).
- In some cases, a patient is treated in another region than his home region and this treatment releases a payment between two regions.
- The regions do not have the right to collect taxes. They receive a special grant from the state. This grant is allocated to the regions according to their documented activity above a baseline defined by the ministry every year. This grant comprises between 2% and 3% of total hospital expenses.
- Since 2007, the municipalities pay a part of the health care expenses of their own citizens. The municipalities pay a fixed amount per inhabitant to the region. The size of this payment can be negotiated between the region and the municipalities within the region. The municipalities also pay a grant that is based on the case mix system.

Table 33 provides an overview of the payment principles and tariff for these five funding arrangements.

Table 33: Payment principles in different purchaser provider relations in the Danish hospital sector[82]

Purchaser	Provider	Payment principle/Unit of payment	Tariff
Region	Public hospital	At least 20% of the budget based on activity performed. All regions use Danish case-mix system. Remaining: fixed budget.	Tariff is determined at regional level. Number of DRGs and percentages of national tariff reimbursed varies among regions.
Region	Private hospital	Danish case-mix system.	Varying percentage of national tariff. Negotiated between region council and individual hospital.
Region	Region	Danish case-mix system.	National tariff 100%.
State	Region	Grant based on Danish case-mix system.	National tariff 70%.
Municipality	Region	Grant based on Danish case-mix system & fixed amount per inhabitant.	Fixed amount per inhabitant is negotiated between purchaser and provider.

4.1.4 Employment of physicians

Specialists are paid on a **fee-for-service** basis.[12]

4.2 DRG CLASSIFICATION SYSTEM

4.2.1 Name of DRG classification system

The Danish case mix system consists of **Dk-DRG** for inpatient stays and **DAGS** (Danish Ambulatory Grouping System) for ambulatory and outpatient activity. The distinction between inpatients and ambulatory relates to the kind of department treating the patient: ambulatory patients are treated in ambulatory departments while inpatients are patients treated in an inpatient department.

It is up to the regions to decide on the implementation of the variable payment, but in all regions it is based on the Danish case mix system.

4.2.2 Origin of DRG classification system

The Danish DRG system (Dk-DRG) is a modified version of the Scandinavian Nord-DRG system, which originated from the HCFA system.[3] The Nord-DRG system is currently still in use nationwide in hospitals in Norway, Finland and Sweden. Denmark's modified version was introduced in 2002.[12] The reason for developing an own variant was that Danish clinical practice and cost structures had to be reflected at maximum in the system. It was the only way to get DRG-financing accepted by doctors and hospital managers.[1]

4.2.3 Reasons to introduce DRG classification system

There were several reasons to introduce activity-based funding in Denmark: benchmarking of hospital performance in order to get more health value for money and increase activity and reduction of waiting lists.[1]

4.2.4 Scale on which DRG classification system is used

Although the use of the Danish case-mix system within the regions is voluntary, all regions have chosen to use the case-mix system in their activity based financing models. The Danish case-mix system is also used for distributing a special government pool for increased activity. The government pool is distributed from the state to the regions. Furthermore the DRG-system is used for settling payments between regions.[83] Information on the exact number of hospitals that use the Dk-DRG system could not be retrieved.

4.2.5 Transition

A Danish DRG system has been developed from the late 1990s. Activity-based financing has been gradually introduced as a resource allocation mechanism. In 1997, extra funds were allocated to the counties so that they could experiment with activity-based financing.[12]

The transition did not take place at each county at the same time. More and more counties switched to a prospective payment mechanism. At this moment, all regions use the Danish case-mix system.

In 2004, the Danish government decided that at least 20% of the funds from the counties to the hospitals should be activity-based. In 2005, the counties used activity-based funding for between 39 and 52% of the total funding of hospitals.[12] The current objective is to gradually increase the level of activity-based financing from 20 to 50%.[84]

4.2.6 Refinement of DRG classification system

The Danish National Board of Health updates every year DRG and DAGS tariffs based on cost and activity information received from the hospitals. This updating also includes changes in the group structure reflecting the introduction of new technology or a split of existing groups. Updating is based on hospital annual accounts from 2 years before.[82] The DRG rates for 2007 and 2008 have been calculated based on hospital accounts from 2 and 3 years before.[83] If no historical cost data exist (e.g. due to the introduction of a new treatment protocol) costs are estimated on the basis of a cost study or on the basis of clinical judgment.[82]

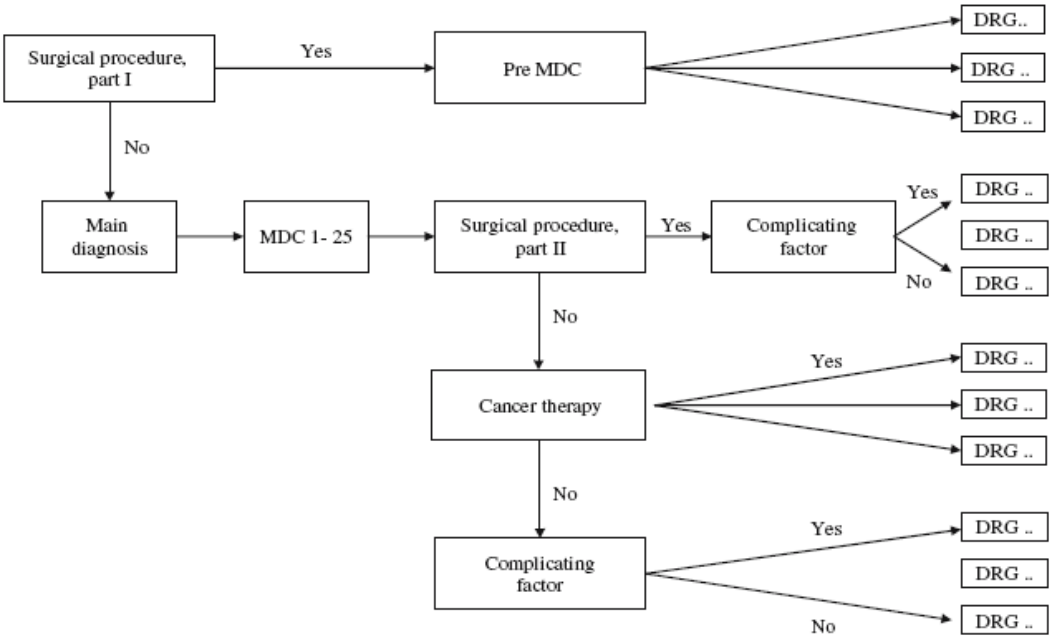
4.2.7 Grouping process

The Dk-DRG system consists of 25 MDCs and pre-MDCs (including radiotherapy and chemotherapy), and contains 585 different DRGs in 1997.[82]

The Dk-DRG grouping is based on: diagnoses, surgical procedures, other procedures (i.e. some radiotherapy procedures, cardiac procedures, respiratory treatments, rehabilitation procedures and mechanical ventilation), certain diagnostic procedures (i.e. CT-scans, ultrasound, angiography), discharge status, sex and age.[82]

Figure 9 illustrates how the process starts with assigning patients who had specific procedures (neurosurgery, neuro-rehabilitation and neonatology) into a pre MDC. Patients without a specific procedure are assigned according to their principal diagnoses. Within each MDC, patients are divided into medical and surgery group. Medical patients are further divided into patients receiving a cancer treatment or not. A final classification of patients is made according to a complicating factor, such as age or secondary diagnoses, which is expected to effect consumption of hospital resources.[82]

Figure 9 : The grouping process in the Dk-DRG system[82]



The DAGS system has been developed to describe ambulatory care services in hospitals. The DAGS are divided into three major types of visits, which are described in more detail on page 85.[82]

4.3 CALCULATION OF COSTS

4.3.1 Method of costing

Costing of the Danish case mix systems is based on a **step-down** accounting method (mix of bottom-up and top-down approach) using available data on resource consumption at the patient level. Patient costs are estimated by aggregating the costs of individual services which are used by the patient during his hospital stay (e.g. x-rays and laboratory tests). Information about service use is drawn from hospital information systems. The costs of these services are calculated by applying nationally-defined top-down accounting guidelines. For ancillary services, a national set of relative service weights is applied.[82, 85]

4.3.2 Cost calculation

The costing process is described in guidelines specified by the National Board of Health.[82]

4.3.2.1 Costing of intermediate products

The first part of the costing process involves the calculation of the intermediate products of care produced by each individual hospital. The process starts with defining cost centres at each hospital. The cost centres are divided into two types of cost centres: final cost centres, whose output can be linked directly to a specific patient contact and intermediate cost centres, whose output can not be linked directly to a patient contact. The distinction between final and intermediate cost centres not only depends on whether the cost can be traced to a single patient, but also whether the output can be linked, via an information system, to a specific patient contact. Which cost centre is final and which is intermediate, therefore varies among hospitals.[82]

The second step is an allocation of costs from intermediate cost centres to final cost centres. This is done in a step down process of one cost centre at a time, starting with the centres with the lowest degree of patient contacts. This allocation is based on allocation keys chosen by the individual hospital.[82]

Step three calculates the cost of each intermediate product in each final cost centre. This step involves the definitions of relevant units of output and the decision of an appropriate method for cost calculation. For ancillary services, the cost objects may be the procedures defined in clinical classifications. For clinical departments (in-patients), the cost objects are bed days, and for ambulatory departments, they are the visits.[82]

If the cost objects consume different amounts of input, the appropriate method for cost calculation is job-order costing, according to which the amount of labour, material and overhead consumed to produce each unit of service should be estimated. Most ancillary services are not homogenous according to resource use and therefore job order costing should be applied in costing of the different types of services produced. However, in most cases the hospital information system does not link the exact amount of resources consumed to the individual patient each time a procedure is carried out. Instead the information systems links the procedure codes to the individual patient, therefore a cost for each procedure code in the clinical classifications is determined, assuming that the cost depends on the procedure code performed. For example, the cost of a surgery among other things depends on the time spent by surgery nurses, surgeons and the consumables (including expensive implants) used. However, Danish hospitals do not yet have an information system capable of linking all those types of information to the individual patient. Therefore, estimation is made of the costs for each procedure code in the Nordic Classification of Surgery, which can be linked to the individual patient.[82]

In order to assist hospitals in costing ancillary services, a set of relative service weights have been developed at national level for the following types of services: Surgical procedures, Anaesthesia, Clinical biochemistry, Radiology, Pathologic Anatomy, Physiotherapy and Occupational Therapy. The service weights reflect the resource use of a single cost object relative to other cost objects. The service weights are expressed as a number of points attached to each single code in the classification. A cost per point produced is calculated on the basis of the total cost allocated to the ancillary centre in question and the total number of points produced. The cost per point is then multiplied by the number of points attached to the product in question resulting in the cost of each type of intermediate products.[82]

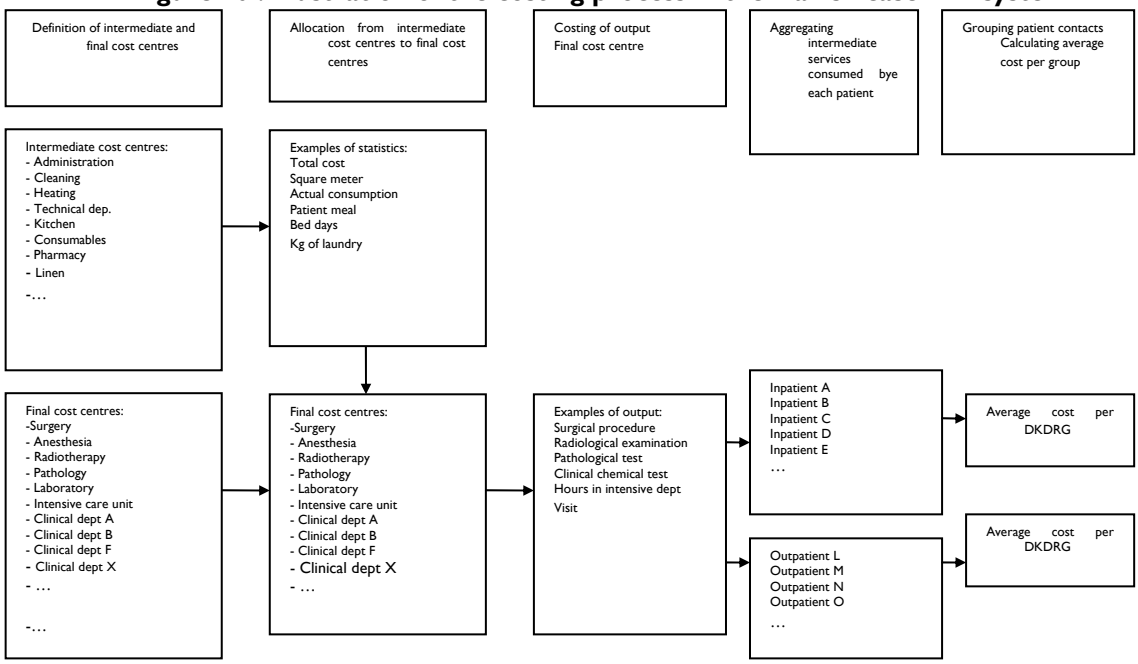
4.3.2.2 Aggregation of intermediate output consumed per patient

After having calculated the cost per intermediate output produced, the cost per each single patient contacted is computed by aggregating the output and thereby the cost consumed during the contact.[82]

4.3.2.3 Grouping of patient contacts and calculation of average cost per DRG/DAGS

All patient contacts are now grouped into DRG and DAGS (Danish Ambulatory Grouping System) depending on whether the patient was an inpatient or an ambulatory patient. The grouping is based on patient records containing the necessary grouping criteria and the computed cost information. The grouping results in the calculation of an average cost per DRG or DAGS.[82]

Figure 10 : Illustration of the costing process in the Danish case-mix system[82]



4.3.2.4 Trimming of cost data

Before calculating the average cost per DRG/DAGS, the quality of the cost data from the individual hospital is validated. Validity is mainly assessed manually by screening data for obvious miscalculation (e.g. bed day or ambulatory visit). No statistical validation is carried out.[82]

After the removal of incorrect cases, the data are grouped and the average per DRG/DAGS is calculated. The cost data are trimmed for low and high outliers.[82]

- For DRGs with more than 20 observations, the trim points are the 1% and 99% percentile.
- For DRGs with less than 20 observations, the trim points are the 5% and 95% percentile.
- For DAGS, the trim points are the 10% and 90% percentile.

For cases with a cost above and below the trim points, the extreme values are replaced by the trim point.

4.3.3 Data sample

The average cost of each DRG is calculated by the National Board of Health. The submission of data to the national cost database is based on voluntary agreements. Approximately **80%** of Danish hospitals submit cost data to the national database.[12] The cost database that has been used for calculating the DRG rates for 2007 cover 1.9 million discharges. The cost data for 2004 from 43 hospitals represent **81 percent of the total number of discharges** and the cost data for 2005 from 27 hospitals represent approximately 76 percent of the discharges.[83]

4.3.4 Quality of data

Validity of cost data is mainly assessed manually by screening data for obvious miscalculation (e.g. bed day or ambulatory visit). No statistical validation is carried out.

4.4 OUTLIERS

4.4.1 Definition of outliers

Outliers are defined in terms of length of stay (LOS).

4.4.2 Lower trim point

In Denmark, there is no lower trim point as such, but a special charge for the so-called **'grey zone' patients**. These patients may be treated as either outpatients or be hospitalized. In order to create an incentive to treat patients as outpatients, a special charge is calculated that is higher than the outpatient charge but lower than the DRG tariff if the patient is admitted.[12]

4.4.3 Upper trim point

$$T_i = Q3_i + ((Q3_i - Q1_i) * 1.5)$$

Legend T_i = trim point for DRG_i

$Q3_i$ = upper quartile of bed days in DRG_i

$Q1_i$ = lower quartile of bed days in DRG_i

i = 1,2,3...N (number of DRGs)

4.5 DETERMINING THE DRG TARIFF

4.5.1 Converting cost information into prices

In Denmark, cost information is converted into a system of national or regional **DRG cost weights**.[12]

4.5.2 Calculation of DRG tariff

The average cost per DRG is transformed to relative cost weights where the cost weights 1.0 is assigned to the average cost of a discharge. The relative cost weights are again transformed to tariffs on the basis of average cost per discharge at national level. The average cost per DRG at national level is based on data concerning total costs associated with inpatient somatic treatment and total number of somatic discharges. The DAGS are not transformed into relative cost weights.[82]

If a cost weight (or average costs for DAGS) show for some DRG (DAGS) a larger deviation compared to the cost weight (average cost) of the preceding years and if that deviation cannot be explained by any clinical or administrative change, it is decided to use the cost weight (average cost) from the preceding year.

4.5.3 Specific adjustments of DRG tariffs

The DRG tariff is adjusted according to the purchaser provider relation (see Table 33 on page 78).

- In the payment relation between the region and the public hospital, the percentage of the DRG tariff, that is actually paid, varies between the regions.
- The tariffs paid to the private hospitals are negotiated between the region and the individual hospital. The negotiated rates may differ from the DRG rates, but DRG rates are used as a starting point for the negotiations.
- In transactions between counties, the national tariff is paid, at 100%.
- The government has decided to pay only 70% of the tariff because the activity is considered marginal to the normal activity, with presumed declining marginal costs. The reimbursement rate is a result of the negotiations in the annual budget negotiations between the Government and Danish Regions.

- The co-payment by the municipalities is calculated as a share of the DRG rates with a maximum payment of app. 4 000 DKK for in-patients and 270 DKK for outpatients. (2003-prices)

4.5.4 Reimbursement of hospital stays

4.5.4.1 Reimbursement of day care

Day cases are grouped according to the DAGS (Danish Ambulatory Grouping System). Certain DRGs, which can be treated as inpatients as well as in day care, have been defined as "grey zone" DRGs and are paid a specific grey zone price, irrespective of the fact that the patient is treated as an inpatient or as an ambulatory patient. The grey zone tariff is calculated on the basis of the DRG and DAGS tariffs using the following formula:[85]

$$R = \frac{(Ni * Ri) + (Nj * Rj)}{Ni + Nj}$$

Legend: R is the tariff of the grey zone consisting of DRGi and DAGSj

Ni is the number of discharges in DRGi

Nj is the number of visits in DAGSj

Ri is the tariff for DRGi

Rj is the tariff for DAGSj

4.5.4.2 Reimbursement of long-stay outliers

The outlier payment is a tariff per day, determined by the government based on a historical figure. The tariff is updated yearly using a general price/wage adjustment factor calculated and issued by the Ministry of Finance.[82]

In addition, for some ambulatory visits (DAGS) there is a supplementary fee for certain specified expensive consumables (hearing aids, expensive pharmaceutical and expensive medical aids).[82]

4.6 FUNDING CHARACTERISTICS OF SPECIFIC HOSPITAL ACTIVITIES

4.6.1 Share of hospital revenue that is activity-based

In Denmark activity-based funding accounts for **between 39 and 52%** of the total funding of hospitals.[12] The current objective is to gradually increase the level of activity-based financing to 50% in all regions.[84]

In general, all somatic hospital activity is included in the DRG system.[1]

4.6.2 Capital costs

Depreciation and capital costs are **excluded**.[1]

4.6.3 Research, training and medical education

Medical education and internal financed research is included in the DRG pricing system.[1]

4.6.4 Intensive care

Costs for intensive care are included in the DRG-rates for inpatients.[1]

4.6.5 High cost drugs

Are included.

4.6.6 Medical devices

Implants and medical devices are included.

4.6.7 Chemotherapy

Is included.

4.6.8 Radiotherapy

Is included.

4.6.9 Interventional radiology

Is included.

4.6.10 Diagnostic imaging

Is included.

4.6.11 Renal Dialysis

Is included.

4.6.12 Transplants

Are included.

4.6.13 Mental health

Mental health is **not included** in the Danish case mix system. Global budgets from the regions are currently used for mental hospitals. There are plans, however, to introduce DRG-groups for mental health care.[12]

4.6.14 Rehabilitation

Rehabilitation is **included** in the Dk-DRG system. Special charges for rehabilitation were introduced, based on local cost studies, from January 1st 2007. Activity-based payments are made under five groups for rehabilitation of hospitalised patients and three groups for outpatient rehabilitation.[12]

4.6.15 Palliative care

Is included.

4.6.16 Admission through Accident and Emergency Department

The fact that the patient was admitted through Accident and Emergency Department is no reason for additional financing. The emergency visit is **included** in the DRG tariff.

4.6.17 Outpatient (ambulatory) services and visits to A&E Deparment

The Danish Ambulatory Grouping System (**DAGS**) was introduced on January 1st 2002. The system is inspired by the American Ambulatory Patient Group-system (APG). The DAGS system classifies outpatients that attend hospitals into groups with similar care requirements, analogous to DRGs for acute care.[12] The DAGS are divided into three major types of visits: ambulatory visits, emergency room visits and telephone consultations. DAGS itemises different types of ambulatory visits: visits for patients with a specific diagnosis (five groups, e.g. patients with cancer or diabetes); visits with a certain specific procedure (82 groups); traditional outpatient visits.[12, 82]

The rates for ambulatory patients also include costs for drugs and medical devices. However the rates cannot reflect the big differences in these costs from patient to patient. When payments are settled between regions, expenses for expensive drugs and devices can be collected for ambulatory patients. The limit is set by the price of the drug or device. Expenses for drugs and devices for example implants that cost more than 681 D.Kr. in 2006 prices can be collected.[83]

5 AUSTRALIA (VICTORIA)

5.1 GENERAL INFORMATION ON HEALTHCARE SYSTEM

5.1.1 Type of healthcare system

Australia has a mainly publicly funded health system financed through general taxation and a small compulsory tax-based health insurance levy.[86] Australia's health care system involves a federal structure of government, including **Commonwealth (national), State and Local tiers**. There is a dominant role of private practitioners providing care mainly on a fee-for-service basis but with governments increasingly influencing health service structures through financing arrangements. Australia has universal access to quality medical care via Commonwealth-State funding for Medicare and substantial private funding, especially through private health insurance, regulated and supported by the Federal government to ensure that the system offers some choice, especially for hospital care.[87]

The Commonwealth Government funds universal benefits schemes for private medical services via the Medical Benefits Schedule (MBS) and pharmaceuticals via the Pharmaceutical Benefits Scheme (PBS). State and Territory Governments have the major responsibility for the financing and public provision of health services including public and psychiatric hospitals under the Medicare (now Australian Health Care) Agreements between Commonwealth and States.[88]

Victoria was the first State in Australia to introduce case mix funding for all public hospitals. It has continued to be recognised as the leading Australian practitioner of case mix management of health care. The Victorian Department of Human Services introduced the case mix funding system on 1 July 1993 while managing significant funding cuts to the health budget.[89] In the early 1990s, the state of Victoria had a population of 4.2 million which is 25% of all Australians.[12]

5.1.2 Status or ownership of hospitals

In Victoria, 50% of hospitals are public and 50% are private.[90]

5.1.3 Hospital financing

In Australia, activity-based funding is primarily used for public hospitals. In 2006, all States (except New South Wales) had incorporated the DRG system in their formulae for funding public hospitals. State governments also use activity-based funding to reimburse services commissioned from private hospitals.[25]

5.1.4 Employment of physicians

Specialists working in public hospitals are salaried. But there is a dominant role of private practitioners. In 2004, only 13.1% of FTE medical specialists worked only in the public sector; 54.6% worked only in private sector; and 32.3% worked in both public and private sector.[91]

5.2 DRG CLASSIFICATION SYSTEM

5.2.1 Name of DRG classification system

The **Victorian DRGs (VIC–DRGs)** are in use for hospital funding in Victoria since 1993 and replaced funding of public hospitals predominantly on a historical basis. They are consistent with the Australian Refined DRG (AR-DRGs) but with further refinement through a few additional DRGs.[92]

Other case mix funding systems used in Victorian funding are CRAFT (Casemix and Rehabilitation Funding Tree) for rehabilitation inpatients in rehabilitation units (see page 97) and VACS (Victorian Ambulatory Classification and Funding System) for outpatients in major general hospitals (see page 99).

5.2.2 Origin of DRG classification system

The AR-DRG classification represents a major overhaul of the Australian National DRGs (AN-DRGs) classification, which was based on the AP DRG and APR systems, and was developed for the classification of episodes of acute inpatient care in Australian hospitals.[3]

5.2.3 Reasons to introduce DRG classification system

The main objective for introducing activity-based funding was to increase hospitals' productivity and to reduce costs.[25] Case mix had to ensure that the same price was paid for the same work by like hospitals. This way, an emphasis was put on technical (cost) efficiency. It was hoped that the case mix funding would engender competition and economic incentives for hospitals and would reward efficiency and growth in services while at the same time quality was guarded. [93]

5.2.4 Scale on which DRG classification system is used

In 2006, all States (except New South Wales) had incorporated the DRG system in their formulae for funding public hospitals.[86] In Victoria, **100% of hospitals** are using VIC–DRGs.

5.2.5 Transition

The Victorian Department of Human Services introduced the case mix funding system on 1 July 1993 while managing significant funding cuts to the health budget.[89] 100% of public acute hospital costs are financed by the case mix system.

5.2.6 Refinement of DRG classification system

There are currently 760 VIC-DRGs. Both AR-DRGs and VIC-DRGs are reviewed each year by clinical panels. They are currently working with VIC-DRGs 5.2, a modified version of AR-DRG 5.2. Victorian modifications are only slight and involve changes to grouping criteria for only a few AR-DRGs.[93]

5.2.7 Grouping process

The diagnosis(es) for each patient is recorded according to ICD-10. The patient-specific information is then coded to a DRG. Since the G-DRG system was modelled on the AR-DRG system, the grouping process of AR-DRG is very similar (but less detailed) to that described in section 2.2.7 on page 38.

The Australian Refined DRG system is subdivided into 23 Major Disease Categories (MDC) which refer to a body system or disease aetiology, and are associated with a specialist field of medicine. Exceptional cases are assigned to the so-called pre-MDCs, irrespective of the major diagnosis. The pre-MDCs include long-term ventilation cases and transplantations. Cases that can not be grouped under a specific category are assigned to the Error DRGs.[94]

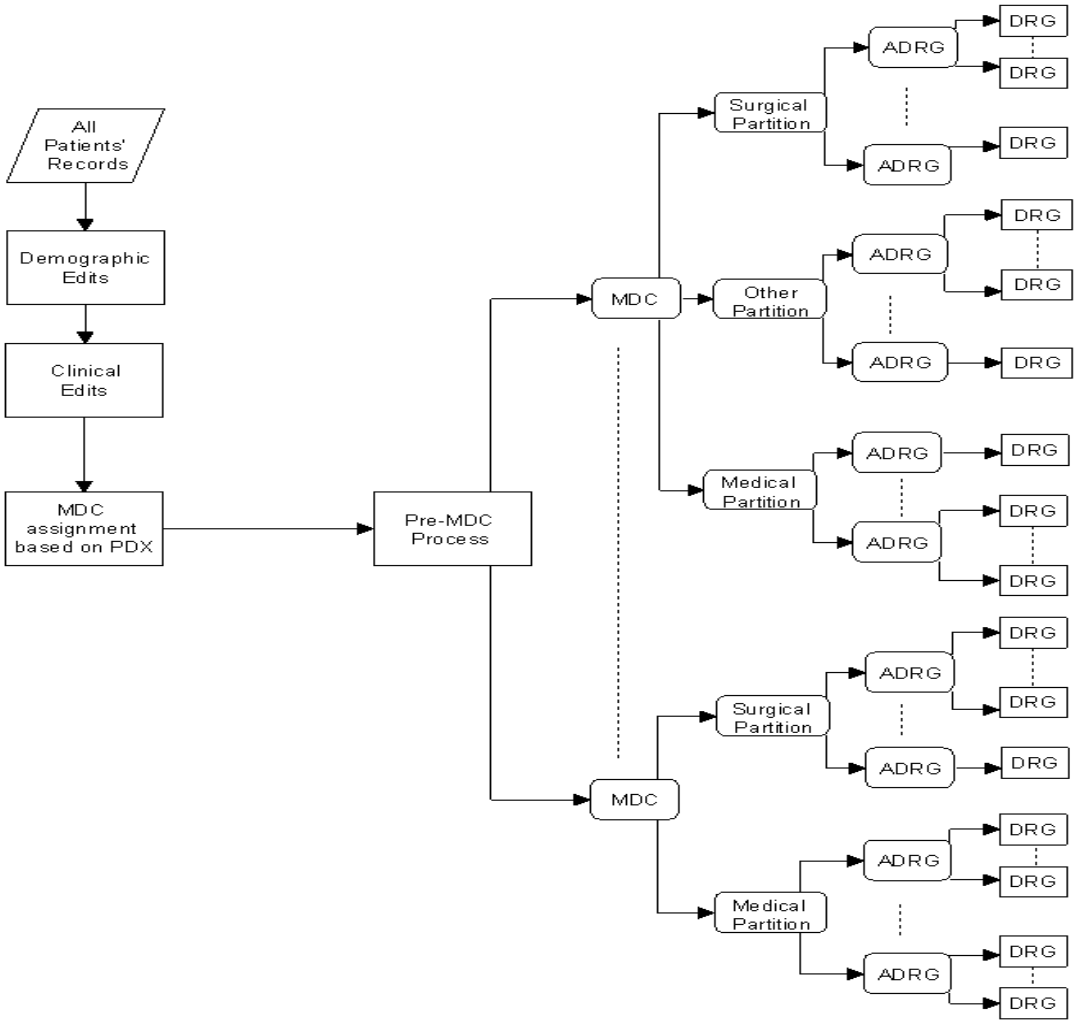
The format of an AR-DRG is an alphanumerical code with 4 digits. The first digits A to Z represent the 23 MDCs; first digit 9 identifies the Error DRGs. The second and third digits are numerical and allow a differentiation between surgical procedures (01-39), other procedures (40-59), and medical procedures (60-99) carried out during the hospital stay. The combination of a letter and two numerical digits represents a so-called basic DRG. These basic DRGs are further subdivided on the basis of co-morbidity and clinical severity. For the latter, co-diagnoses as well as patient characteristics are taken into account, but are weighted differently depending on the DRG. There are **four degrees of severity** which are denoted by the fourth letter in the DRG abbreviation. The most severe DRGs are marked with the letter 'A', the least severe cases get labelled with 'D'. The letter 'Z' is used when there are no severity levels to split the DRG.[94, 95]

In analogy with the G-DRG system, the AR-DRG grouping algorithm uses the following information: major diagnosis at discharge, other diagnoses (co-morbidity or complications), procedures, gender, age, weight of new born, cause of hospital discharge (e.g. death) and length of stay. The diagnosis(es) for each patient is recorded according to ICD-10-AM.

The AR-DRG Classification system is based on hierarchies of diagnoses and procedures distributed between surgical, medical and other partitions. The grouping process includes the following tasks in order:[96]

- Demographic and clinical edits
- Major Diagnostic Category (MDC) assignment
- Pre-MDC processing
- Adjacent DRG (ADRG) assignment
- Complication and co morbidity level (CCL) and patient clinical complexity level (PCCL) assignment
- DRG assignment.

Figure 11 : Schematic Diagram of AR-DRG Assignment Process



Source: Australian Government Department of Health and Ageing [95]

5.3 CALCULATION OF COSTS

5.3.1 Method of costing

Thanks to an early investment in software and hardware to support hospital management information systems, hospitals in Victoria can perform a **bottom-up costing**. Each time resources are used by a patient (an x-ray, a day of stay), the utilisation and related costs are tagged to the patient's medical record. When the episode is completed and the DRG assigned, these costs are aggregated for analysis.[97]

5.3.2 Cost calculation

There are three steps involved in attributing costs to patients.[12, 97]

1. Indirect costs (hospital and departmental overheads) are allocated to direct care cost centres, subject to allocation rules. For instance, overheads such as infection control, sterile supply and domestic services are allocated to cost centres using step down methods or simultaneous equations.
2. For each direct cost centre, "intermediate products" of care are defined. Each product has an associated cost weight, assigned according to Relative Value Unit scales, most of which derive from studies undertaken in each hospital. For example, in many hospitals nursing costs are calculated using ward-specific patient-level dependency systems, which use the results of time and motion studies to detail the amount and type of nursing time required by patients during each shift. Costs are then assigned to individual patients according to the number of shifts spent at each dependency level on a particular ward.
3. Intermediate products are attributed to individual patients receiving services, and combined with information about the specific resources used by each patient, such as the number of X-rays, blood tests, and time in theatre.

These patient-level allocations are reconciled with overall hospital expenditure. Although all costing systems rely on some degree of modelling, by recording actual resource consumption on a patient-by-patient basis a higher degree of accuracy can be approached than if costs were assigned assuming average resource use for patients grouped together in some way or by relying on length of stay as a proxy for cost.[12]

5.3.3 Data sample

The cost weights for 2007-2008 are based on inpatient costs for 2005-06 as reported to the Department by Victorian public hospitals. All public and private hospitals (**100%**) reported their inpatient cost.[92]

5.3.4 Quality of data

Maintaining and improving data quality within the Victorian Admitted Episodes Dataset (VAED) has become an increasingly important issue since the introduction of case mix funding. In response to this, the Department of Human Services implemented a formal data quality review process. However, the maintenance of data quality is not the sole responsibility of the Department and various quality evaluations are also performed at the hospital level.[98]

5.3.4.1 Hospital

Data entry from the source ensures that optimum accuracy is achieved. The hospital has access to the most detailed information on which to base coding, i.e. the medical record and the clinicians responsible for the patient's care. In addition, the direct transmission of data in a machine readable format avoids any further typographical errors. The hospital's patient administration system (PAS) should contain system edits which provide some level of validation upon data entry. Hospital PAS should incorporate the appropriate files that validate or translate data (for example, the files for ICD-10-AM and Postcodes). All diagnostic and procedural information must be coded in accordance with the Australian Coding Standards and any Victorian modifications relevant for that period.

The National Centre for Classification in Health (NCCH) publishes material to assist hospitals to improve the quality of coded data. Hospitals should enable staff to attend appropriate continuing education sessions. HDSS may periodically send PICQ (Performance Indicators for Coding Quality) extracts to hospitals, and these should be utilized for data quality review.

To conform to Accreditation requirements, hospitals must conduct quality improvement measures. These may involve quality assessment and improvement of the coded minimum dataset.

The Victorian ICD Coding Committee (VICC) comprises expert coders and is responsible for answering coding queries. It liaises with hospitals, health information managers, clinical coders and the Victorian Advisory Committee on Data Integrity (VACCDI) to provide advice on specific coding issues. The Committee works with the NCCH and contributes to the NCCH's ongoing development of the Australian coding system and standards. A database of queries submitted to the Victorian ICD Coding Committee and the responses from 2004 is available for search or download.[98]

5.3.4.2 Department of Human Services

Extensive system edits (as specified by the Department) produce rejection, warning, fatal and notifiable edits for records containing invalid or inappropriate data. A hospital must take the appropriate action for all edit messages received. A new hospital or a hospital that has changed its software must undertake a testing process:

- Two consecutive months' data are processed separately from the normal PRS/2 (Patient Reporting System 2) processing.
- HDSS (Health Data Standards and Systems) staff review these test runs and liaise with the hospital and software supplier to rectify any problems encountered. Once the hospital has successfully completed the testing process, data transmission to the live system may commence.

A **formal data quality review process** was introduced in July 1993 to coincide with the introduction of case mix funding. Each issue is researched and the results provided to the hospitals involved. If indicated, further guidance on coding policies and standards is provided. The Victorian Advisory Committee on Data Integrity (VACCDI) and the Victorian ICD Coding Committee (VICC) are consulted as appropriate (see below). Quality issues are detected by one of the following:

- Through regular analyses of the VAED;
- By referrals from VACCDI;
- Through the Victorian VAED data audit;
- By referrals from the Victorian ICD Coding Committee; and
- From queries by hospitals, Department officers and other users of the data.

The Victorian Advisory Committee on Case mix Data Integrity (VACCDI) is responsible for reviewing and making recommendations regarding data definitions and standards, and hospitals compliance with them. VACCDI oversees the coding and data quality audits and undertakes specific data quality investigations, as required. VACCDI comprises representatives of metropolitan hospitals, health services, the Department, and the Victorian Healthcare Association.

VAED data audits have been conducted on separations in Victorian public hospitals for 1993-94 and 1995-96, and annually from 1998–1999 to 2000–2001. External consultancy firms conduct these audits and results indicate that, among jurisdictions that have conducted similar audits, Victoria has a high level of coding quality.[98]

5.4 OUTLIERS

5.4.1 Definition of outliers

Outliers are defined in terms of length of stay (LOS).

5.4.2 Lower and upper trim point

Lower trim point : LOS <1/3 of the average length of stay
Upper trim point : LOS > three times average length of stay

5.5 DETERMINING THE DRG TARIFF

5.5.1 Converting cost information into prices

In Australia, cost information is converted into a system of **national DRG cost weights**.

The payment unit is the **Weighted Inlier Equivalent Separation (WIES)**. A separation is a patient episode (or admission) that is both weighted according to its DRG group and adjusted for length of stay (therefore called inlier).[92] WIES is the final DRG weight; it is the total of all the relevant cost weights (see below). The final WIES is multiplied by the WIES payment rate in order to obtain hospital remuneration.

The use of a number after WIES i.e. WIES14, reflects the number of years of the case mix funding formula. For example WIES1 was the first year of the funding formula. WIES14 is based on inpatient costs for 2005-06 and is used for 2007-08 hospital funding.

5.5.2 Calculation of DRG tariff

The number of cases used to estimate inpatient cost weights is reduced by outlier trimming and data validation.[97]

1. Outlier trimming: low outliers, i.e. cases with less than one-third of the State average LOS, and high outliers with a LOS more than three times the State average LOS are excluded from estimation of acute-care cost weights.
2. Removal of sub-acute or non-acute care types, e.g. patients receiving long term care in an acute facility, since rehabilitation, nursing-home type care or psychiatric care is separately funded.
3. Removal of small numbers of obvious data errors i.e. cases with implausibly high or low costs of care.

Construction of the cost weights is generally done by dividing the DRG inlier average cost by overall inlier average and then scaling all weights to ensure a state-wide level of WIES provision. This level is usually set at the number of WIES provided under the preceding years policy; this process is known as 'rebasing'.[92]

As illustrated in Table 35 (page 95), **each VIC-DRG has multiple weights**. The different weights reflect differences in length of stay for patients within the same DRG. The following weights are defined for each DRG: [92]

- Same day weight. Same day patients are those who are admitted and separated on the same date. In addition, a special same day DRG is usually constructed, with its own DRG weight, for DRGs where there are a large number of patients with a short LOS.
- One day weight.
- Multi-day low outlier per Diem.
- Inlier weight.
- High outlier per Diem.

- Hospital In The Home (HITH) outlier per Diem. Treatment provided to patients at home is seen as equivalent to inpatient care. Therefore, patients treated in Hospital In The Home program are funded through WIES.

In some instances, patients have higher costs but these higher costs are not found for all patients with the DRG or group of DRGs. **Co-payments** can be made for the following patients: [92]

- Patients in need of mechanical ventilation: patients have to be admitted to a specific hospital, have had more than six hours of mechanical ventilation, and be allocated to a DRG that is eligible to this co-payment.
- Patients suffering from thalassaemia: ICD-10-AM diagnosis code of D56.x or D57.2, and allocated to an eligible VIC-DRG.
- Patients undergoing an endoluminal repair of an aortic aneurysm (AAA stent: ICD-10-AM procedure code of 33116-00) and who are allocated to an eligible VIC-DRG.
- Patients receiving an atrial septal defect closure device (presence of any ICD-10-AM procedure code of 38742-00) and who are allocated to an eligible VIC-DRG.
- Aboriginal and Torres Strait Islanders in recognition of their poorer health status and associated higher costs of care.

The **standard WIES payment rate** (or WIES price) is the amount of money provided to hospital providers for one WIES. The WIES price is set annually for private and public patients and for each grouping of similar hospitals (see adjustment for hospital characteristics) per unit of WIES (i.e. the price paid for a notional DRG with a weighting of 1).[92]

Hospitals are funded largely upon the WIES they perform multiplied by a unit price, but only up to a predetermined limit. Each year, the government sets state-wide budgetary limits. This means that hospitals also need to operate within budget limits to ensure state-wide budget limits are met. To enable this hospitals are allocated a designated **target number of WIES** each year. WIES targets vary from hospital to hospital.[92] Hospitals that undertake more work (more WIES) than their target will not be paid for that additional WIES. Hospitals that do not reach their WIES target, only receive payment for the work undertaken (with a 2% buffer).[99]

5.5.3 Specific adjustments of DRG tariffs

5.5.3.1 Adjusting for hospital/regional characteristics

The standard WIES payment rate varies in accordance with the size and rural character of the hospital.[87] As shown in Table 34, the WIES price 2007–08 is $3 279 for Metropolitan hospitals, while country hospitals receive slightly more in recognition of the higher fixed costs of running small hospitals.[92]

Table 34: Wies14 payment rates, 2007-08 [92]

	Hospital Classification					
Payment for inpatients	**Major hospital**	**Largest Rural hospital group B**	**Med. Rural hospital group B**	**Small Rural hospital group B**	**Smallest Rural hospital group B**	**Rural hospital group C**
Public WIES14 Private WIES14	$3 279 $2 680	$3 437 $2 812	$3 539 $2 899	$3 625 $2 966	$3 653 $2 988	$3 733 $3 064

5.5.4 Reimbursement of hospital stays

Turning DRGs into case mix funding works as follows: [93]

- As soon as possible after discharge, the diagnosis(es) for each patient is recorded according to ICD-I0. The patient-specific information is then coded to a DRG.
- Each DRG has a particular "weighting" set around a notional value of 1.
- The aggregate number of DRGs in any time period, multiplied by the weighting of each, results in a number called a weighted separation (a separation is a discharged patient event).
- Short stay outliers receive a reduced payment and long stay outliers an increased payment. These payments can be converted into the equivalent of DRG weights. This conversion collapses all DRG payments into a single number i.e. the Weighted Inlier Equivalent Separation, or WIES.
- WIES are then multiplied by the standard WIES payment rate (or WIES price) per unit of WIES to determine the funding available within any time period.

Examples are given in section 5.5.4.4 below.

5.5.4.1 Reimbursement of day care

Day care is referred to as 'same day patients' i.e. those patients who are admitted and separated on the same date. Same day patients are **included** in the case mix funding and are funded on the basis of a **Same Day Weight**. As shown by the examples in Table 35, the same day weight is mostly less than the inlier weight, although it sometimes equals the inlier weight.

When it became apparent from the introduction of case mix that patients usually defined as outpatients could be 'admitted' to increase payments, the government tried to limit this practice by introducing **caps on same day activity**. The cap was introduced to limit this practice and is applied to the aggregate of same day activity across the designated same-day-medical-target DRGs (excluding same day transfers and deaths). In previous years, caps (same day medical targets, SDMT) have been applied at the health service level for metropolitan hospitals and at the hospital level for rural hospitals where SMDT activity is funded to a limit of 6.5 per cent of a health service's WIES throughput. These same day medical targets were not applied in 2007-08 or in 2008-2009, as it was considered that other mechanisms were in place to achieve an appropriate mix of admitted services. Health service and hospital activity will continue to be monitored however, and targets may be re-imposed in 2009–10.[92, 100]

5.5.4.2 Reimbursement of short-stay outliers

Short stay outliers receive a reduced payment based on One-Day Weights or Multi-Day Low Outlier per Diem payments.[92]

5.5.4.3 Reimbursement of long-stay outliers

If the patient stays longer than the inlier, the hospitals will receive an additional payment for every day over the inlier range based on the High Outlier per Diem. In most DRGs, the costs decrease with the longer length of stay, in others the costs can remain the same. To account for this, the daily payment level beyond the inlier can be altered to suit the DRG patient profile. Payment rates are set at 80 percent of the average daily inlier cost for medical patients and 70 percent of the average inlier daily cost, excluding theatre and prostheses costs, for surgical patients.

5.5.4.4 Examples of funding reimbursements in VIC-DRG system

The first example is an inlier case. It concerns a public patient who is admitted in a major hospital for 10 days. The hospital stay is assigned to DRG R60C 'Acute leukaemia no catastrophic or severe complications'.[99] Since LOS is between low and high boundary points, the remuneration of the hospital equals 1.4528 (inlier weight, see Table 35) X $3 279 (standard payment rate public patient major hospital, see Table 34).

Second example is a high outlier case. A private patient is admitted in a major hospital for 9 days with cerebral palsy (DRG = B65Z).[99] Length of stay is 6 days above the high boundary (see Table 35): 9 (LOS) – 3 (high boundary). Total cost weight = 6 (days) X 0.2601 (high outlier per diem, see Table 35) + 1 X 0.3361 (inlier weight, see Table 35) = 1.5606 + 0.3361 = 1.8967. Remuneration = 1.8967 (total weight) X $2 680 (standard payment rate private patient major hospital, see Table 34).

Third example is a low outlier one day case. A public patient is admitted in a largest rural hospital for appendicectomy with severe complications (DRG G07A). He stays for only one day.[99] Since this is not a same day (i.e. patients who are admitted and discharged on the same date), the one day cost weight is applied. Remuneration = 1.9531 (one day weight, see Table 35) X $3 437 (payment rate public patient largest rural hospital, see Table 34).

Fourth example is a low outlier multi-day case. A public patient is admitted in a major hospital for a tibia procedure (DRG 113A Humerus, tibia etc proc w cat/severe cc). Patient is discharged after 2 days.[99] Total cost weight = 2 (days) X 0.5391 (multi-day low outlier per diem, see Table 35) = 1.0782. Remuneration = 1.0782 (total weight) X $3 279 (standard payment rate public patient major hospital, see Table 34).

Fifth example is a low outlier same day case. A public patient is admitted in a major hospital for a tibia procedure (DRG 113A Humerus, tibia etc proc w cat/severe cc). Length of stay is only one day and patient is admitted and discharged on the same date.[99] Remuneration = 1.6005 (same day weight, see Table 35) X $3 279 (standard payment rate public patient major hospital, see Table 34).

Table 35: WIES14 2007–08 Victorian cost weights [92]

VIC-DRG 5.2 Code	Label	Inlier Boundary Low	Inlier Boundary High	Average Inlier stay	Same or One day DRG	Same Day Weight	One Day Weight	Multi-Day Low Outlier per Diem	Inlier Weigth	High Outlier per Diem	HITH Outlier per Diem	Mechanical Ventilation Copayment
R60C	Acute leukaemia - CSCC	1	12	3.7	Same day	0.3228	1.4634	0.0000	1.4528	0.3129	0.2503	D
B65Z	Cerebral palsy	0	3	1		0.3361	0.3361	0.0000	0.3361	0.2601	0.2081	D
G07A	Appendicectomy + CSCC	2	18	5.9		1.2330	1.9531	0.0000	1.9531	0.1708	0.1366	D
113A	Humerus, tibia, fibula, ankle procedure + CSCC	3	31	10.2		1.6005	2.0049	0.5391	3.6223	0.1667	0.1334	D

HITH = Hospital In The Home; CSCC = catastrophic or severe complications.
The letter "D" in the column Mechanical Ventilation Copayment means that the AR-DRG is eligible for co-payment.

5.6 FUNDING CHARACTERISTICS OF SPECIFIC HOSPITAL ACTIVITIES

5.6.1 Share of hospital revenue that is activity-based

In Australia, hospital income comprises a mixture of activity-related payments and block grants. DRGs account for approximately **60%** of hospital funding.[92]

5.6.2 Capital costs

Theoretically, all hospital costs are financed with the case mix system, but States Government tends to keep control of hospital major capital works programs. The 2007–08 State Budget provided capital investment of over $525 million for the investment of new acute, sub-acute and mental health facilities.[92]

5.6.3 Research, training and medical education

The Training and Development and Research Grant (T&D Grant) is not included in the WIES payments. These grants are for the major teaching hospitals only and are meant to fund the DRGs where the more complex patients are predominantly seen in specialised hospitals. Funding is divided between funding for training and teaching and workforce priorities based on the actual numbers of staff; and funding for patient complexity based on DRGs and high outliers and on WIES volume.[92]

5.6.4 Quality of hospital care

Additional grants are given for activities aimed at improving the quality of hospital care. These grants can be awarded in form of quality improvement funding, accreditation funding, clinical risk management safety and infection control funding.[25]

5.6.5 Intensive care

Intensive care is **included** in the VIC-DRG system, but **co-payments** can be attributed to patients who receive far more intensive care than other patients within the same DRG. As a way of recognising the higher costs and the elasticity of the ICU, a co-payment is provided for mechanical ventilation over a specified time period (see section 5.5.2).[92]

5.6.6 High cost drugs

Drugs are **included** in the VIC-DRG system. There are, however, special programmes that provide hospitals with **supplementary budgets** funded directly by the Commonwealth.[87, 88]

- The Australian Healthcare Agreement allows participating hospitals access to the Commonwealth's Pharmaceutical Benefits Scheme (PBS) for non-admitted patients and admitted patients on discharge.
- Hospitals also have access to a Commonwealth subsidised list of pharmaceuticals for same day admitted patients requiring chemotherapy.
- The Highly Specialised Drugs Program provides Commonwealth funding for certain specialised medications that are used for the treatment of chronic conditions and are supplied through hospitals.
- The Special Authority Program provides Commonwealth funding for imatinib and trastuzumab to public hospital patients.

5.6.7 Medical devices and procedures

Medical devices are **included**, but each year as new technologies are used, some patients will have significantly higher prostheses costs. To recognise these costs and the fact that only some patients have such prostheses within the DRG a **co-payment** is provided for patients with the procedure code for the insertion of a stent for endovascular repair of aneurysm of the aorta (AAA stent) and for patients with a procedure code for the use of an atrial septal defect (ASD) closure device (see section 5.5.2).[92]

5.6.8 New technology

There is a special budget to fund the introduction and use of new and existing technology and clinical practice. Health services/hospitals seeking funding must make a submission using the proforma endorsed by Victorian Policy and Advisory Committee on Clinical Practice and Technology (VPACT). New technology/clinical practice comprises prostheses, implantable devices, diagnostic tests, medical and surgical procedures and high cost pharmaceuticals. On his Web site, the VPACT has listed the criteria to which submissions must adhere, and exclusions.[92, 101]

5.6.9 Radiotherapy

Radiotherapy provided to hospitalized patients is **included** in the case mix system**.** Non-admitted patients, on the other hand, are funded under the Non-Admitted Patient Radiotherapy Program (see section 5.6.20 on page 99).[92, 102]

5.6.10 Interventional radiology

Interventional radiology is **included** in the case mix funding.

5.6.11 Diagnostic imaging

Diagnostic imaging is **included** in the case mix funding.

5.6.12 Major burns

Major burns are **included** in the Case mix funding.

5.6.13 Renal dialysis

Renal dialysis is funded through a **capitation** payment per patient per annum in combination with **WIES payments** for each session.[92] The captitation per patient recognises the extended period of treatment required that would be insufficiently reflected by regular DRG payments.[25]

5.6.14 Transplants

Included.

5.6.15 Mental health

Mental health clinical services are **excluded** from the case mix system and are funded through a combination of block grants and per diem payments. From 2005, an output based pricing model was introduced for the majority of psychiatric rehabilitation and support services, which are defined mainly in terms of client contact hours.[12]

5.6.16 Rehabilitation

VicRehab is the funding system for Victoria's Designated Rehabilitation Units with 20 beds or more. The Case mix Rehabilitation and Funding Tree (CRAFT) is the classification model that underpins VicRehab. CRAFT categories are based on diagnosis and **functional status** (i.e. Barthel score) at admission (see Table 36).[103, 104]

As well as CRAFT funding (episode based) VicRehab also incorporates Level 1 bed day funding (a higher funding rate for the first post-acute episode of rehabilitation for amputee, spinal and major head injury/trauma patients), and Special Level 2 bed day funding for amputee, spinal, major head injury/trauma and burns patients where the rehabilitation is not the first post-acute episode. These patients continue to be funded on a bed day rate rather than an episode based rate to reduce provider risk since they are relatively few in numbers and have high standard deviations in lengths of stay and costs.[103, 104]

Table 36: Craft Categories

Short Stay (overnight stay 1-3 days)
1 Stroke/Neurological Admission Barthel score <60
2 Stroke/Neurological Admission Barthel score ≥ 60
3 Orthopaedic Fracture Admission Barthel score < 60
4 Orthopaedic Fracture Admission Barthel score ≥ 60
5 Orthopaedic Replace Hip/Knee Admission Barthel score < 60
6 Orthopaedic Replace Hip/Knee Admission Barthel score 60 – 79
7 Orthopaedic Replace Hip/Knee Admission Barthel score ≥ 80
8 Other Orthopaedic Admission Barthel score < 60
9 Other Orthopaedic Admission Barthel score ≥ 60
10 Cardio/Pulmonary
11 Amputation
12 Head Injury/Major Multiple Trauma
13 Spinal
14 Burns
15 Other Rehabilitation Admission Barthel score < 60
16 Other Rehabilitation Admission Barthel score ≥ 60

Table 37: Rehabilitation weights 2003-2004

CRAFT Categories	Inlier boundaries		DHS average LOS	Same day weight	Short stay weight	Low outlier per diem	Inlier weight	High outlier per diem
	Low (days)	High (days)						
Short Stay (overnight)	1	3	2.04	0.0000	0.1158	0.0000	0.0000	0.0000
Sroke/ Neuro Low Barthel	34	42	38.26	0.0351	0.1158	0.0502	1.6050	0.0394
Stroke/ Neuro High Barthel	17	25	21.17	0.0301	0.1158	0.0430	0.6883	0.0302
Ortho Fracture Low Barthel	26	35	30.66	0.0323	0.1158	0.0461	1.1190	0.0353
Ortho Fracture High Barthel	16	25	20.97	0.0322	0.1158	0.0460	0.7812	0.0321
Ortho replace Hip/ Knee Low Barthel	16	25	20.61	0.0281	0.1158	0.0402	0.8433	0.0300
Ortho replace Hip/ Knee Medium Barthel	11	20	15.82	0.0396	0.1158	0.0565	0.6215	0.0352
Ortho replace Hip/ Knee High Barthel	9	17	13.48	0.0405	0.1158	0.0578	0.5780	0.0354
Other Ortho Low Barthel	25	34	29.91	0.0331	0.1158	0.0472	1.1810	0.0362
Other Ortho High Bartel	15	23	19.07	0.0315	0.1158	0.0451	0.6758	0.0320
Cardio/Pulmonary	17	25	21.04	0.0335	0.1158	0.0479	0.8147	0.0344
Other Low Barthel	22	31	26.63	0.0323	0.1158	0.0462	1.0616	0.0345
Other High Barthel	14	23	18.86	0.0369	0.1158	0.0527	0.7377	0.0354

Rehabilitation facilities with fewer than 20 places are reimbursed on a per diem basis. Rehabilitation services in hospitals without a designated rehabilitation unit are funded through the general DRG funding system.[25]

5.6.17 Palliative care

Palliative care is **excluded** from case mix funding. Funding for designated palliative care beds is at the palliative care bed day rate.[92]

5.6.18 Admission through Accident and Emergency Department

If patients are admitted through emergency departments, the standard WIES payments apply, i.e. these costs are **included** in the DRG tariff.[12]

5.6.19 Visits to Accident and Emergency Department (without admission)

In 2002, the Victorian Ambulatory Classification and Funding System (VASC) introduced fixed **non-admitted patient emergency services grants** for hospitals with major 24-hour emergency services.

It recognizes hospital and emergency department availability and non-admitted workload. Hospital availability comprises services provided by the hospital — but not necessarily by the Emergency Department (ED) — that must be available to the ED on-call, regardless of the actual level of activity. At the ED level, availability comprises the minimum level of staff and resources required to be able to treat complex emergency cases, whether they arrive or not.

The non-admitted patient component is allocated on the basis of non-admitted patient attendances, weighted by triage category.[105]

5.6.20 Non-admitted patient radiotherapy

Non-admitted patient radiotherapy is funded primarily on an output basis. The units of output are Weighted Activity Units (WAUs), which are specific to non-admitted patients, and which weight radiotherapy treatment received according to the megavoltage courses, simulation and dosimetry, and consultations received.[99]

5.6.21 Outpatient (ambulatory) services

Outpatient care in Victoria is financed by the **Victorian Ambulatory Classification and Funding System (VASC)**. This outpatient classification system was developed so that hospitals could be financed on the basis of patient encounters.[105]

5.6.21.1 Clinical specialist and weights

Clinical specialties form the basis of the VACS system. There are 47 categories, all of which are weighted, except for allied health and emergency medicine. Table 38 lists the cost weights for each of the 35 weighted clinical categories. These are derived annually as part of the Victorian Cost Weight Study using data from between 14 and 16 of the 19 VACS hospitals.

The number and type of public patient encounters determine variable funding. The funding model also recognizes 'fixed' elements and activities such as teaching and other services. Annual throughput targets are set and hospitals are funded up to target. Significant variation, in terms of estimated activity levels and mix of services, are audited and payments adjusted accordingly where hospitals do not meet the targets specified.

Table 38: VASC cost weights

VACS Code	Description	Weight
101	General medicine	1,555
102	Allergy	1,218
103	Cardiology	1,520
104	Diabetes	1,116
105	Endocrinology	1,382
106	Gastroenterology	1,188
107	Haematology	1,865
108	Nephrology	1,592
109	Neurology	1,497
110	Oncology	1,806
111	Respiratory	1,777
112	Rheumatology	1,337
113	Dermatology	1,135
114	Infectious diseases	1,722
115	Developmental neurological disability	1,419
201	General surgery	1,238
202	Cardiothoracic	1,965
203	Neurosurgery	1,570
204	Ophthalmology	0,721
205	Ear, nose and throat	0,792
206	Plastic surgery	0,765
207	Urology	1,052
208	Vascular	1,242
209	Pre-admission	1,265
301	Dental	1,158
310	Orthopaedics	1,162
311	Orthopaedic applications	0,585
350	Psychiatry and behavioural disorders	1,638
401	Family planning	0,994
402	Obstetrics	0,776
403	Gynaecology	0,825
404	Reproductive medicine	0,729
405	Dysplasia and colposcopy	0,773
501	Paediatric surgical	0,947
502	Paediatric medical	1,120
550	Emergency medicine	n / a
601	Audiology	n / a
602	Nutrition	n / a
603	Optometry	n / a
604	Occupational therapy	n / a
605	Physiotherapy	n / a
606	Podiatry	n / a
607	Speech pathology	n / a
608	Social work	n / a
609	Other allied health services	n / a
610	Cardiac rehabilitation	n / a
611	Hydrotherapy	n / a

5.6.21.2 Patient encounters

Hospitals are funded on the basis of patient encounters. The encounter is defined as **the clinic visit, plus all ancillary services** (pathology, radiology and pharmacy) **provided within the 30 days** either side of the clinic visit. The 30-day window has been chosen to encompass the majority of services associated with a particular visit and to enable a reasonable and practical time period for reporting and funding. This approach more closely reflects patterns of clinical care and provides better resource utilization and controls than the "unbundled" fee-for-service or occasions of service systems.

5.6.21.3 VASC variable grant

The variable grant is calculated on the number of public weighted encounters. In 2006–07, the case payment for non-admitted VACS patient throughput up to target is $152 per weighted public encounter.

5.6.21.4 VASC allied health services grant

This grant is determined on the basis of allied health occasions of service, up to target, as reported by hospitals to the Department. In 2006–07, the VACS Allied Health payment rate is $54 per allied health occasion of service.

5.6.21.5 VACS base grants

This grant provides for fixed or non-variable activities and services provided to patients outside defined clinical categories (for example, phone consultations and calls, administration of patients etc). In 2006–07, it represents approximately 12 per cent of the total non-admitted grant budget.

5.6.21.6 VACS teaching grants

This grant recognizes the importance of non-admitted services for teaching and training. In 2006–07, it represents 7% of the total non-admitted grant for individual hospitals.

5.6.21.7 VACS specified grants

A number of services to non-admitted patients have either a relatively specialized function or are provided in a manner that cannot be readily funded in terms of patient encounters. Such services are however an important part of hospital services, and are funded through specified grants. Examples of specified grants are liver transplant services, cochlear implant clinics and genetics. In 2006–07 Specified grants represent 2.6% of the total non-admitted grant for individual hospitals.

5.6.21.8 VACS audit

The first audit of the system undertaken in 1999 to verify the approved clinics, assessed and ensured the reliability and accuracy of the data system and checked adherence to counting rules. This audit highlighted that the system was effective and well accepted by the hospital industry.

The second audit to investigate VACS outpatient clinic services, was undertaken in 2005. Findings highlighted that overall the system continues to work well. The auditors reported a few minor issues that the Department has since clarified with hospitals. The auditors also noted more pertinent issues, such as data accuracy, non compliance with counting rules and definitions for counting and reporting which have since been addressed to improve the value of the VACS reporting and funding system.

6 APPENDICES

6.1 APPENDICES ON SEARCH METHODOLOGY

Appendix 1 Search strategy tables for specific websites

GENERAL

Name of resource	**European Observatory on Health Systems and Policies, HiT country profiles on United Kingdom, France, Germany, Australia, and Denmark**
Publisher of resource	WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies
Web address	http://www.euro.who.int/observatory/Hits/TopPage

Name of resource	***Health*BASKET, Individual Country analyses on UK, France, Germany, and Denmark**
Publisher of resource	Health Benefits and Service Costs in Europe is a project funded by the European Commission and directed by the European Health Management Association (EHMA).
Web address	http://www.ehma.org/projects/default.asp?NCID=112

Name of resource	**HOPE**
Publisher of resource	European Hospital and Healthcare Federation
Web address	http://www.hope.be

Name of resource	**OECD Health**
Publisher of resource	OECD (Organisation for Economic Co-operation and Development)
Web address	Home page: www.oecd.org/health OECD Health data 2007: http://www.oecd.org/document/16/0,3343,en_2649_37407_2085200_1_1_1_37407,00.html

ENGLAND

Name of resource	**DH Advisory Bodies**
Publisher of resource	NHS
Web address	http://www.advisorybodies.doh.gov.uk/

Name of resource	**NHS Connecting for Health**
Publisher of resource	NHS
Web address	http://www.connectingforhealth.nhs.uk/

Name of resource	**NHS Department of Health**

Publisher of resource	NHS
Web address	http://www.dh.gov.uk/en/index.htm

Name of resource	**NHS Information Centre for Health and Social Care**
Publisher of resource	NHS
Web address	http://www.ic.nhs.uk/

GERMANY

Name of resource	**AOK-Bundesverband**
Publisher of resource	AOK-Bundesverband
Web address	http://www.aok-gesundheitspartner.de/

Name of resource	**AUT University**
Publisher of resource	AUT University
Web address	http://www.aut.ac.nz/

Name of resource	**BQS gGmbH - Bundesgeschäftsstelle Qualitätssicherung**
Publisher of resource	BQS gGmbH - Bundesgeschäftsstelle Qualitätssicherung
Web address	http://www.bqs-online.com/

Name of resource	**G-DRG**
Publisher of resource	InEK GmbH – Institut für das Entgeltsystem im Krankenhaus
Web address	http://www.g-drg.de/cms/

Name of resource	**Gemeinsamer Bundesausschuss**
Publisher of resource	Der Gemeinsame Bundesausschuss – G-BA (Federal Joint Committee)
Web address	http://www.g-ba.de/

Name of resource	**Gesundheitsberichterstattung des Bundes**
Publisher of resource	Statistische Bundesamt (Federal Statistical Office)
Web address	http://www.gbe-bund.de/

Name of resource	**KBV - Kassenärztlichen Bundesvereinigung**
Publisher of resource	KBV - Kassenärztlichen Bundesvereinigung
Web address	http://www.kbv.de/

Name of resource	**Medizincontrolling und der DRG-Research-Group**
Publisher of resource	Medizincontrolling und der DRG-Research-Group Universitätsklinikum Münster Westfälische Wilhelms-Universität Münster
Web address	http://drg.uni-muenster.de

Name of resource	**Medizinwissen**
Publisher of resource	Deutschen Institut für Medizinische Dokumentation und Information
Web address	http://www.dimdi.de

Name of resource	**myDRG**
Publisher of resource	myDRG - Beratung und Dienstleistungen im Gesundheitswesen
Web address	http://www.mydrg.de/

Name of resource	**Versicherungsnetz.de**
Publisher of resource	Fair4U Programme für den Versicherungsvergleich GmbH
Web address	http://www.versicherungsnetz.de/

Name of resource	**Z I M – Verlag**
Publisher of resource	Wolfram Fischer Zentrum für Informatik und wirtschaftliche Medizin (ZIM)
Web address	http://www.fischer-zim.ch/verlag/index.htm

FRANCE

Name of resource	**ATIH**
Publisher of resource	ATIH Agence Technique de l'Information sur l'Hospitalisation
Web address	http://www.atih.sante.fr

Name of resource	**Legifrance**
Publisher of resource	Secrétariat Général du Gouvernement français
Web address	http://www.legifrance.gouv.fr

Name of resource	**Ministère de la santé et des solidarités**
Publisher of resource	Ministère de la Santé et des solidarités
Web address	http://www.sante.gouv.fr

Name of resource	**Séminaires de l'étude nationale des coûts**
Publisher of resource	FHF Fédération hospitalière de France
Web address	http://www.fhf.fr/colloques/

AUSTRALIA

Name of resource	**Australian Government Department of Health and Ageing**
Publisher of resource	Australian Government Department of Health and Ageing
Web address	http://www.health.gov.au/

Name of resource	**Victorian Government Health Information**
Publisher of resource	Victorian Government Health Information
Web address	http://www.health.vic.gov.au/

Appendix 2 Correspondence list

Date of contact	21/01/2008
Name of expert	Michel Dubois
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Appendix 3 Checklist of items to be included in the international comparison

1. GENERAL INFORMATION ON HEALTHCARE SYSTEM
1.1 Type of healthcare system
1.2 Status or ownership of hospitals
1.3 Hospital financing
1.4 Employment of physicians
2. DRG CLASSIFICATION SYSTEM
2.1 Name of DRG classification system
2.2 Origin of DRG classification system
2.3 Reasons to introduce DRG classification system
2.4 Scale on which DRG classification system is used
2.5 Transition
2.6 Refinement of DRG classification system
2.7 Grouping process
3. CALCULATION OF COSTS
3.1 Method of costing
3.2 Cost allocation
3.3 Data sample
3.4 Quality of data
4. OUTLIERS
4.1 Definition of outliers
4.2 Lower trim point
4.3 Upper trim point
5. DETERMINING THE DRG TARIFF
5.1 Converting cost information into prices
5.2 Calculation of DRG tariff
5.3 Specific adjustments of DRG tariffs
5.4 Reimbursement of hospital stays
6. FUNDING CHARACTERISTICS OF SPECIFIC HOSPITAL ACTIVITIES
6.1 Share of hospital revenue that is activity-based
6.2 Capital costs
6.3 Research, training and medical education
6.4 Intensive care
6.5 Medical devices
6.6 High cost drugs
6.7 Chemotherapy
6.8 Radiotherapy
6.9 Interventional radiology

6.10 Diagnostic imaging

6.11 Multiple trauma

6.12 Renal dialysis

6.13 Mental health

6.14 Rehabilitation

6.15 Palliative services

6.16 Transplants

6.17 Major burns

6.18 Admission through Accident and Emergency Department

6.19 Visits to Accident and Emergency Department (without admission)

6.20 Outpatient (ambulatory) services

6.2 APPENDICES ON GERMANY

Appendix 4 Overview of the MDCs with their number of G-DRGs

Source: Abschlussbericht - Weiterentwicklung des G-DRG-Systems für das Jahr 2008, Tabelle A-5 (page 213)[33]

MDC Nr.	Code	Label	Number of DRGs 2008
0	A	Pre-MDC	62
01	B	Diseases and disorders of the nervous system	108
02	C	Diseases and disorders of the eye	30
03	D	Diseases and disorders of the ear, nose, mouth and throat	58
04	E	Diseases and disorders of the respiratory system	61
05	F	Diseases and disorders of the circulatory system	130
06	G	Diseases and disorders of the digestive system	75
07	H	Diseases and disorders of the hepatobiliary system and pancreas	33
08	I	Diseases and disorders of the musculoskeletal system and connective tissue	130
09	J	Diseases and disorders of the skin, subcutaneous system and breast	47
10	K	Endocrine, nutritional and metabolic diseases and disorders	40
11	L	Diseases and disorders of the kidney and urinary tract	65
12	M	Diseases and disorders of the male reproductive system	24
13	N	Diseases and disorders of the female reproductive system	35
14	O	Pregnancy and childbirth	26
15	P	Newborns	42
16	Q	Diseases and disorders of the blood and the blood forming organs	16
17	R	Myeloproliferative diseases and disorders	51
18A	S	HIV	8
18B	T	Infectious and parasitic diseases	21
19	U	Mental diseases and disorders	11
20	V	Alcohol/drug uses and alcohol/drug use induced organic mental disorders	7
21A	W	Polytrauma	12
21B	X	Injuries, poisoning and toxic effects of drugs	15
22	Y	Burns	10
23	Z	Factors influencing health status	11
	9	Error DRGs ('Fehler-DRGs')	9
		Total	1 137

Appendix 5 Partitioning of the basic G-DRGs according to clinical severity levels

Source: German experience with DRGs by Kalman[43]

Basic DRGs	Clinical severity levels	Number of Basic G-DRGs 2008
Unsplitted	Z	318
Splitted	A, B	154
	A, B, C	73
	A, B, C, D	31
	A, B, C, D, E	11
	A, B, C, D, E, F	11
	A, B, C, D, E, F, G	3
	A, B, C, D, E, F, G, H	1
	A, B, C, D, E, F, G, H, I	2
Total number of basic G-DRGs		604

Appendix 6 Legislation or catalogues behind the components of hospital remuneration in Germany in the year 2008

Component of hospital remuneration (see Figure 6)	Legislation or Catalogue
A1 Emergency care	§ 17b Abs. 1 Satz 4 KHG[106] with respect to § 4 Abs. 5 Satz 2 KHEntgG[107]
A2 Accompanying persons	§ 17b Abs. 1 Satz 4 KHG[106]
A3 Quality assurance	§ 7 Satz 1 Nr. 7 KHEntgG[107]
B1 Surcharges for long-stay outliers	§ 1 Abs. 2 FPV 2008[54]
B2 National uniform valuated DRG cost-weights	Fallpauschalen-Katalog 2008[32]
B3 Deductions for short-stay outliers and early patient transfer	§ 1 Abs. 3 and § 3 FPV 2008[54]
C1 National uniform valuated supplementary fees	Appendices 2 and 5 FPV 2008[32]
D1 Not national uniform valuated DRG cost-weights	Anlage 3 FPV 2008[32] with respect to § 6 Abs. 1 Satz 1 Nr. 2 KHEntgG[107]
D2 Not national uniform valuated supplementary fees	Appendices 4 and 6 FPV 2008[32]
D3 Day cases of curative care	§ 6 Abs. 1 Satz 1 Nr. 2 KHEntgG[107]
D4 Additional fees for highly specialised services which are not reimbursed appropriately	§ 6 Abs. 2a KHEntgG[107]
E1 Surcharges for innovative diagnostic & treatment procedures	§ 6 Abs. 2 KHEntgG[107]
E2 Surcharges for specialised centres e.g. heart centres	§ 2 Abs. 2 Satz 2 Nr. 4 and § 5 Abs. 3 KHEntgG[107]
E3 Apprenticeship surcharge	§ 17a KHG[106]
E4 Service guarantee surcharge	§ 5 Abs. 2 KHEntgG[107]
E5 Foreign patients	§ 4 Abs. 10 KHEntgG[107]
Special facilities ('Besondere Einrichtungen') (not included in Figure 6)	§ 17b Abs. 1 Satz 15 KHG[106]

Adapted version of figure 2 by Schreyögg[34]

6.3 APPENDICES ON FRANCE

Appendix 7 Example of GHS codes

CATÉGORIE MAJEURE DE DIAGNOSTIC : 11

Affections du rein et des voies urinaires

Groupes chirurgicaux

11C01S	Interventions pour affections des reins et des voies urinaires, avec CMAS
11C02V	Interventions sur les reins et les uretères et chirurgie majeure de la vessie pour une affection tumorale, sans CMA
11C02W	Interventions sur les reins et les uretères et chirurgie majeure de la vessie pour une affection tumorale, avec CMA
11C03V	Interventions sur les reins et les uretères et chirurgie majeure de la vessie pour une affection non tumorale, sans CMA
11C03W	Interventions sur les reins et les uretères et chirurgie majeure de la vessie pour une affection non tumorale, avec CMA
11C04Z	Autres interventions sur la vessie à l'exception des interventions transurétrales
11C05V	Interventions transurétrales ou par voie transcutanée sans CMA
11C05W	Interventions transurétrales ou par voie transcutanée avec CMA
11C06Z	Interventions sur l'urètre, âge inférieur à 18 ans
11C07Z	Interventions sur l'urètre, âge supérieur à 17 ans
11C08V	Autres interventions sur les reins et les voies urinaires sans CMA
11C08W	Autres interventions sur les reins et les voies urinaires avec CMA

Groupes avec acte classant non opératoire

11K02V	Insuffisance rénale, avec dialyse, âge inférieur à 70 ans sans CMA
11K02W	Insuffisance rénale, avec dialyse, âge supérieur à 69 ans et/ou CMA

Groupes "médicaux"

11M01S	Affections des reins et des voies urinaires, avec CMAS
11M02V	Lithiases urinaires, âge inférieur à 70 ans sans CMA
11M02W	Lithiases urinaires, âge supérieur à 69 ans et/ou CMA
11M03V	Infections des reins et des voies urinaires, âge inférieur à 18 ans sans CMA
11M03W	Infections des reins et des voies urinaires, âge inférieur à 18 ans avec CMA
11M04V	Infections des reins et des voies urinaires, âge de 18 à 69 ans sans CMA
11M04W	Infections des reins et des voies urinaires, âge de 18 à 69 ans avec CMA, ou âge supérieur à 69 ans
11M06V	Insuffisance rénale, sans dialyse, âge inférieur à 70 ans sans CMA
11M06W	Insuffisance rénale, sans dialyse, âge supérieur à 69 ans et/ou CMA
11M07V	Tumeurs des reins et des voies urinaires sans CMA
11M07W	Tumeurs des reins et des voies urinaires avec CMA
11M08Z	Autres affections des reins et des voies urinaires, âge inférieur à 18 ans
11M09V	Autres affections des reins et des voies urinaires, âge supérieur à 17 ans sans CMA
11M09W	Autres affections des reins et des voies urinaires, âge supérieur à 17 ans avec CMA
11M10V	Rétrécissement urétral, âge inférieur à 70 ans sans CMA
11M10W	Rétrécissement urétral, âge supérieur à 69 ans et/ou CMA
11M11Z	Signes et symptômes concernant les reins et les voies urinaires, âge inférieur à 18 ans
11M12V	Signes et symptômes concernant les reins et les voies urinaires, âge de 18 à 69 ans sans CMA
11M12W	Signes et symptômes concernant les reins et les voies urinaires, âge de 18 à 69 ans avec CMA, ou âge supérieur à 69 ans

Source: ATIH[66]

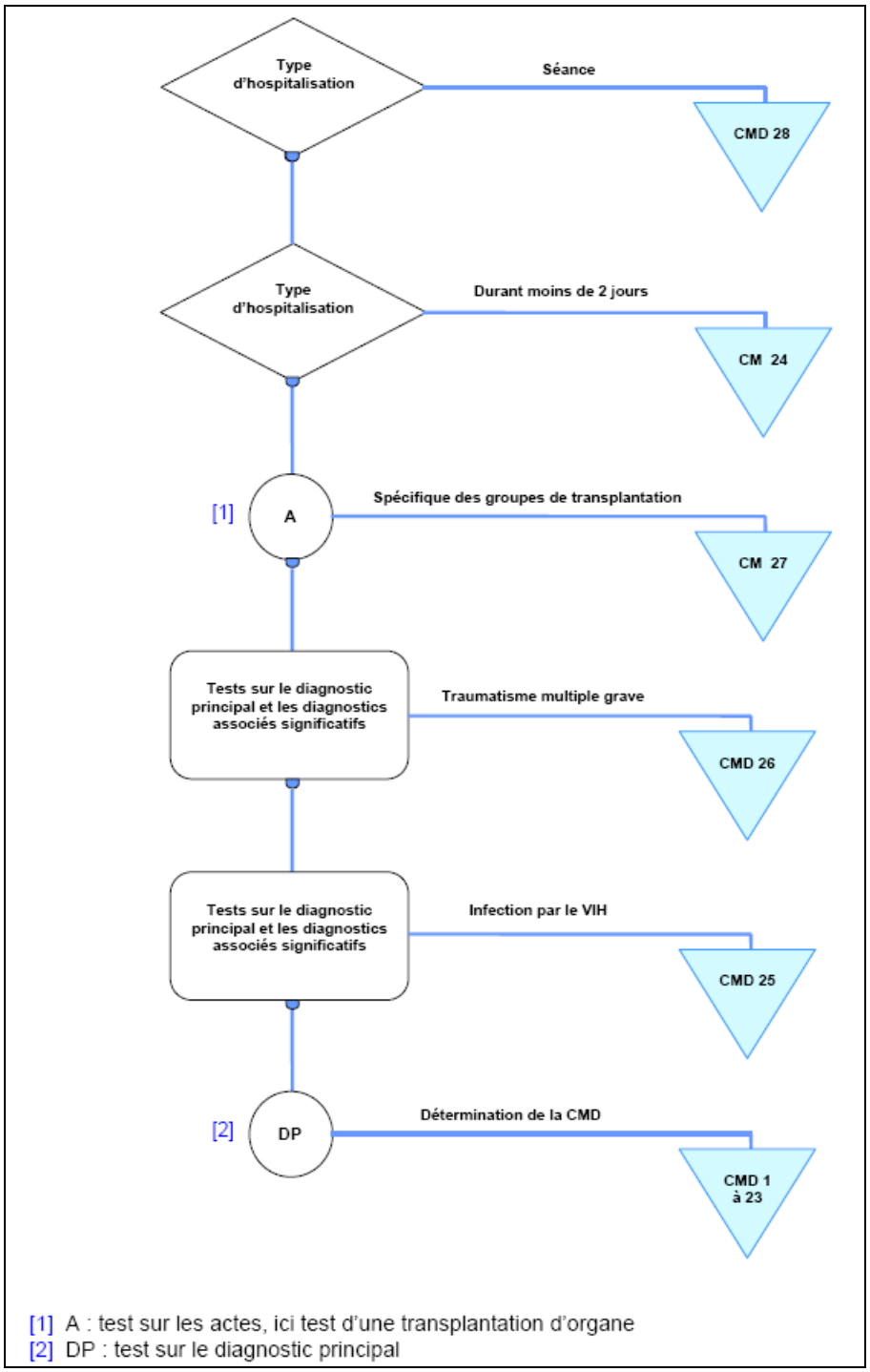
Appendix 8 Overview of the MDCs in the GHS system version 10

CM(D) catégories majeures (de diagnostic)	
CMD 01	affections du système nerveux
CMD 02	affections de l'œil
CMD 03	affections des oreilles, du nez, de la gorge, de la bouche et des dents
CMD 04	affections de l'appareil respiratoire
CMD 05	affections de l'appareil circulatoire
CMD 06	affections du tube digestif
CMD 07	affections du système hépatobiliaire et du pancréas
CMD 08	affections et traumatismes de l'appareil musculosquelettique et du tissu conjon
CMD 09	affections de la peau, des tissus sous-cutanés et des seins
CMD 10	affections endocriniennes, métaboliques et nutritionnelles
CMD 11	affections du rein et des voies urinaires
CMD 12	affections de l'appareil génital masculin
CMD 13	affections de l'appareil génital féminin
CMD 14	grossesses pathologiques, accouchements et affections du post-partum
CMD 15	nouveau-nés, prématurés et affections de la période périnatale
CMD 16	affections du sang et des organes hématopoïétiques
CMD 17	affections myéloprolifératives et tumeurs de siège imprécis ou diffus et/ou CMA
CMD 18	maladies infectieuses et parasitaires
CMD 19	maladies et troubles mentaux
CMD 20	troubles mentaux organiques liés à l'absorption de drogues ou induits par celle
CMD 21	traumatismes, allergies et empoisonnements
CMD 22	brûlures
CMD 23	facteurs influant sur l'état de santé et autres motifs de recours aux services de santé
CM 24	séjours de moins de 2 jours
CMD 25	maladies dues à une infection par le VIH
CMD 26	traumatismes multiples graves
CM 27	transplantations d'organes
CMD 28	séances[1]
CM 90	erreurs et autres séjours inclassables

[1] Les séances n'ont été isolées dans la CMD 28 qu'à partir de la 10ème version de la classification des GHM (mars 2006) ; elles étaient auparavant comprises dans la CM 24.

Source: ATIH[65]

Appendix 9 First step in the classification of hospital stays: assignment to a MDC



Source: ATIH[65]

7 REFERENCES

1. European Hospital and Healthcare Federation. DRGs as a financing tool. Brussels: 2006. Available from: http://www.hope.be/05eventsandpublications/docpublications/77_drg_report/77_drg_report_2006.pdf
2. Epstein D, Mason A. Costs and prices for inpatient care in England: mirror twins or distant cousins? Health Care Management Science. 2006;9(3):233-42.
3. Schreyögg J, Stargardt T, Tiemann O, Busse R. Methods to determine reimbursement rates for diagnosis related groups (DRG): a comparison of nine European countries. Health Care Management Science. 2006;9(3):215-23.
4. NHS Department of Health;c 2008 [cited 30/06/2008]. NHS foundation trusts. Available from: http://www.dh.gov.uk/en/Healthcare/Secondarycare/NHSfoundationtrust/index.htm
5. NHS Department of Health;c 2008 [updated 01/02/2008; cited 30/06/2008]. NHS reference costs 2006-07. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_082571
6. The information Centre, Casemix service. HRG4 design concepts. London: 2008. Available from: http://www.ic.nhs.uk/webfiles/Services/casemix/Prep%20HRG4/HRG4%20design%20concepts%20summary_January%202008.pdf
7. The information Centre, Casemix service London [cited 21/07/2008]. Ten Top Tips for HRG4. Available from: http://www.ic.nhs.uk/our-services/standards-and-classifications/casemix/hrg4/ten-top-tips-for-hrg4
8. The information Centre, HES online London [cited 21/07/2008]. How do you describe an operation? Available from: http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=156
9. The information Centre, Casemix service London [cited 21/07/2008]. HRGv3.5 FAQs. Available from: http://www.ic.nhs.uk/our-services/classification-and-standards/casemix/hrgv35/hrgv35-faqs
10. The information Centre, Casemix service. Guide to unbundling. London: 2008. Available from: http://www.ic.nhs.uk/webfiles/Services/casemix/Prep%20HRG4/Guide%20to%20Unbundling%20v.4.0_January%202008.pdf
11. NHS Department of Health;c 2007 [updated 01/05/2007; cited 21/12/2007]. NHS costing manual : 2006-07. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_074472
12. Street A, Vitikainen K, Bjorvatn A, Hvenegaard A. Introducing activity-based financing: a review of experience in Australia, Denmark, Norway and Sweden. Centre for Health Economics, University of York; 2007. CHE Research Paper 30 Available from: http://www.york.ac.uk/inst/che/pdf/rp30.pdf
13. NHS Department of Health;c 2004 [updated 10/12/2004; cited 21/12/2007]. Payment by results: A step by step guide to the calculation of the tariff 2005-06. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4097996
14. Epstein E, Mason A, Smith PC. HealthBASKET Costs and health benefits for England. York: Centre for Health Economics, University of York; 2005. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/WP_6_HealthBASKETSP21_CT_2004_501588_D16_UK.pdf
15. NHS Connecting for Health. Secondary Uses Service - A Guide to the PbR Algorithm. 2005. Available from: http://www.connectingforhealth.nhs.uk/systemsandservices/sus/reference/sus_pbr_algorithm.pdf?searchterm=HRG+tariff

16. NHS Connecting for Health. Secondary Uses Service - Payment by Results in 2007/8: Algorithm changes for 1st April 07. 2007. Available from: http://www.connectingforhealth.nhs.uk/systemsandservices/sus/reference/pbr-alogorithm.pdf

17. NHS Connecting for Health. Secondary Uses Service - Payment by Results: Reference data for PbR 2007/08. 2007. Available from: http://www.connectingforhealth.nhs.uk/systemsandservices/sus/reference/reference-data.xls

18. NHS Department of Health;c 2006 [updated 16/08/2006; cited 21/12/2007]. Payment by Results. Implementation support guide 2006/07 (technical guidance). Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4131732

19. NHS Department of Health;c 2006 [updated 20/12/2006; cited 21/12/2007]. Payment by results guidance 2007/2008. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_063684

20. NHS Department of Health;c 2007 [updated 14/12/2007; cited 17/03/2008]. Payment by results guidance 2008/09. Available from: http://www.dh.gov.uk/en/Managingyourorganisation/Financeandplanning/NHSFinancialReforms/DH_081238

21. NHS Department of Health;c 2006 [updated 20/12/2006; cited 21/12/2007]. Payment by results guidance 2007/2008. Annexes. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_063684

22. NHS Department of Health;c 2007 [updated 28/09/2007; cited 21/12/2007]. National Specialist Commissioning Advisory Group (NSCAG) Available from: http://www.advisorybodies.doh.gov.uk/NSCAG/

23. NHS classification service;c 2007 [updated 14/02/2007; cited 21/12/2007]. OPCS Classification of Interventions and Procedures Version 4.4. Chemotherapy Regimen & Guidance for clinical coders. Available from: http://www.connectingforhealth.nhs.uk/systemsandservices/data/clinicalcoding/codingstandards/opcs4/downloads/chemo/opcs44chemoregimensv1%200.pdf

24. NHS Department of Health Leeds;c 2006 [updated 16/08/2006; cited 21/12/2007]. Payment by results: implementation support guide 2006/07. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4131732

25. Ettelt S, Thomson S, Nolte E, Mays N. Reimbursing highly specialised hospital services: the experience of activity based funding in 8 countries. London: London School of Hygiene and Tropical Medicine; 2006. Available from: http://www.dh.gov.uk/en/Policyandguidance/Organisationpolicy/Financeandplanning/NHSFinancialReforms/DH_4138133

26. Busse R, Riesberg A. Health care systems in transition: Germany. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 2004. Available from: http://www.euro.who.int/Document/E85472.pdf

27. Busse R, Stargardt T, Schreyogg J. Determining the "Health Benefit Basket" of the Statutory Health Insurance scheme. Eur J Health Econ. 2005;Suppl:30-6.

28. Paris: OECD - Organisation for Economic Co-operation and Development;c 2007 [updated 22/10/2007; cited 08/01/2008]. OECD Health Data 2007 Available from: http://www.oecd.org/document/16/0,3343,en_2649_37407_2085200_1_1_1_37407,00.html

29. Swartenbroekx N, Van de Voorde C, Crott R, Ramaekers D. Financieringssystemen van ziekenhuisgeneesmiddelen: een beschrijvende studie van een aantal Europese landen en Canada. Report. Brussel: Federaal Kenniscentrum voor de Gezondheidszorg (KCE); 2004 24 december. KCE reports 8A (D/2004/10.273/15) Available from: http://kce.fgov.be/Download.aspx?ID=258

30. Schreyögg J, Tiemann O, Busse R. The DRG reimbursement system in Germany. Euro Observer. 2005;7(4):4-6.

31. International Collaborative Project Review Casemix-based Hospital Financing Systems. Expensive drugs and medical devices financing and innovation financing within casemix-based hospital payment systems. In. Siegburg; 2007. p. 21.
32. InEK GmbH Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus;c 2007 [updated 21/09/2007; cited 10/01/2008]. G-DRG-Fallpauschalen-Katalog 2008. Available from: http://www.g-drg.de/cms/index.php/inek_site_de/g_drg_system_2008/fallpauschalen_katalog/fallpauschalen_katalog_2008
33. InEK GmbH. Abschlussbericht - Weiterentwicklung des G-DRG-Systems für das Jahr 2008 - Klassifikation, Katalog und Bewertungsrelationen - Teil I: Projektbericht. Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus; 2007. Available from: http://www.g-drg.de/cms/index.php/inek_site_de/g_drg_system_2008/abschlussbericht_zur_weiterentwicklung_des_drg_systems_und_report_browser/abschlussbericht_zur_weiterentwicklung_des_drg_systems_fuer_2008
34. Schreyögg J, Tiemann O, Busse R. Cost accounting to determine prices: how well do prices reflect costs in the German DRG-system? Health Care Management Science. 2006;9(3):269-79.
35. Schreyögg J, Tiemann O, Busse R. HealthBASKET Approaches for Costing and Pricing in Practice: Germany. Berlin: Techische Universität Berlin; 2005. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/WP-6-HealthBASKETSP21-CT-2004-501588_D14_Germany_FINAL.pdf
36. Lungen M, Dredge B, Rose A, Roebuck C, Plamper E, Lauterbach K, et al. Using diagnosis-related groups. The situation in the United Kingdom National. Eur J Health Econ. 2004;5(4):287-9.
37. Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus;c 2007 [updated 28/11/2007; cited 10/01/2008]. DRG-Systemzuschlag - Dokumente. Available from: http://www.g-drg.de/cms/index.php/inek_site_de/drg_systemzuschlag/dokumente
38. Busse R, Stargardt T, Schreyögg J, Simon C, Martin M. HealthBASKET Benefit report: Germany. Berlin: Techische Universität Berlin; 2004. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/Benefit_Report_Germany.pdf
39. Deutsches Institut für Medizinische Dokumentation und Information (DIMDI) [updated 16/11/2007; cited 27/02/2008]. OPS 2008. Available from: http://www.dimdi.de/static/de/klassi/prozeduren/ops301/opshtml2008/fr-ops.htm
40. Deutsches Institut für Medizinische Dokumentation und Information (DIMDI) [updated 25/09/2007; cited 27/02/2008]. ICD-10-GM 2008. Available from: http://www.dimdi.de/static/de/klassi/diagnosen/icd10/htmlgm2008/fr-icd.htm
41. Ernst C, Rouse P. Complexity, Tertiariness and Healthcare: a Survey and Framework for Research. Auckland: University of Auckland, New Zealand; 2006. Available from: http://www.aut.ac.nz/resources/about/news_and_information/conferences/ara2006_papers/ernst_&_rouse_ara.pdf
42. Fischer W: Zentrum für Informatik und wirtschaftliche Medizin [updated 06/12/2007 cited 08/02/2008]. German Diagnosis Related Groups Available from: http://www.fischer-zim.ch/text-pcssa/t-ga-H4-System-GDRG-0003.htm
43. Kalman I Prague;c 2007 [updated 05/12/2007; cited 08/02/2008]. German experience with DRGs. Available from: http://www.mzcr.cz/data/c3007/lib/German_Experience_with_DRGs_Kalman.pdf
44. Busse R, Schreyögg J, Velasco-Garrido M. HealthBASKET Benefit report: Synthesis. Berlin: Techische Universität Berlin; 2005. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/HealthBASKET-SYN-REP-051025EDIT_2.pdf
45. Roeder N, Müller M: Universitätsklinikum Münster;c 2007 [updated 15/01/2007; cited 05/02/2008]. Web Grouper. Available from: http://drg.uni-muenster.de/de/webgroup/m.webgroup.php?menu=6

46. InEK GmbH Berlin;c 2007 [updated 18/09/2007; cited 10/01/2008]. Kalkulationshandbuch. Available from: http://www.g-drg.de/cms/index.php/inek_site_de/kalkulation/kalkulationshandbuch

47. Mogyorosy Z, Smith P. HealthBASKET The main methodological issues in costing health care services - A literature review. London: University of York, Centre for Health Economics; 2004. Available from: http://www.ehma.org/_fileupload/File/Projects/HealthBASKET_WP7_Report.pdf

48. Mason A, Epstein D, Smith P, Busse R, Schreyögg J, Stargadt T, et al. HealthBASKET Final report. International comparison of costs: An exploration of within- and between-country variations for ten healthcare services in nine EU member states. University of York, Techische Universität Berlin; 2007. Available from: http://www.ehma.org/_fileupload/File/Projects/WP10%20REPORT_31_Jan-07_revised.pdf

49. Personal Communication by Dr. Christian Jacobs, Assistant Head of Department of Medicine, InEK. In; 08/02/2008.

50. Gemeinsamer Bundesausschuss (G-BA). Richtlinien des Bundesausschusses der Ärzte und Krankenkassen über die Verordnung von Krankenhausbehandlung (Krankenhausbehandlungs-Richtlinien). Siegburg: 2003. Available from: http://www.g-ba.de/downloads/62-492-2/RL-Khbehandlung-2003-03-24.pdf

51. Berlin: KBV - Kassenärztliche Bundesvereinigung;c 2008 [updated 03/12/2007; cited 11/01/2008]. Einheitlicher Bewertungsmaßstab 2008. Available from: http://www.kbv.de/8159.html

52. Berlin;c 2006 [updated 17/08/2006; cited 08/01/2008]. Vertrag nach § 115 b Abs. 1 SGB V – Ambulantes Operieren und stationsersetzende Eingriffe im Krankenhaus – (AOP-Vertrag). Available from: http://daris.kbv.de/daris/doccontent.dll?LibraryName=EXTDARIS^DMSSLAVE&SystemType=2&LogonId=87879e962fb559fe1adbcf496f99e723&DocId=003737531&Page=1

53. Berlin;c 2007 [updated 28/11/2007; cited 09/01/2008]. Katalog für 2008 zum ambulanten Operieren (AOP-Vertrag). Available from: http://www.aok-gesundheitspartner.de/bundesverband/krankenhaus/amb_behandlung/amb_operieren/2008/

54. InEK GmbH Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus;c 2007 [updated 21/09/2007; cited 10/01/2008]. Vereinbarung zum Fallpauschalensystem für Krankenhäuser für das Jahr 2008 (FPV 2008). Available from: http://www.g-drg.de/cms/index.php/inek_site_de/g_drg_system_2008/abrechnungsbestimmungen/fpv_2008

55. Roeder N, Müller M: Universitätsklinikum Münster;c 2007 [updated 15/01/2007; cited 05/02/2008]. G-DRG-Systematik. Available from: http://drg.uni-muenster.de/de/webgroup/m.brdrg.php?mdc=14

56. Berlin;c 2007 [updated 13/12/2007; cited 14/01/2008]. Die Zuschläge zur externen stationären Qualitätssicherung für das Jahr 2008. Available from: http://www.bqs-online.com/public/news/archiv/2007/dezember/071213

57. InEK GmbH Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus;c 2007 [updated 3/12/2007; cited 10/01/2008]. Vereinbarung zur Bestimmung von Besonderen Einrichtungen für das Jahr 2008 (VBE 2008). Available from: http://www.g-drg.de/cms/index.php/inek_site_de/g_drg_system_2008/besondere_einrichtungen

58. InEK GmbH. Abschlussbericht - Weiterentwicklung des G-DRG-Systems für das Jahr 2005 - Klassifikation, Katalog und Bewertungsrelationen - Teil I: Projektbericht. Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus; 2004. Available from: http://www.g-drg.de/cms/index.php/inek_site_de/archiv/systemjahr_2005_bzw_datenjahr_2003#sm7

59. Deutschen Institut für Medizinische Dokumentation und Information (DIMDI);c 2006 [updated 05/07/2006; cited 07/02/2008]. Berechnung der Aufwandspunkte für die Intensivmedizinische Komplexbehandlung. Available from: http://www.dimdi.de/dynamic/de/klassi/downloadcenter/ops/vorgaenger/version2005/systematik/$saps_2005.pdf

60. Hein S. How can expensive drugs, high cost medical devices or procedures and innovations be financed in a casemix-based hospital financing system? In: 23rd PCSI Working Conference. Venice, Italy: Patient Classification Systems International; 2007.

61. InEK GmbH. Informationen nach § 6 Abs. 2 KHEntgG für 2007: Neue Untersuchungs- und Behandlungsmethoden. Berlin: InEK GmbH – Institut für das Entgeltsystem im Krankenhaus; 2007. Available from: http://www.g-drg.de/cms/index.php/inek_site_de/content/download/715/4840/version/3/file/Aufstellung_Information_NUB_2007.pdf
62. Sandier S, Paris V, Polton D. Health care systems in transition: France. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 2004. Available from: http://www.euro.who.int/document/e83126.pdf
63. Swartenbroekx N, Van de Voorde C, Crott R, Ramaekers D. Systèmes de financement des médicaments hospitaliers: étude descriptive de certains pays européens et du Canada. Report. Bruxelles: Centre Fédéral d'Expertise des Soins de Santé (KCE); 2004 24 décembre. KCE reports 8B (D/2004/10.273/16) Available from: http://kce.fgov.be/Download.aspx?ID=62
64. Bellanger M, Tardif L. Accounting and reimbursement schemes for inpatient care in France. Health Care Manag Sci. 2006;9(3):295-305.
65. ATIH [updated 14/11/2006; cited 22/07/2008]. Le programme de médicalisation des systèmes d'information en soins de courte durée: médecine, chirurgie et obstétrique. Available from: http://www.atih.sante.fr/?id=0002300005FF
66. ATIH [updated 04/05/2006; cited 22/07/2008]. Manuel de la version 10 de la classification des GHM - FG 10.10. Available from: http://www.atih.sante.fr/?id=000250000EFF
67. Ministère de la santé et de la jeunesse et des sports. Guide méthodologique de comptabilité analytique hospitalière. In: Bulletin officiel No 2007/6 bis; 2007.
68. ATIH;c 2007 [updated 05/2007; cited 21/12/2007]. Guide de l'étude nationale de coûts à méthodologie commune MCO. Available from: http://www.atih.sante.fr/?id=0000F00001FF
69. Personnal communication by Michel Dubois, Professeur associé en sciences de gestion, Université Claude Bernard, Lyon 1. In; 21/01/2008.
70. ATIH Lyon;c 2008 [updated 01/02/2008; cited 17/03/2008]. Note technique relative à l'élaboration de l'échelle nationale de coûts "données 2004-2005". Available from: http://www.atih.sante.fr/?id=000370000DFF
71. Bellanger M, Or Z, Paris V, Tardif L. HealthBASKET Approaches for Costing and Pricing in Practice: France. Paris: Ecole nationale de la Santé Publique, IRDES; 2005. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/WP_6_HealthBASKETSP21_CT_2004_501588_D18_France.pdf
72. Arrêté du 27 février 2007 relatif à la classification et à la prise en charge des prestations d'hospitalisation pour les activités de médecine, chirurgie, obstétrique et odontologie et pris en application de l'article L. 162-22-6 du code de la sécurité sociale, 2007.
73. Ardilly P. Echelle de coûts: redressement et précisions. In: 11ème séminaire de l'étude nationale des coûts. Aix-en-Provence; 2007.
74. Aoustin M. Étude Nationale de Coûts Commune et Échelle Commune de Coûts. In: 9ème séminaire de l'étude nationale des coûts. Quimper; 2005.
75. Fender P. Le contrôle externe de la T2A. Objectifs et approches de l'assurance maladie. In: 11ème séminaire de l'étude nationale des coûts. Aix-en-Provence; 2007.
76. Mission T2A;c 2005 [updated 18/08/2005; cited 21/12/2007]. Modalités de calcul des tarifs des GHS en 2005, comparaisons par rapport à la situation 2004. Available from: http://www.atih.sante.fr/?id=000100001AFF
77. Mission T2A;c 2007 [updated 05/2007; cited 21/12/2007]. La tarification des établissements de santé: rappel des enjeux, des modalités, des schemas cibles et transitoires. Available from: http://www.sante.gouv.fr/htm/dossiers/t2a/pedagogie/documents/rappel_enjeux_mai07.pdf
78. Ministère de la santé et des solidarités. Contractualisation sur les missions d'intérêt général et l'aide à la contractualisation: guide méthodologique. In; 2007.
79. Vinck I, Neyt M, Thiry N, Louagie M, Ghinet D, Cleemput I. Procédure d'évaluation des dispositifs médicaux émergeants. Health Technology Assessment (HTA). Report. Bruxelles: Centre Fédéral d'Expertise des Soins de Santé (KCE); 2006. KCE reports 44B (D/2006/10.273/51) Available from: http://www.kce.fgov.be/index_fr.aspx?SGREF=3461&CREF=7937

80. ATIH;c 2007 [updated 01/03/2008; cited 12/09/2007]. Liste de référence des dispositifs médicaux implantables pris en charge en sus. Available from: http://www.atih.sante.fr/?id=000100002AFF

81. Bilde L, Ankjær-Jenssen A, Danneskiold-Samsøe B, Kramhøft K. HealthBASKET Benefit report: Denmark. Copenhagen: Danish Institute for Health Services Research; 2005. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/Benefit_Report_Denmark.pdf

82. Ankjaer-Jensen A, Rosling P, Bilde L. Variable prospective financing in the Danish hospital sector and the development of a Danish case-mix system. Health Care Manag Sci. 2006;9(3):259-68.

83. Personnal communication by Annette Søberg Roed, Executive advisor, National Board of Health, Health Economics, Denmark. In; 01/06/2008.

84. Strandberg-Larsen M, Nielsen M, Vallgårda S, Krasnik A, Vrangbæk K, Mossialos E. Denmark: Health system review. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 2007. Health Systems in Transition Available from: http://www.euro.who.int/Document/E91190.pdf

85. Bilde L, Ankjær-Jenssen A. HealthBASKET Approaches for Costing and Pricing in Practice: Denmark. Copenhagen: Danish Institute for Health Services Research; 2005. Health Benefits and Service Costs in Europe (HealthBASKET) Available from: http://www.ehma.org/_fileupload/File/Projects/WP-6-HealthBASKETSP21-CT-2004-501588_D17_Denmark.pdf

86. Healy J, Sharman E, Lokuge B. Australia: Health system review. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 2006. Health Systems in Transition Available from: http://www.euro.who.int/Document/E89731.pdf

87. Antioch KM, Walsh MK. The risk-adjusted vision beyond casemix (DRG) funding in Australia. International lessons in high complexity and capitation. Eur J Health Econ. 2004;5(2):95-109.

88. Antioch KM, Walsh MK. Risk-adjusted capitation funding models for chronic disease in Australia: alternatives to casemix funding. Eur J Health Econ. 2002;3(2):83-93.

89. Brook C. Casemix Funding for Acute Hospital Care in Victoria, Australia. 2008. Available from: http://www.health.vic.gov.au/casemix/casemix.pdf

90. Australian Government Department of Health and Ageing. The State of Our Public Hospitals, June 2008 Report. 2008. Available from: http://www.health.gov.au/internet/main/publishing.nsf/Content/E6CAF670D550F646CA25747700074A51/$File/SoOPH_2008_whole.pdf

91. Australian Medical Association (Victoria). Ministerial Review of Doctors in Victorian Public Health. 2007. Available from: http://www.amavic.com.au/content/Document/MIN%20REVIEW%20final%20%20090807.pdf

92. Victorian Government Department of Human Services. Victoria – Public hospitals and mental health services: Policy and funding guidelines 2007–08. Melbourne: 2007. Available from: http://www.health.vic.gov.au/pfg/pfg0708/pfg0708.pdf

93. Victorian Government Health Information [updated 18/03/2008; cited 23/07/2008]. Casemix funding in Victoria - About Casemix. Available from: http://www.health.vic.gov.au/casemix/define.htm

94. Australian Government Department of Health and Ageing [updated 08/06/2005; cited 22/07/2008]. List of Australian Refined Diagnosis Related Groups Version 5.1. Available from: http://www.health.gov.au/internet/main/publishing.nsf/Content/health-casemix-ardrg-v51_descriptions.htm/$FILE/Table-1_4-fix1.pdf

95. Australian Government Department of Health and Ageing [updated 10/06/2005; cited 22/07/2008]. Numbering system for AR-DRGs. Available from: http://www.health.gov.au/internet/main/publishing.nsf/Content/health-casemix-struct_v5.htm#Schematic

96. Australian Government Department of Health and Ageing [updated 20/06/2007; cited 22/07/2008]. Australian Refined Diagnosis Related Groups (AR-DRGs). Available from: http://www.health.gov.au/internet/main/publishing.nsf/Content/health-casemix-ardrg1.htm

97. Jackson T. Using computerised patient-level costing data for setting DRG weights: the Victorian (Australia) cost weight studies. Health Policy. 2001;56(2):149-63.

98. Victorian Government Health Information. Victorian Admitted Episodes Data Set (VAED) Manual 16th Edition 2006-07: Introduction. Melbourne: 2006. Available from: http://www.health.vic.gov.au/hdss/vaed/2006-07/manual/sect1.pdf

99. The Royal Children's Hospital Melbourne [updated 29/07/2008; cited 13/01/2009]. Victorian casemix funding formula inpatients. Available from: http://www.rch.org.au/rchhis/coding/index.cfm?doc_id=12157#4

100. Victorian Government Department of Human Services. Victoria – Public hospitals and mental health services: Policy and funding guidelines 2008–09. Melbourne: 2008. Available from: http://www.health.vic.gov.au/pfg/pfg0809/pfg0809.pdf

101. Victorian Government Health Information [updated 03/12/2007; cited 24/07/2008]. New Technology/Clinical Practice Funding in 2008-09 Available from: http://www.health.vic.gov.au/newtech/funding.htm

102. Victorian Government Health Information [updated 28/03/2008; cited 24/07/2008]. Radiotherapy Services in Victoria - Funding for Hospitals. Available from: http://www.health.vic.gov.au/radiotherapy/funding.htm

103. Barton T. VicRehab: the New Rehabilitation Funding System in Victoria. 2003. Available from: http://www.health.vic.gov.au/casemix/craft.pdf

104. Victorian Government Health Information [updated 29/05/2008; cited 23/07/2008]. Casemix funding in Victoria - Definitions and descriptions. Available from: http://www.health.vic.gov.au/casemix/define.htm

105. Victorian Government Health Information. Victorian Ambulatory Classification System (VACS). Melbourne: 2006. Available from: http://www.health.vic.gov.au/vacs/vacs.pdf

106. Berlin;c 2005 [updated 22/05/2005; cited 21/12/2007]. Krankenhausfinanzierungsgesetz (KHG). Available from: http://www.g-drg.de/cms/index.php/inek_site_de/rechtsgrundlagen/gesetze_und_verordnungen/krankenhausfinanzierungsgesetz_khg

107. Berlin;c 2005 [updated 29/08/2005; cited 21/12/2007]. Krankenhausentgeltgesetz (KHEntgG). Available from: http://www.g-drg.de/cms/index.php/inek_site_de/rechtsgrundlagen/gesetze_und_verordnungen/krankenhausentgeltgesetz_khentgg

Appendices with Chapter 5

APPENDIX 3: PRICE MODEL

Table 3.1 LINKED STAYS PER APR-DRG 2005

APR-DRG	MDC	APR-DRG label	Linked stays
560	14 - M	Vaginal delivery	87.750
139	4 - M	Simple pneumonia	31.755
302	8 - P	Major joint & limb reattach proc of lower extrem exc for trauma	31.528
862	23 - M	Other factors influencing health status	30.807
693	17 - M	Chemotherapy	27.781
315	8 - P	Shoulder, elbow & forearm procedures	26.422
250	6 - M	Other digestive system diagnoses	26.368
249	6 - M	Nonbacterial gastroenteritis & abdominal pain	25.821
140	4 - M	Chronic obstructive pulmonary disease	24.652
144	4 - M	Respiratory system signs, symptoms & other diagnoses	23.951
513	13 - P	Uterine & adnexa procedures for ca in situ & nonmalignancy	22.182
313	8 - P	Knee & lower leg procedures except foot	22.166
175	5 - P	Percutaneous cardiovascular procedures w/o ami	22.035
192	5 - M	Cardiac catheterization for ischemic heart disease	21.361
058	1 - M	Other disorders of nervous system	21.249
540	14 - P	Cesarean delivery	21.005
860	23 - M	Rehabilitation	20.490
310	8 - P	Back & neck procedures except dorsal & lumbar fusion	19.456
347	8 - M	Medical back problems	19.177
194	5 - M	Heart failure	18.826
228	6 - P	Inguinal & femoral hernia procedures	18.448
201	5 - M	Cardiac arrhythmia & conduction disorders	18.051
263	7 - P	Laparoscopic cholecystectomy	16.694
173	5 - P	Other vascular procedures	16.073
141	4 - M	Asthma & bronchiolitis	14.277
446	11 - P	Urethral & transurethral procedures	14.137
463	11 - M	Kidney & urinary tract infections	14.060
221	6 - P	Major small & large bowel procedures	13.835
098	3 - P	Other ear, nose, mouth & throat procedures	13.579
053	1 - M	Seizure	13.574
045	1 - M	Cva w infarct	13.056
225	6 - P	Appendectomy	12.868
363	9 - P	Breast procedures except mastectomy	12.102
113	3 - M	Epiglottitis, otitis media, uri & laryngotracheitis	11.956
042	1 - M	Degenerative nervous system disorders	11.341
422	10 - M	Hypovolemia & electrolyte disorders	10.996
314	8 - P	Foot procedures	10.652
420	10 - M	Diabetes	10.477
403	10 - P	Procedures for obesity	10.304
812	21 - M	Poisoning & toxic effects of drugs	10.161
136	4 - M	Respiratory malignancy	10.041
243	6 - M	Other esophageal disorders	10.014
465	11 - M	Urinary stones w/o esw lithotripsy	9.915
057	1 - M	Concussion, unspec intracranial injury, coma <1 hr or no coma	9.887
226	6 - P	Anal & stomal procedures	9.721
190	5 - M	Circulatory disorders w ami	9.709
482	12 - P	Transurethral prostatectomy	9.559
342	8 - M	Fracture or dislocation except femur & pelvis	9.308
241	6 - M	Peptic ulcer & gastritis	9.254
308	8 - P	Hip & femur procedures except major joint for trauma	9.086
514	13 - P	Female reproductive system reconstructive procedures	8.823
227	6 - P	Hernia procedures except inguinal & femoral	8.708
663	16 - M	Red blood cell disorders except sickle cell anemia crisis	8.655
566	14 - M	Other antepartum diagnoses	8.640

APR-DRG	MDC	APR-DRG label	Linked stays
775	20 - M	Alcohol abuse & dependence	8.435
191	5 - M	Cardiac catheterization w circ disord exc ischemic heart disease	8.420
383	9 - M	Cellulitis	8.334
097	3 - P	Tonsillectomy & adenoidectomy procedures	8.307
244	6 - M	Diverticulitis & diverticulosis	8.110
284	7 - M	Disorders of the biliary tract	8.061
364	9 - P	Other skin, subcutaneous tissue & breast procedures	7.624
047	1 - M	Transient ischemia	7.559
317	8 - P	Soft tissue procedures	7.531
240	6 - M	Digestive malignancy	7.440
197	5 - M	Peripheral & other vascular disorders	7.437
204	5 - M	Syncope & collapse	7.385
247	6 - M	G.i. obstruction	7.351
179	5 - P	Vein ligation & stripping	7.301
093	3 - P	Sinus & mastoid procedures	7.261
563	14 - M	Threatened abortion	7.042
384	9 - M	Trauma to the skin, subcutaneous tissue & breast	6.737
137	4 - M	Respiratory infections & inflammations	6.615
757	19 - M	Organic disturbances & mental retardation	6.504
343	8 - M	Musculoskeletal & conn tiss malignancy & pathological fractures	6.442
404	10 - P	Thyroid, parathyroid & thyroglossal procedures	6.269
362	9 - P	Mastectomy procedures	6.151
048	1 - M	Cranial & peripheral nerve disorders	6.090
171	5 - P	Perm cardiac pacemaker implant w/o ami, heart failure or shock	6.085
304	8 - P	Dorsal & lumbar fusion proc except for curvature of back	5.954
073	2 - P	Lens procedures w or w/o vitrectomy	5.941
316	8 - P	Hand & wrist procedures	5.881
301	8 - P	Major joint & limb reattach proc of lower extremity for trauma	5.666
950	0 - P	Extensive procedure unrelated to principal diagnosis	5.628
207	5 - M	Other circulatory system diagnoses	5.609
760	19 - M	Other mental disorders	5.543
115	3 - M	Other ear, nose, mouth & throat diagnoses	5.474
754	19 - M	Depression	5.409
723	18 - M	Viral illness	5.303
282	7 - M	Disorders of pancreas except malignancy	5.227
203	5 - M	Chest pain	5.218
071	2 - P	Intraocular procedures except lens	5.162
720	18 - M	Septicemia	5.136
460	11 - M	Renal failure	5.030
281	7 - M	Malignancy of hepatobiliary system & pancreas	4.983
198	5 - M	Atherosclerosis	4.967
202	5 - M	Angina pectoris	4.965
220	6 - P	Major stomach, esophageal & duodenal procedures	4.953
751	19 - M	Psychoses	4.903
320	8 - P	Other musculoskeletel system & connective tissue procedures	4.891
468	11 - M	Other kidney & urinary tract diagnoses	4.876
174	5 - P	Percutaneous cardiovascular procedures w ami	4.768
861	23 - M	Signs & symptoms	4.562
480	12 - P	Major male pelvic procedures	4.478
054	1 - M	Migraine & other headaches	4.444
318	8 - P	Removal of internal fixation device	4.373
421	10 - M	Nutritional & misc metabolic disorders	4.278
351	8 - M	Other musculoskeletal system & connective tissue diagnoses	4.248
134	4 - M	Pulmonary embolism	4.194
024	1 - P	Extracranial vascular procedures	4.182
121	4 - P	Non-major respiratory procedures	4.160
021	1 - P	Craniotomy except for trauma	4.111
133	4 - M	Pulmonary edema & respiratory failure	4.069
166	5 - P	Coronary bypass w/o malfunctioning coronary bypass w/o cardiac cath	4.063
348	8 - M	Other bone diseases	4.015
280	7 - M	Cirrhosis & alcoholic hepatitis	3.998
111	3 - M	Dysequilibrium	3.918

APR-DRG	MDC	APR-DRG label	Linked stays
813	21 - M	Complications of treatment	3.871
483	12 - P	Testes procedures	3.809
952	0 - P	Nonextensive procedure unrelated to principal diagnosis	3.787
691	17 - M	Lymphoma & non-acute leukemia	3.752
046	1 - M	Nonspecific cva & precerebral occlusion w/o infarct	3.670
350	8 - M	Musculoskeletal signs, symptoms, sprains & minor inflammatory dis	3.650
283	7 - M	Disorders of liver except malig, cirrhosis or alcoholic hepatitis	3.634
092	3 - P	Facial bone procedures except major head & neck	3.469
199	5 - M	Hypertension	3.465
168	5 - P	Major thoracic vascular procedures	3.450
791	21 - P	Procedures for complications of treatment	3.361
341	8 - M	Fracture of pelvis or dislocation of hip	3.353
850	23 - P	Procedure w diagnoses of other contact w health services	3.341
361	9 - P	Skin graft & wound debrid exc for skin ulcer & cellulitis	3.304
385	9 - M	Other skin & breast disorders	3.248
319	8 - P	Local excision of musculoskeletal system	3.183
501	12 - M	Male reproductive system diagnoses except malignancy	3.062
041	1 - M	Nervous system neoplasms	3.054
044	1 - M	Intracranial hemorrhage	3.051
424	10 - M	Other endocrine disorders	3.045
143	4 - M	Pneumothorax & pleural effusion	3.043
346	8 - M	Connective tissue disorders	2.953
443	11 - P	Kidney & urinary tract procedures for nonmalignancy	2.941
114	3 - M	Dental & oral disease	2.834
245	6 - M	Inflammatory bowel disease	2.812
043	1 - M	Multiple sclerosis & cerebellar ataxia	2.784
025	1 - P	Nervous system proc for peripheral nerve disorders	2.737
163	5 - P	Cardiac valve procedures w/o cardiac catheterization	2.727
082	2 - M	Other disorders of the eye	2.695
484	12 - P	Other male reproductive system procedures	2.604
756	19 - M	Acute adjust react & disturbance of psychosocial dysfunction	2.535
165	5 - P	Coronary bypass w/o malfunctioning coronary bypass w cardiac cath	2.521
072	2 - P	Extraocular procedures except orbit	2.433
447	11 - P	Other kidney & urinary tract procedures	2.379
721	18 - M	Postoperative & post-traumatic infections	2.343
544	14 - P	Abortion w d&c, aspiration curettage or hysterotomy	2.320
004	p3 - P	Tracheostomy except for face, mouth & neck diagnoses	2.315
724	18 - M	Other infectious & parasitic diseases	2.130
467	11 - M	Kidney & urinary tract signs & symptoms	2.104
176	5 - P	Cardiac pacemaker & defibrillator device replacement	2.103
309	8 - P	Hip & femur procedures except major joint for nontrauma	2.092
224	6 - P	Peritoneal adhesiolysis	2.076
349	8 - M	Malfunction, reaction & comp of orthopedic device or procedure	2.049
510	13 - P	Pelvic evisceration, radical hysterectectomy & radical vulvectomy	2.032
229	6 - P	Other digestive system procedures	2.029
052	1 - M	Nontraumatic stupor & coma	2.019
110	3 - M	Ear, nose, mouth & throat malignancy	1.990
660	16 - M	Agranulocytosis & other neutropenia	1.984
517	13 - P	D&c & conization	1.981
516	13 - P	Laparoscopy & tubal interruption	1.975
532	13 - M	Menstrual & other female reproductive system disorders	1.894
638	15 - M	Neonate, birthwt > 2499g, not born here, pdx other problem	1.877
094	3 - P	Mouth procedures	1.876
694	17 - M	Other myeloprolif disorders & poorly diff neoplasm diagnosis	1.872
464	11 - M	Urinary stones w esw lithotripsy	1.871
515	13 - P	Vagina, cervix & vulva procedures	1.863
722	18 - M	Fever of unknown origin	1.803
445	11 - P	Minor bladder procedures	1.732
055	1 - M	Head trauma w coma > 1 hr or hemorrhage	1.720
260	7 - P	Pancreas, liver & shunt procedures	1.711
130	4 - M	Respiratory system diagnosis w ventilator support 96+ hours	1.703
306	8 - P	Major joint & limb reattachment procedures of upper extremity	1.688

APR-DRG	MDC	APR-DRG label	Linked stays
442	11 - P	Kidney & urinary tract procedures for malignancy	1.637
120	4 - P	Major respiratory procedures	1.627
223	6 - P	Minor small & large bowel procedures	1.623
664	16 - M	Other disorders of blood & blood forming organs	1.580
661	16 - M	Coagulation disorders	1.542
135	4 - M	Major chest trauma	1.536
026	1 - P	Nervous syst proc for cranial nerv & oth nerv sys disord	1.534
466	11 - M	Malfunctions, reactions & comp of gu device, graft or transplant	1.497
461	11 - M	Kidney & urinary tract malignancy	1.495
380	9 - M	Skin ulcers	1.464
815	21 - M	Other injury, poisoning & toxic effect diagnoses	1.443
637	15 - M	Neonate, bwt > 2499g not born here, pdx other signif condition	1.441
562	14 - M	Ectopic pregnancy	1.417
381	9 - M	Major skin disorders	1.411
382	9 - M	Malignant breast disorders	1.401
755	19 - M	Neuroses except depressive	1.398
690	17 - M	Acute leukemia	1.391
142	4 - M	Interstitial lung disease	1.385
776	20 - M	Other drug abuse & dependence	1.356
530	13 - M	Female reproductive system malignancy	1.308
056	1 - M	Skull fracture & spec intracranial injury, coma <1 hr or no coma	1.298
246	6 - M	G.i. vascular insufficiency	1.289
200	5 - M	Cardiac congenital & valvular disorders	1.282
810	21 - M	Injuries to unspecified or multiple sites	1.282
481	12 - P	Penis procedures	1.268
711	18 - P	Procedures for postoperative & post traumatic infections	1.261
500	12 - M	Malignancy, male reproductive system	1.251
206	5 - M	Malfunction, reaction & comp of cardiac or vasc device or proc	1.231
792	21 - P	Other procedures for injuries	1.206
340	8 - M	Fractures of femur	1.183
023	1 - P	Spinal procedures	1.174
790	21 - P	Skin graft & wound debridement for injuries	1.133
682	17 - P	Myeloprolif disorder & poorly diff neopl w major procedure	1.120
681	17 - P	Lymphoma & leukemia w any other procedure	1.107
196	5 - M	Cardiac arrest, unexplained	1.073
564	14 - M	Abortion w/o d&c, aspiration curettage or hysterotomy	1.054
561	14 - M	Postpartum & post abortion diagnoses w/o procedure	1.046
112	3 - M	Epistaxis	1.045
264	7 - P	Other hepatobiliary & pancreas procedures	1.043
441	11 - P	Major bladder procedures	1.038
096	3 - P	Sialoadenectomy & salivary gland procedures	1.033
771	20 - M	Alcohol & drug dependence w combined rehab & detox therapy	1.022
051	1 - M	Viral meningitis	1.018
180	5 - P	Other circulatory system procedures	984
405	10 - P	Other endocrine, nutritional & metabolic procedures	981
360	9 - P	Skin graft & wound debrid for skin ulcer & cellulitis	963
162	5 - P	Cardiac valve procedures w cardiac catheterization	920
758	19 - M	Childhood mental disorders	920
683	17 - P	Myeloprolif disorder & poorly diff neopl w any other procedure	918
161	5 - P	Cardiac defibrillator implant	905
262	7 - P	Cholecystectomy except laparoscopic	901
770	20 - M	Drug & alcohol abuse or dependence, left against medical advice	895
195	5 - M	Deep vein thrombophlebitis	886
518	13 - P	Other female reproductive system procedures	881
172	5 - P	Amputation for circ system disorder except upper limb & toe	875
531	13 - M	Female reproductive system infections	872
811	21 - M	Allergic reactions	855
692	17 - M	Radiotherapy	851
242	6 - M	Major esophageal disorders	825
565	14 - M	False labor	814
167	5 - P	Other cardiothoracic procedures	797
312	8 - P	Skin grft & wnd debrid exc opn wnd, for ms & conn tis dis, exc hand	782

APR-DRG	MDC	APR-DRG label	Linked stays
512	13 - P	Uterine & adnexa procedures for non-ovarian & non-adnexal malig	778
651	16 - P	Other procedures of blood & blood forming organs	768
753	19 - M	Bipolar disorders	760
261	7 - P	Major biliary tract procedures	750
710	18 - P	Procedures for infectious & parasitic diseases	747
177	5 - P	Cardiac pacemaker & defibrillator revision except device replacement	736
752	19 - M	Disorders of personality & impulse control	733
049	1 - M	Bacterial & tuberculous infections of nervous system	730
169	5 - P	Major abdominal vascular procedures	713
462	11 - M	Nephritis	707
050	1 - M	Non-bacterial infections of nervous system exc viral meningitis	705
020	1 - P	Craniotomy for trauma	689
131	4 - M	Cystic fibrosis	685
840	22 - M	Burns w/o procedure	680
248	6 - M	Major g.i. bacterial infections	674
178	5 - P	Upper limb & toe amputation for circ system disorders	668
022	1 - P	Ventricular shunt procedures	663
003	p2 - P	Bone marrow transplant	651
951	0 - P	Prostatic procedure unrelated to principal diagnosis	635
081	2 - M	Neurological eye disorders	622
122	4 - P	Other respiratory system procedures	613
740	19 - P	Procedure w principal diagnoses of mental illness	608
222	6 - P	Minor stomach, esophageal & duodenal procedures	590
040	1 - M	Spinal disorders & injuries	560
091	3 - P	Other major head & neck procedures	555
138	4 - M	Rsv pneumonia & whooping cough	555
910	25 - P	Craniotomy, spine, hip & major limb proc for multiple sig trauma	555
542	14 - P	Vaginal delivery w proc except sterilization &/or d&c	549
930	25 - M	Head, chest & lower limb diagnoses of multiple significant trauma	528
070	2 - P	Orbital procedures	527
095	3 - P	Cleft lip & palate repair	522
205	5 - M	Cardiomyopathy	521
911	25 - P	Other procedures for multiple significant trauma	510
541	14 - P	Vaginal delivery w sterilization &/or d&c	499
511	13 - P	Uterine & adnexa procedures for ovarian & adnexal malignancy	481
005	p3 - P	Tracheostomy for face, mouth & neck diagnoses	468
680	17 - P	Lymphoma & leukemia w major procedure	467
344	8 - M	Osteomyelitis	461
633	15 - M	Neonate, birthwt > 2499g w major anomaly or hereditary condition	451
423	10 - M	Inborn errors of metabolism	431
401	10 - P	Adrenal & pituitary procedures	427
750	19 - M	Schizophrenia	419
814	21 - M	Child or adult maltreatment syndrome	412
170	5 - P	Permanent cardiac pacemaker implant w ami, heart failure or shock	405
444	11 - P	Create, revise, remove renal access device	386
640	15 - M	Neonate, bwt > 2499g, born here, normal nb & nb w other prob	383
773	20 - M	Opioid abuse & dependence	377
543	14 - P	Postpartum & post abortion diagnoses w procedure	372
345	8 - M	Septic arthritis	361
307	8 - P	Cranial & facial bone reconstructive procedures	348
440	11 - P	Kidney transplant	345
300	8 - P	Bilateral & multiple major joint procs of lower extremity	334
636	15 - M	Neonate, birthwt > 2499g w congenital/perinatal infections	330
090	3 - P	Major larynx & tracheal procedures except tracheostomy	324
614	15 - M	Other neonate, birthwt 1500-1999g	323
080	2 - M	Acute major eye infections	321
759	19 - M	Compulsive nutrition disorders	320
832	22 - P	Nonextensive burns w skin graft	315
893	24 - M	Hiv w significant hiv related diagnosis	293
662	16 - M	Sickle cell anemia crisis	277
580	15 - M	Neonate, transferred <5 days old, not born here	272
402	10 - P	Skin graft & wound debrid for endoc, nutrit & metab disorders	264

APR-DRG	MDC	APR-DRG label	Linked stays
650	16 - P	Splenectomy	257
624	15 - M	Neonate, bwt 2000-2499g not born here	256
639	15 - M	Neonate, birthwt > 2499g, born here, w other signif condition	252
303	8 - P	Dorsal & lumbar fusion proc for curvature of back	251
400	10 - P	Amputat of lower limb for endocrine, nutrit & metabolic disorders	250
956	0 - M	Ungroupable	244
305	8 - P	Amputation for musculoskelet system & conn tissue disorders	229
891	24 - M	Hiv w maj hiv rel diag w mult maj or signif hiv rel diag	214
772	20 - M	Alcohol & drug dependence w rehabilitation therapy	212
634	15 - M	Neonate, birthwt > 2499g w respiratory distress syndrome	211
193	5 - M	Acute & subacute endocarditis	208
001	p1 - P	Liver transplant	203
626	15 - M	Neonate, bwt 2000-2499g, born here, normal nb & nb w other prob	174
632	15 - P	Neonate, birthwt > 2499g w other procedure	162
955	0 - M	Principal diagnosis invalid as discharge diagnosis	159
612	15 - M	Neonate, birthwt 1500-1999g w respiratory distress syndrome	155
603	15 - M	Other neonate, birthwt 1000-1499g	141
894	24 - M	Hiv w/o major or significant hiv related diagnosis	134
160	5 - P	Major cardiothoracic repair of heart anomaly	131
602	15 - M	Neonate, birthwt 1000-1499g w respiratory distress syndrome	128
622	15 - M	Neonate, birthwt 2000-2499g w respiratory distress syndrome	122
774	20 - M	Cocaine abuse & dependence	121
002	p4 - P	Heart &/or lung transplant	115
625	15 - M	Neonate, birthwt 2000-2499g, born here, w other signif condtn	110
593	15 - M	Neonate, birthwt 750g-999g w/o major procedure	104
931	25 - M	Other diagnoses of multiple significant trauma	104
892	24 - M	Hiv w maj hiv rel diag w/o mult maj or signif hiv rel diag	100
611	15 - M	Neonate, birthwt 1500-1999g w major anom or hereditary condition	96
621	15 - M	Neonate, birthwt 2000-2499g w major anom or hereditary condition	91
311	8 - P	Skin graft & wnd debrid for open wnd, ms & conn tiss dis, exc hand	90
132	4 - M	Bpd & oth chronic respiratory dis arising in perinatal period	88
630	15 - P	Neonate, birthwt > 2499g w major cardiovasc procedure	86
631	15 - P	Neonate, birthwt > 2499g w other major procedure	85
613	15 - M	Neonate, birthwt 1500-1999g w congenital or perinatal infections	65
623	15 - M	Neonate, birthwt 2000-2499g w congenital or perinatal infections	65
601	15 - M	Neonate, birthwt 1000-1499g w major anom or hereditary condition	60
830	22 - M	Burns, transferred to another acute care facility	54
635	15 - M	Neonate, birthwt > 2499g w aspiration syndrome	52
833	22 - P	Nonextensive burns w wound debridement & other procedures	47
591	15 - M	Neonate, birthwt <750g w/o major procedure	44
872	24 - P	Hiv w procedure w major hiv related diagnosis	43
873	24 - P	Hiv w procedure w/o major hiv related diagnosis	38
890	24 - M	Hiv w multiple major hiv related infections	38
600	15 - P	Neonate, birthwt 1000-1499g w major procedure	33
620	15 - P	Neonate, birthwt 2000-2499g w major procedure	31
581	15 - M	Neonate, transferred <5 days old, born here	25
610	15 - P	Neonate, birthwt 1500-1999g w major procedure	21
831	22 - P	Extensive burns w procedure	19
592	15 - P	Neonate, birthwt 750g-999g w major procedure	18
590	15 - P	Neonate, birthwt <750g w major procedure	13
871	24 - P	Hiv w proc w multiple major hiv related infections	9
583	15 - P	Neonate, w ecmo	5
870	24 - P	Tracheostomy for hiv infections	3
164	5 - P	Coronary bypass w malfunctioning coronary bypass graft	1

Table 3.2 APR-DRGs without stays in 2005

APR-DRG	Label	SOI
164	Coronary bypass with malfunctioning coronary bypass graft	1
		2
		3
565	False labor	4
581	Neonate, transferred <5 days old, born here	4
582	Neonate, with organ transplant	1
		2
		3
		4
583	Neonate, with ecmo	1
		3
590	Neonate, birthwt <750g with major procedure	1
		2
		3
592	Neonate, birthwt 750g-999g with major procedure	1
		2
600	Neonate, birthwt 1000-1499g with major procedure	1
		2
620	Neonate, birthwt 2000-2499g with major procedure	1
626	Neonate, bwt 2000-2499g, born here, normal newborn & newborn with other problems	4
630	Neonate, birthwt > 2499g with major cardiovasc procedure	1
640	Neonate, bwt > 2499g, born here, normal newborn & newborn with other problems	4
870	Tracheostomy for HIV infections	1
		2
		3
871	HIV with proc with multiple major HIV related infections	1
873	HIV with procedure without major HIV related diagnosis	4
890	HIV with multiple major HIV related infections	1
931	Other diagnoses of multiple significant trauma	1

Table 3.3 Inclusions - exclusions based on type of stay, stays in 2005

Include	Hosptype	Description	Stays
1	03	Verblijf in een chronisch ziekenhuis	16.927
1	04	Volledig chronisch verblijf (Sp) in een acuut ziekenhuis	7.209
1	09	Meer dan 1/2 van de gefactureerde dagen op Sp en niet verbleven op psychiatrie (A,K,T)	10.484
1	13	Niet meer dan 1/2 van de gefactureerde dagen op Sp en niet verbleven op psychiatrie	5.497
1	15	Volledig acuut verblijf	1.534.294
			1.574.411
0	02	Volledig psychiatrisch verblijf (A,K,T), enkel verbleven in een dienst met partiële facturatie	3.914
0	05	Volledig psychiatrisch verblijf (A,K,T) in een acuut ziekenhuis, met verblijf in een dienst met partiële facturatie	27
0	06	Verbleven in een dienst met partiële facturatie (meer dan 1/2 van de gefactureerde dagen op een andere dienst dan A,K,T of Sp)	1
0	07	Meer dan 1/2 van de gefactureerde dagen op psychiatrie en niet op Sp	6.238
0	08	Meer dan 1/2 van de gefactureerde dagen psychiatrie en ook verbleven op Sp	16
0	10	Meer dan 1/2 van de gefactureerde dagen op Sp en ook verbleven op psychiatrie (A,K,T)	66
0	11	Meer dan 1/2 van de gefactureerde dagen niet in Sp en niet op psychiatrie (A,K,T)	18
0	12	Verbleven op A,K,T en niet op Sp (meer dan 1/2 van de gefactureerde dagen op een andere dienst dan A,K,T of Sp)	1.638
0	14	Volledig psychiatrisch verblijf (A,K,T) in een acuut ziekenhuis, zonder verblijf in een dienst met partiële facturatie	33.175
0	17	Meer dan 1/2 van de gefactureerde dagen op A,K,T en uitsluitend verbleven op A,K,T en Sp	99
0	18	Meer dan 1/2 van de gefactureerde dagen op Sp en uitsluitend verbleven op A,K,T en Sp	18
0	19	Meer dan 1/2 van de gefactureerde dagen op A,K,T en Sp samen	25
0	20	Verbleven in een dienst met partiële facturatie (niet volledig psychiatrisch verblijf en niet uitsluitend verbleven op A,K,T en Sp)	8
			45.243

Table 3.4 APR-DRG-SOI with <11 linked stays in 2005

APR-DRG	Label	SOI	Stays 2005
001	Liver transplant	1	1
		2	4
002	Heart &/or lung transplant	1	1
		2	5
054	Migraine & other headaches	4	8
070	Orbital procedures	4	4
071	Intraocular procedures except lens	4	9
072	Extraocular procedures except orbit	4	5
080	Acute major eye infections	4	1
081	Neurological eye disorders	4	7
092	Facial bone procedures except major head & neck	4	8
095	Cleft lip & palate repair	3	4
		4	2
096	Sialoadenectomy & salivary gland procedures	4	2
097	Tonsillectomy & adenoidectomy procedures	4	10
130	Respiratory system diagnosis with ventilator support > 96 hours	1	8
132	Bronchopulmonary & other chronic respiratory disease arising in perinatal period	4	10
160	Major cardiothoracic repair of heart anomaly	1	3
		2	8

APR-DRG	Label	SOI	Stays 2005
164	Coronary bypass with malfunctioning coronary bypass graft	4	1
193	Acute & subacute endocarditis	1	8
303	Dorsal & lumbar fusion proc for curvature of back	4	10
307	Cranial & facial bone reconstructive procedures	4	10
311	Skin graft & wound debrid for open wound, muculo-skeletal & connective tissue disease, except hand	3	2
		4	3
316	Hand & wrist procedures	4	7
363	Breast procedures except mastectomy	4	9
400	Amputat of lower limb for endocrine, nutritional & metabolic disorders	2	8
481	Penis procedures	4	5
483	Testes procedures	4	9
514	Female reproductive system reconstructive procedures	4	9
515	Vagina, cervix & vulva procedures	4	9
532	Menstrual & other female reproductive system disorders	4	7
541	Vaginal delivery with sterilization and/or D&C	4	4
543	Postpartum & post abortion diagnoses with procedure	4	6
544	Abortion with D&C, aspiration curettage or hysterotomy	4	5
562	Ectopic pregnancy	4	6
563	Threatened abortion	4	3
564	Abortion without D&C, aspiration curettage or hysterotomy	4	4
565	False labor	3	7
581	Neonate, transferred <5 days old, born here	1	10
		3	3
583	Neonate, with ECMO	2	3
		4	2
591	Neonate, birthwt <750g without major procedure	1	1
		2	2
		3	7
592	Neonate, birthwt 750g-999g with major procedure	3	1
593	Neonate, birthwt 750g-999g without major procedure	1	1
		2	4
600	Neonate, birthwt 1000-1499g with major procedure	3	1
601	Neonate, birthwt 1000-1499g with major anomaly or hereditary condition	1	1
		2	9
602	Neonate, birthwt 1000-1499g with respiratory distress syndrome	1	8
		2	10
610	Neonate, birthwt 1500-1999g with major procedure	1	1
		2	1
		3	4
613	Neonate, birthwt 1500-1999g with congenital or perinatal infections	4	9
620	Neonate, birthwt 2000-2499g with major procedure	2	4
		3	6
623	Neonate, birthwt 2000-2499g with congenital or perinatal infections	4	5
624	Neonate, bwt 2000-2499g not born here	4	4
625	Neonate, birthwt 2000-2499g, born here, with other significant condtn	4	6
630	Neonate, birthwt > 2499g with major cardiovasc procedure	2	1
631	Neonate, birthwt > 2499g with other major procedure	1	6
632	Neonate, birthwt > 2499g with other procedure	4	9
635	Neonate, birthwt > 2499g with aspiration syndrome	4	8
638	Neonate, birthwt > 2499g, not born here, other problem as primary diagnosis	4	8
662	Sickle cell anemia crisis	4	8
750	Schizophrenia	4	4
752	Disorders of personality & impulse control	4	4
753	Bipolar disorders	4	8
755	Neuroses except depressive	4	4
758	Childhood mental disorders	4	4
770	Drug & alcohol abuse or dependence, left against medical advice	4	4
771	Alcohol & drug dependence with combined rehabilitation & detoxication therapy	4	9
772	Alcohol & drug dependence with rehabilitation therapy	4	3
773	Opioid abuse & dependence	4	8

APR-DRG	Label	SOI	Stays 2005
774	Cocaine abuse & dependence	3	3
		4	3
830	Burns, transferred to another acute care facility	4	9
831	Extensive burns with procedure	1	1
		2	2
		3	2
833	Nonextensive burns with wound debridement & other procedures	3	8
		4	2
870	Tracheostomy for HIV infections	4	3
871	HIV with proc with multiple major HIV related infections	2	2
		3	3
		4	4
872	HIV with procedure with major HIV related diagnosis	1	5
		4	10
873	HIV with procedure without major HIV related diagnosis	3	9
890	HIV with multiple major HIV related infections	2	5
891	HIV with major HIV related diagnosis with multiple major or significant HIV related diag	1	7
892	HIV with major HIV related diagnosis without multiple major or significant HIV related diag	1	4
		4	6
893	HIV with significant HIV related diagnosis	4	4
894	HIV without major or significant HIV related diagnosis	3	8
		4	1
911	Other procedures for multiple significant trauma	1	2
930	Head, chest & lower limb diagnoses of multiple significant trauma	1	5
931	Other diagnoses of multiple significant trauma	4	3

Table 3.5 Day care billing records (DBR): stays per lump sum

Gr 3	Gr 6	Gr 5	Gr 7	Gr 4	Gr 2	Gr 1	Maxi	Stays
1	0	0	0	0	0	0	0	8.634
1	0	0	0	0	0	0	**1**	1.645
1	0	0	0	0	0	0	**2**	175
0	**1**	0	0	0	0	0	**1**	11.443
0	**1**	0	0	0	0	0	0	5.805
0	**1**	0	0	0	0	0	**2**	4
0	0	**1**	0	0	0	0	**1**	17.135
0	0	**1**	0	0	0	0	0	2.649
0	0	**1**	0	0	0	0	**2**	3
0	0	0	**1**	0	0	0	**1**	50.645
0	0	0	**1**	0	0	0	0	29.070
0	0	0	**1**	0	0	0	**2**	20
0	0	0	0	**1**	0	0	0	14.738
0	0	0	0	**1**	0	0	**2**	1.323
0	0	0	0	**1**	0	0	**1**	43
0	0	0	0	0	**1**	0	**1**	67.020
0	0	0	0	0	**1**	0	0	34.886
0	0	0	0	0	**1**	0	**2**	21
0	0	0	0	0	0	**1**	0	35.062
0	0	0	0	0	0	**1**	**1**	4.441
0	0	0	0	0	0	**1**	**2**	147
0	0	0	0	0	0	0	**1**	518.441
0	0	0	0	0	0	0	**2**	246.741
							Subtotal selected :	**1.050.091**
0	0	0	0	0	0	0	0	1.459.500
							All DBD 2005 :	**2.509.591**

APPENDIX 3.1 CONSTRUCTION OF VARIABLES

Appendix 3.1 is an appendix to section 5.3.3 in the main text.

Variables related to hospital characteristics

Hospital identification numbers (NIHDI-recognition number and CIV-number) were recoded by the surveillance physician of KCE. Although there is no longer a legal obligation for this recoding procedure[e], KCE still applies the principle of anonymisation of hospital identity. By eliminating possible researcher bias a maximum of objectivity is ensured. Of course, it is possible that outliers reduce hospital anonymity. However, identification of a corporate body, in casu hospitals, does not cause any direct privacy problems according to Belgian legislation.

Three data fields with respect to hospital identification were created:

- The field <hosp_an>: anonymised hospital identification number as registered in 2005;
- The field <hosp_an_f>: anonymised hospital identification number reflecting merger situation of 2007;
- The dataset contains two (chronic) hospitals that were closed since 2005 (with 389 linked stays). The field <status_f> has two values: "O" (= open) and "C" (=closed).

Table 3.6 contains the variable name, type and description of hospital characteristics which were available in the original database or were constructed. Flag variables have a value equal to 1 if the care program, department, function etc. is present in the concerned hospital and have a value equal to 0 otherwise.

Table 3.6: Hospital characteristics

Variable	Type (field length)	Description / Ranges / values
Hop_an	AN (6)	Anonymised hospital identifier
Arrond	AN (2)	Administrative district (11 – 92)
Type_ZH	AN (1)	Type of hospital - A = acute; C = chronic (Sp of G)
Statute	AN (2)	Pr = private; Pu = public
N_camp	N	Number of hospital campuses ; 1 - 5
Psy_beds	Range	0 / 1-50 / 51-150 / >150
Sp_beds	Range	0 / 1-25 / 26-50 / 51-75 / 76-100 / 101-150 / >150
Ac_non_psy_beds	Range	0 / <150 / 150-250 / 151-250 / 251-500 / 501-750 / >750
All_beds	Range	<150 / 150-250 / 151-250 / 251-500 / 501-750 / >750
N_ct	N	Number of recognized CT-scanners
N_nmr	N	Number of recognized NMR-scanners
N_pet	N	Number of recognized PET-scanners
F_rt	0 / 1	Function radiotherapy
F_dialyse	0 / 1	Function renal dialysis
Zp_cardio_a	0 / 1	Cardiac catheterization type A
Zp_cardio_b	0 / 1	Cardiac catheterization type B
Zp_cardio_b1	0 / 1	Cardiac catheterization type B1
Zp_cardio_c	0 / 1	Care program cardiology C
Zp_cardio_e	0 / 1	Care program cardiology E
Zp_cardio_p	0 / 1	Care program cardiology P

[e] Changes made by Articles 36 and 37 of the Law of December 13, 2006 on the various provisions relating to health in the Royal Decree, October 18, 2001 implementing Article 156, § 3 of the Act of April 29, 1996 containing social provisions.

Variable	Type (field length)	Description / Ranges / values
Zp_cardio_t	0 / 1	Care program cardiology T
Zp_onco	0 / 1	Care program specialized oncology
Zp_Onco_base	0 / 1	Care program basic oncology
F_iz	0 / 1	Function intensive care
F_n°	0 / 1	Neonatology dept. (N)
F_p°	0 / 1	Prenatal care
F_U_opv	0 / 1	First aid emergency care
F_U_sp	0 / 1	Specialized emergency dept.
F_mug	0 / 1	Function MUG
F_genetica	0 / 1	Human genetics
F_bloedbank	0 / 1	Blood bank
F_transpl	0 / 1	Transplantation service
Zp_repro_a	0 / 1	Care program reproductive medicine type A
Zp_repro_b	0 / 1	Care program reproductive medicine type B
F_farmacie	0 / 1	Hospital pharmacy
F_palliat	0 / 1	Palliative care dept.
F_chir_dagz	0 / 1	Surgical 'one day' clinic
F_brw	'0 / 1	Specialized burns dept.

Patient age category

Table 3.7 displays the patient age categories (field <age_cat>). Of course, other classifications into age categories are possible.

Table 3.7 Age categories

Age_cat	Description
1	< 1 year
2	1 to 5 years
3	6 to 15 years
4	16 to 35 years
5	36 to 55 years
6	56 to 69 years
7	70 to 79 years
8	≥ 80 years

Variables related to hospital stays

The constructed variables described in this section are mostly simplifications or aggregations of the coding instructions for the registration of the MCD (case-mix data).

- The field (<typ_adm>): type of admission. This variable allows making a distinction between emergency and non-emergency admissions (Table 3.8). Table 3.9 gives the aggregation of the original codes into the selected types.

Table 3.8: Type of admission

Admission code	Description / label
-	Unknown
B	Born in hospital
D	Day care clinic
E	Emergency admission outside of emergency ward
O	Scheduled
T	Retransfer
U	Emergency department

Table 3.9 Types of admission: aggregation exercise

Admission code	Admission type (MCD-code)	Description / label
-	0	Onbekend
U	1	Spoedopname via dienst 100 of MUG
E	2	Niet-geplande opname –spoedopname
O	3	Gepland
D	4	Vanuit daghospitalisatie
T	5	Terugtransfer
O	6	Plaatsing
B	8	Geboren in dit ziekenhuis
U	A	Opname via spoedgevallendienst zonder betrokkenheid van de dienst 100 of een ambulance.
U	B	Opname via spoedgevallendienst zonder betrokkenheid van de dienst 100 met een ambulance, zonder begeleiding van een MUG
U	C	Opname via spoedgevallendienst met betrokkenheid van de dienst 100 met een ambulance, zonder begeleiding van een MUG
U	D	Opname via spoedgevallendienst met een ambulance en met de begeleiding van de erkende MUG-functie (eventueel associatie) van de ziekenhuiscampus
U	E	Opname via spoedgevallendienst met een ambulance en met de begeleiding van een andere MUG-functie (eventueel associatie) dan die van de ziekenhuiscampus
E	G	Dringende opname zonder passage via de dienst spoedgevallen

- The field <LOS_MKG>: length of stay (LOS). This field is equal to the field <zhduur> in the original MCD-registration and is calculated as the difference between the admission and discharge date. A flag indicates whether the stay belongs to the outlier-LOS group (field <LOS_outl>) in de APR-DRG-SOIf. In addition, a variable for the total number of invoiced days (field <tot_inv_d) is registered. It can be seen from Table 3.10 that both variables (LOS and total number of invoiced days) do not necessarily give the same numbers. Table 3.10 is based on case-mix data for 2004 and 2005 (before linkage to the hospital billing data).

Table 5.3.10: Differences in LOS-registration in 2005 (invoiced days – LOS)

Abs. diff.<zhduur> - <tot_inv_d>	Stays 2004	Stays 2005	2004-2005	Pct of total	
0 days	1 165 735	1 174 874	2 340 609	62.82%	92.67%
1 day	554 983	557 402	1 112 385	29.85%	
2-10 days	127 588	129 280	256 868	6.89%	
11-50 days	6 158	6 406	12 564	0.34%	
51-100 days	690	659	1 349	0.04%	
>100 days	1 231	1 136	2 367	0.06%	
Totals	1 856 385	1 869 757	3 726 142	100.00%	

- Comparing the total number of invoiced days in the case-mix data (field <tot_inv_d>) with the invoiced days in the hospital billing data for the linked stays in 2004 and 2005, gives better results (Table 3.11). In global, the difference in the number of days per hospital stay is smaller and also the number of stays with a difference between both variables is smaller. As such it was decided not to use the field <LOS_MKG> to represent the number of days per stay. Instead the field <tot_inv_d> was used for the LOS.

[f] See reference table 2005 at http://www.riziv.fgov.be/care/nl/hospitals/specific-information/forfaitarisation/xls/outlier2005.xls.

Table 3.11: Differences in LOS-registration in 2004-2005 (invoiced days MCD and HBD)

LOS_diff (days)	Stays	% of total stays
0 d	3 121 184	97.42%
1 d	78 063	0.75%
2 to 10	2 449	0.02%
11 to 19	717	0.02%
20 to 29	480	0.01%
30 to 49	501	0.02%
50 to 99	258	0.01%
≥100	48	0.00%
Grand Total	3 203 700	100%

- For stays which include a partial stay at the intensive care unit and/or a partial stay at a chronic department (Sp-department), two extra fields were created: <LOS_ic> and <LOS_sp>. Both LOS-variables indicate the partial LOS at the intensive care unit and/or the chronic department. A value equal to zero means that there was no partial stay in one or both departments.
- The flag <hosp_death> is based on the fields <type ontslag> and <bestemming> in the MCD-registration. A value equal to zero indicates that the patient died.
- The field <sub_drg>: APR-DRG subgroups for APR-DRGs 302, 313 and 513 in line with the regulation of the reference amounts (see section 3.4.3.3).

NIHDI reimbursements: (groups of) nomenclature codes and lump sums

The starting point for the construction of variables concerning NIHDI reimbursements for hospital activities are the N-groups of the NIHDI. Deviations from this general principle are motivated in the respective subsections of the main text.

Laboratory testing

The financing of laboratory testing was described in section 3.4.3.1. NIHDI expenses for laboratory testing were aggregated in three variables per stay:

- The field <bioacte>: fee- for service expenses;
- The field <biofopn>: expenses for the lump sum per admission;
- The field <biofdag>: expenses for the lump sum per day.

In addition, a flag <F_bionew> was created to indicate whether a day care stay is entitled to a lump sum for laboratory testing, in line with the new national agreement of July 1, 2007 (section 3.4.4.1) (RIZIV omzendbrief 2007/10, bijlage 3 dd 29/06/2007). The field <F_bionew> has a value of 1 for all stays (day care and inpatient) entitled to a lump sum for laboratory testing and a value of 0 otherwise.

Implants

In the NIHDI-nomenclature (articles 27, 35 and 35bis) implants not only refer to implantable devices, synthetic materials and staples or sutures, but also to several disposable devices used in interventions (endoscopic or laparoscopic material and catheter aids) and even extracorporal devices (ortheses and orthopaedic appliances). In Table 3.12 NIHDI-reimbursements for implants in 2004-2005 are given. Reimbursements for implants are grouped in 4 N-groups of the nomenclature (Table 3.13 for a classification of N-groups of the NIHDI).

Table 3.12: N-groups and total NIHDI reimbursements for implants (2004-2005)

N-group	Label	Total NIHDI reimbursements 2004-2005 (in €)
N77	Urinal, enterostomy and tracheal canula	910 344.74
N80	Synthesis material art 35 en 35bis	243 909 488.56
N82	Synthesis material art 28 §1	103 728 668.16
N83	Synthesis material art 28 §8	51 357.47

Table 3.13 N-groups in NIHDI reimbursement nomenclature

N-group	Label-Dutch	Label-French
N00	Toezicht op de in een ziekenhuis opgenomen rechthebbenden	Surveillance des bénéficiaires hospitalisés
N01	Raadplegingen, bezoeken en adviezen van geneesheren	Consultations, visites et avis de medecins
N02	Technische geneesk. Verstrekkingen - gewone verstrekkingen	Prestations techniques médicales - prestations courantes
N04	Tandverzorging	Soins dentaires
N05	Kinesitherapie	Kinesitherapie
N10	Verlossingen - assistentie	Accouchements - aide operatoire
N11	Gynecologie en verloskunde	Gynécologie et obstétrique
N12	Reanimatie	Réanimation
N13	Algemene speciale verstrekkingen	Prestations speciales générales
N14	Anesthesiologie	Anesthésiologie
N15	Aanwezigheid behand.geneesheer bij anesthesiologie - oper. Hulp	Assistance médecin traitant pendant anesthésiologie - aide oper.
N16	Stomatologie	Stomatologie
N18	Oftalmologie	Ophtalmologie
N19	Dringende technische verstrekkingen - artikel 26, §1 en 1 ter	Prestations techniques urgentes - article 26, §1 et 1 ter
N20	Algemene heelkunde	Chirurgie générale
N21	Neurochirurgie	Neurochirurgie
N22	Plastische heelkunde	Chirurgie plastique
N23	Heelkunde op het abdomen	Chirurgie abdominale
N25	Heelkunde op de thorax	Chirurgie thoracique
N26	Heelkunde op de bloedvaten	Chirurgie des vaisseaux
N28	Otorhinolaryngologie	Oto-rhino-laryngologie
N30	Urologie	Urologie
N32	Orthopedie	Orthopédie
N33	Transplantaties	Transplantations
N40	Inwendige geneeskunde	Médecine interne
N41	Pneumologie	Pneumologie
N42	Gastro-entereologie	Gastro-enterologie
N45	Radiotherapie en radiumtherapie	Radiothérapie et radiumthérapie
N46	Nucleaire geneeskunde in vivo	Médecine nucléaire in vivo
N48	Radioisotopen	Radio-isotopes
N50	Rontgendiagnose	Radiodiagnostic
N51	Percutane interventionele verstrekkingen	Prestations interventionnelles percutanees
N54	Kindergeneeskunde	Pédiatrie
N55	Cardiologie	Cardiologie
N56	Neuropsychiatrie	Neuropsychiatrie
N57	Fysiotherapie	Physiothérapie
N59	Dermato-venereologie	Dermato-vénéréologie
N63	Anatomopathologie	Anatomopathologie
N64	Genetische onderzoeken	Examens génétiques
N77	Urinaal, kunstaars en tracheacanule	Urinal, anus artificiel et canule tracheale
N80	Synthesemateriaal art 35 en 35bis	Materiel de synthese art 35 et 35bis
N81	Dialyse	Dialyse

N-group	Label-Dutch	Label-French
N82	Synthesemateriaal art 28 §1	Materiel de syntheseart 28 §1
N83	Synthesemateriaal art 28 §8	Materiel de synthese art 28 §8
N86	Farmaceutische verstrekkingen	Prestations pharmaceutiques
N87	Ziekenhuisverpleging	Hospitalisation

This classification in N-groups does not allow any differentiation according to price class, which may be relevant when deciding upon including or excluding very expensive implants in the all-inclusive case-based reimbursement. Therefore an average price per nomenclature code was calculated based on NIHDI-reimbursements available in the HBD for the period 2004-2005 (Table 3.14). In a next step all implants in the 4 selected N-groups were grouped into 5 price classes based on their percentile distribution. Table 3.15 gives the total amount of NIHDI-reimbursements and units billed for the 5 price classes.

Table 3.14 Average reimbursements for implants 2004-2005

Descriptive statistics for implants	
Min	1.55
P5	11.30
P10	14.98
P25	**55.49**
Median	**243.39**
P75	**622.09**
P90	1 634.27
P95	5 136.75
P99	**11 615.22**
Average	980.51
Max	55 564.34

Price group 1 = <Q1
Price group 2 = Q1 - <Q2
Price group 3 = Q2 - <Q3
Price group 4 = Q3-<P99
Price group 5 = >P99

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	684725	Materiaal voor ventrikelondersteuning gebruikt ingeval van "bridge-to-transplant" : ventrikelondersteuning (bridge-to-transplant)	55 564. 34	5
N80	683701	Volledig gehoortoestel (de te implanteren en niet te implanteren delen) voor een elektrische intracochleaire stimulatie met behulp van multipele elektroden	20 386. 03	5
N80	686302	Overeenkomsten, implanteerbare hartdefibrillatoren + toebehoren	17 579. 78	5
N80	687982	Vervangingsdefibrillator en toebehoren	17 311. 56	5
N80	686921	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - bilateraal systeem Kinetra	12 625. 48	5
N80	686346	Neurochirurgie - Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen (procedure via categorie 5) - bilateraal systeem	12 494. 43	5
N80	685344	Tegemoetkoming in de kosten van contralaterale cochleaire implantaten, met inbegrip van externe microfoon, spraakprocessor en geluidstransmissiesysteem	11 660. 00	5
N80	687002	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - bilateraal systeem Soletra, access review 7438	11 411. 21	4
N80	683465	Endoprothesen : Rechte thoracale aortaprothese : 15 cm of meer en rechte thoracale aortaprothese : kleiner dan 15 cm	9 811. 85	4
N80	683524	Endoprothesen : Drie rechte thoracale aortaprothesen : kleiner dan 15 cm	9 811. 85	4
N80	683546	Endoprothesen : Twee rechte thoracale aortaprothesen : 15 cm of meer	9 811. 85	4
N80	686744	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - vervanging van één IPG Kinetra	9 196. 85	4

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	686405	Neurochirurgie - Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen (procedure via categorie 5) - vervanging van twee IPG's	8 539. 22	4
N80	683502	Endoprothesen : Twee rechte thoracale aortaprothesen : kleiner dan 15 cm	7 849. 48	4
N80	684821	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - nervus vagusstimulator	7 661. 13	4
N80	686906	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - unilateraal systeem Kinetra	7 616. 73	4
N80	686965	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - bilateraal systeem Soletra	7 462. 67	4
N80	688343	Endoprothesen : Eerste rechte thoracale aortaprothese : 15cm of meer	7 229. 78	4
N80	686781	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - vervanging van twee IPG's Soletra	7 093. 43	4
N80	683443	Endoprothesen : Een rechte thoracale aortaprothese : 15 cm of meer	6 868. 29	4
N80	687083	Endoprothesen : bifurcatie-endoprothese met contralaterale poot en iliacale en/of aorta-extensies	6 788. 11	4
N80	687120	Endoprothesen : aorta-uni iliacale endoprothese met of zonder occlusieplug en iliacale en/of aorta-extenties	6 453. 53	4
N80	686324	Neurochirurgie - Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen (procedure via categorie 5) - unilateraal systeem	6 319. 55	4
N80	683723	Verzekeringstegemoetkoming voor het herstel van de spraakprocessor	6 290. 65	4
N80	682662	Prothese op maat (individueel vervaardigd volgens de verschillende dimensies)	6 154. 38	4
N80	683104	Ingeplante neurostimulator	5 982. 38	4
N80	686980	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - unilateraal systeem Soletra, access review 7438	5 962. 24	4
N80	686943	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - unilateraal systeem Soletra	5 488. 38	4
N80	688100	Gebruik van embolisatiemateriaal naar aanleiding van het verrichten van de verstrekking 589116 - 589120 inclusief het materiaal gebruikt tijdens de testprocedure	5 227. 14	4
N80	687061	Endoprothesen : bifurcatie-endoprothese met contralaterale poot	5 211. 39	4
N80	688365	Endoprothesen : Eerste rechte thoracale aortaprothese : kleiner dan 15cm	5 164. 13	4
N80	683163	Programmeerbare implanteerbare elektronisch gestuurde pomp met regelbaar debiet, inclusief de programmeringshulpstukken, bestemd voor intrathecale toediening van morfine of van een morfinomimeticum	5 133. 71	4
N80	683082	Programmeerbare implanteerbare elektronisch gestuurde pomp met regelbaar debiet, inclusief de programmeringshulpstukken, bestemd voor intrathecaal toedienen van een centraal werkend antispasmodicum bij zware resistente spasticiteit en/of zware resistente gegeneraliseerde dystonie	4 988. 49	4
N80	685926	Het geheel van implanteerbaar materiaal , inclusief de sizing balloon, gebruikt tijdens de verstrekking 589455 - 589466 voor de sluiting van een voorkamerseptumdefect of een kamerseptumdefect, verantwoordelijk voor een links-rechts shunt, en aangetoond aan de hand van de verhouding van het pulmonale debiet op het systemische debiet die minimaal 1,5 bedraagt	4 940. 57	4
N80	683480	Endoprothesen : Een rechte thoracale aortaprothese : kleiner dan 15 cm	4 899. 68	4
N80	685941	Het geheel van implanteerbaar materiaal , inclusief de sizing balloon, gebruikt tijdens de verstrekking 589455 - 589466 voor de sluiting van een foramen ovale bij paradoxale embolie	4 883. 48	4
N80	687201	Endoprothesen : rechte thoracale aortaprothese	4 877. 23	4
N80	684541	Eerste implanteerbare hartstimulator, inclusief adaptor	4 813. 08	4
N80	687105	Endoprothesen : aorta-uni iliacale endoprothese met of zonder occlusieplug	4 664. 24	4
N80	689942	Neurostimulatoren bij dysfunctie van de lage urinewegen, artikel 35, categorie 5 : neurostimulator - hernieuwing in geval van end of life of infectie	4 598. 43	4
N80	686243	Neurostimulator bij chronische kritieke niet opereerbare ischemie van de onderste ledematen - implantaten neurochirurgie : ingeplante neurostimulator	4 598. 42	4
N80	686383	Neurochirurgie - Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen (procedure via categorie 5) - vervanging van één IPG	4 595. 59	4
N82	611741	Geïmplanteerde urinaire kunstfincter, samengesteld uit een opblaasbare manchet, een pomp met controlesysteem en een reservoir dat de druk regelt	4 569. 75	4
N80	686825	Neurostimulator bij dysfunctie van de lage urinewegen (procedure via categorie 5) - neurostimulator urinewegen	4 485. 26	4
N80	684386	Vervangingshartstimulator, inclusief adaptor	4 435. 67	4
N80	686766	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - vervanging van één IPG Soletra	3 990. 61	4
N80	684666	Voortijdige hernieuwing van de hartstimulator (artikel 35, § 11, 4° van de nomenclatuur)	3 954. 64	4
N82	612905	Disposable onderdelen van pompsystemen gebruikt ter ondersteuning van de deficiënte hartfunctie.	3 750. 25	4
N80	688380	Endoprothesen : Bijkomende tegemoetkoming voor de tweede rechte thoracale aortaprothese : kleiner dan 15cm	3 098. 48	4

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	687186	Endoprothesen : rechte abdominale aortaprothese	3 041. 67	4
N82	611844	Erectieprothese voorzien van vloeistofreservoir en pomp en geplaatst wegens impotentie ten gevolge van vasculaire of neurologische aandoening.	2 619. 66	4
N80	684740	Hartklep	2 506. 53	4
N82	639240	Prothese buiten maat (individueel aanpasbaar, van uitzonderlijke afmetingen, mega- of microprothese)	2 277. 83	4
N80	685904	Het geheel van implanteerbaar materiaal gebruikt tijdens de verstrekking 589455 - 589466 voor de sluiting van een ductus arteriosus met diameter groter dan of gelijk aan 4 mm. De diameter van het defect dient op een objectiveerbare manier te worden gemeten	2 267. 05	4
N82	639085	Knieprothese, voor het geheel van de samenstellende elementen van de prothese	2 262. 17	4
N83	616346	Multipositiewagentje, met stijve rug anatomisch of uitgehold model, anatomische zit of anatomische zit met laagprofiel en voorgevormde ingebouwde abductieklos, kantelsysteem met gasveren waarmee de helling van de zit minimaal regelbaar is tot 15°, de rug is tevens apart verstelbaar tot min 30°, afneem- of opklapbare armsteunen die samen met de zit verstelbaar zijn, twee opklapbare beensteunen met lengtecorrectie van het onderbeenstuk of met een verstelbare beensteun uit één stuk met lengtecorrectie van het onderbeenstuk en verstelbare hoofdsteun met oorkappen. De voetplaten of voetenplank zijn verstelbaar in de hoogte en hoek. De kuitsteunen zijn regelbaar in de hoogte en in de breedte . De voorwielen hebben een diameter van minimum 170 mm en de achterwielen van minimum 300 mm	2 136. 21	4
N80	688402	Endoprothesen : Bijkomende tegemoetkoming voor de derde rechte thoracale aortaprothese : kleiner dan 15cm	2 065. 65	4
N80	688741	Steel voorzien van een osteotrope bedekkingslaag of een poreuze coating en bestemd om te worden gebruikt bij een reconstructie van het heupbeen	1 888. 46	4
N80	688726	Steel bestemd om te worden gebruikt bij een reconstructie van het heupbeen en te plaatsen zonder cement	1 884. 73	4
N80	685322	Dilatatiemateriaal en stent(s) gebruikt naar aanleiding van de verstrekking 589352 - 589363	1 718. 31	4
N80	731920	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241452 - 241463 via endoscopische weg	1 671. 19	4
N80	684843	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - electrode bij nervus vagusstimulator	1 637. 06	4
N83	616405	Actief wagentje met vast onderstel met een maximum gewicht van 12 kg, voorzien van armsteunen of kledingbeschermers en een opklapbare voetenplank, voetsteunen of beugel. De achterwielen met grijpringen zijn zowel in de hoogte als in de diepte te verstellen. De negatieve inclinatie (camber) van de achterwielen moet instelbaar zijn en de rug moet zowel een negatieve als positieve hoekinstelling hebben. De balhoofden van de zwenkwielen zijn verstelbaar en de voorvorken zijn voorzien van minimaal twee posities voor de zwenkwielen . De rug is neerklapbaar op de zit	1 633. 57	4
N80	687886	Geheel van materiaal voor het verrichten van een percutane coronaire interventie met plaatsing van één of meerdere stent(s) naar aanleiding van de verstrekking 589013 - 589024	1 600. 23	4
N80	732060	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244753 - 244764 via endoscopische weg	1 485. 03	4
N80	699440	Zelfexpandeerbare duodenale stent, per stent	1 445. 95	4
N80	699462	Zelfexpandeerbare colon stent, per stent	1 442. 67	4
N80	699425	Zelfexpandeerbare slokdarmstent in metaal, per stent	1 439. 04	4
N80	687142	Endoprothesen : endoprothese , bedoeld als extensie ter hoogte van de arteria iliaca ter behandeling van een persisterend 'endoleak' op een aorta-endoprothese	1 432. 87	4
N80	689964	Neurostimulatoren bij dysfunctie van de lage urinewegen, artikel 35, categorie 5 : Elektrode - hernieuwing in geval van revisie, infectie of end of life van de stimulator	1 430. 00	4
N80	689765	Arteriële canule met endovasculaire ballonocclusie, ongeacht het aantal samenstellende elementen	1 424. 03	4
N80	688682	Steel voor revisie voorzien van een osteotrope bedekkingslaag of een poreuze coating en gebruikt tijdens de verstrekking 293436 - 293440	1 417. 94	4
N80	688704	Steel bestemd om te worden gebruikt bij een reconstructie van het heupbeen en te plaatsen met cement inclusief de eventuele centralizer	1 396. 32	4
N82	638783	Elleboogprothese	1 381. 53	4
N80	688063	Gebruik van één of meer coronaire dilatatiekatheters voor de verstrekking 589013 - 589024 met of zonder de verstrekking 589035 - 589046, voor het geheel	1 349. 13	4
N80	686840	Neurostimulator bij dysfunctie van de lage urinewegen (procedure via categorie 5) : Ingeplante electrode	1 342. 33	4
N80	687901	Geheel van materiaal voor het verrichten van een percutane coronaire interventie zonder stent naar aanleiding van de verstrekking 589013 - 589024	1 322. 90	4
N82	612883	Dispositief voor tijdelijke ventriculaire assistentie door gebruik van het principe van aortische contrapulsatie.	1 305. 02	4
N80	732001	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244031 - 244042 via endoscopische weg	1 297. 01	4
N80	688660	Steel voor revisie bedoeld om te plaatsen zonder cement en gebruikt tijdens de verstrekking 293436 - 293440	1 284. 28	4

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	686626	Geheel van toestellen gebruikt tijdens de verstrekking 228174 - 228185 uitgevoerd met tubulatie van de maag en gebruik makend van een cervicale anastomose	1 270. 37	4
N80	731404	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243073 - 243084 via endoscopische weg	1 252. 21	4
N80	687562	Disposable cardiotomieset met membraanoxygenator bij extracorporale circulatie, ongeacht het aantal samenstellende elementen, tot de 7e verjaardag	1 233. 98	4
N80	687164	Endoprothesen : Endoprothese, bedoeld als extensie ter hoogte van de abdominale aorta ter behandeling van een persisterend 'endoleak' op een orta-endoprothese	1 232. 35	4
N80	688645	Steel voor revisie en voor plaatsing met cement en gebruikt tijdens de verstrekking 293436 - 293440 inclusief de eventuele centralizer	1 213. 80	4
N80	683200	Implanteerbare pomp met constant debiet, inclusief de hulpstukken, bestemd voor intrathecale toediening van morfine of van een morfinomimeticum	1 196. 46	4
N80	686604	Geheel van toestellen gebruikt tijdens de verstrekking 228174 - 228185 uitgevoerd met tubulatie van de maag en gebruik makend van een thoracale anastomose	1 187. 75	4
N80	686280	Neurostimulator bij chronische kritieke niet opereerbare ischemie van de onderste ledematen - implantaten neurochirurgie : elektrode in geval van negatieve proefstimulatie	1 182. 45	4
N80	686420	Neurochirurgie - Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen (procedure via categorie 5) - vervanging electrode	1 182. 45	4
N80	699300	Zelfexpandeerbare bronchiale of pulmonale metalen stent, per stent	1 136. 11	4
N80	731603	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241054 - 241065 via endoscopische weg	1 133. 56	4
N80	683141	Electrode in geval van negatieve proefstimulatie	1 094. 23	4
N83	615381	Vouwbaar wagentje met dubbele aandrijfhoepel voor hemiplegielijder	1 068. 10	4
N80	685963	Implantaten gebruikt bij het plaatsen van een hoorprothese met beenverankering in het slaapbeen, eerste fixatiepunt , inclusief alle toebehoren en de drilboor	1 044. 64	4
N80	685300	Gebruik van één of meerdere veneuze stents tijdens de verstrekking 589374 - 589385	1 031. 46	4
N80	695262	Humerussteel bestaande uit meerdere delen (3e generatie : met inbegrip van entretoise / rehausseur / exentreerder) voor plaatsing zonder cement al dan niet voorzien van een osteotrope bedekkingslaag	1 030. 37	4
N80	699344	Zelfexpandeerbare biliaire stent , per stent	1 029. 20	4
N80	699381	Zelfexpandeerbare pancreasstent , per stent	1 029. 11	4
N80	689323	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 227253 - 227264	999. 78	4
N80	685705	Eén of meerdere stents geplaatst in de coronaire circulatie tijdens de verstrekking 589013 - 589024	980. 20	4
N82	639026	Condylusprothese met medullaire verankering - kobalt/chroom of titaan	964. 47	4
N80	731743	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243235 - 243246 via endoscopische weg	947. 01	4
N82	612824	Disposable cardiotomieset met membraanoxygenator bij extracorporale circulatie, ongeacht het aantal samenstellende elementen.	946. 71	4
N80	687540	Disposable cardiotomieset met membraanoxygenator bij extracorporale circulatie, ongeacht het aantal samenstellende elementen vanaf de 7e verjaardag	945. 57	4
N80	688763	Steel bestemd om te worden gebruikt bij een heupdysplastie inclusief de eventuele centralizer	945. 39	4
N80	687761	Filter en secretievanger voor verzorging van een tracheostoma na laryngectomie met spraakprothese en gemonteerd in een metalen behuizing (forfait voor basisstuk, filter, kleefmateriaal, secretievanger en behuizing)	937. 81	4
N80	695225	Humerussteel voor revisie gebruikt tijdens de verstrekking 286635 - 286646 of voor reconstructie	937. 35	4
N80	688623	Steel met anatomische vorm en voorzien van een osteotrope bedekkingslaag of een poreuze coating	928. 04	4
N80	688564	Standaard steel voorzien van een osteotrope bedekkingslaag of een poreuze coating	927. 38	4
N80	689426	Cefalische prothese met epifysaire en/of metafysaire verankering	927. 10	4
N82	613863	Iliaca-stent met ballonnetjes voor het plaatsen	926. 39	4
N80	688601	Steel met anatomische vorm bedoeld om te plaatsen zonder cement	921. 92	4
N80	687466	Systeem voor myocardweefselstabilisatie gebruikt tijdens de verstrekkingen 229014 - 229025, 229515 - 229526, 229574 - 229585 en 229633 - 229644, ongeacht het aantal samenstellende elementen	913. 77	4
N80	688542	Standaard steel bedoeld om te plaatsen zonder cement	898. 95	4
N80	731780	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243272 - 243283 via endoscopische weg	898. 90	4
N80	731802	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243272 - 243283 bij open chirurgie	898. 20	4
N80	730866	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 228174 - 228185 via endoscopische weg	897. 69	4
N80	695085	Monobloc humerussteel voor plaatsing met cement	892. 34	4
N80	731964	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243176 - 243180 via endoscopische weg	883. 87	4

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	731662	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244053 - 244064 via endoscopische weg	882. 65	4
N80	686641	Geheel van toestellen gebruikt tijdens de verstrekking 228174 - 228185 uitgevoerd met interpositie van colon	836. 59	4
N80	688203	Gebruik van één of meer dilatatiekatheters voor endoluminale klepplastiek tijdens de verstrekking 589190 - 589201	799. 47	4
N80	731721	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244016 - 244020 via endoscopische weg	798. 06	4
N80	695240	Humerussteel bestaande uit meerdere delen (3e generatie : met inbegrip van entretoise/ rehausseur/ exentreerder) voor plaatsing met cement	797. 15	4
N80	695203	Stantaard humerussteel voorzien van een osteotrope bedekkingslaag of een poreuze coating	786. 42	4
N80	695446	Samenstellende delen van een omgekeerde prothese van Gramont, andere dan de steel	775. 93	4
N80	686464	Coronaire drug eluting stent - procedure via categorie 5 artikel 35	775. 49	4
N82	613826	TEFLON	772. 38	4
N80	685801	Implanteerbare endocardiale single-pass elektrode voor de verstrekking 684530 - 684541 of de verstrekking 684375 - 684386, per elektrode	771. 28	4
N80	688586	Steel met anatomische vorm voor plaatsing met cement inclusief de eventuele centralizer	751. 09	4
N82	613804	DACRON MET COLLAGEEN	749. 38	4
N80	731360	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243051 - 243062 via endoscopische weg	741. 12	4
N80	732421	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227253 - 227264 via endoscopische weg	733. 35	4
N80	689264	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 243110 - 243121 indien deze endoscopisch is uitgevoerd	733. 31	4
N80	695166	Standaard humerussteel voor plaatsing met cement	729. 30	4
N80	732082	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244753 - 244764 bij open chirurgie	712. 47	4
N80	688520	Standaard steel voor plaatsing met cement inclusief de eventuele centralizer	703. 67	4
N80	695181	Stantaard humerussteel bedoeld om te plaatsen zonder cement	700. 12	4
N80	733526	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 243773 - 243784 via endoscopische weg	697. 16	4
N82	613782	DACRON	693. 17	4
N80	732126	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242115 - 242126 bij open chirurgie	682. 69	4
N80	732104	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242115 - 242126 via endoscopische weg	677. 79	4
N80	732561	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227533 - 227544 via endoscopische weg	671. 37	4
N83	520026	Manuele standaardrolstoel	665. 00	4
N83	615602	Lichtgewicht actief wagentje met een gewicht van minder dan 16 kg voorzien van wegklapbare armsteunen of kledingbeschermers, een opklapbare voetenplank voetsteunen of een beugel. De achterwielen met grijpringen zijn zowel in de hoogte als in de diepte te verstellen en de balhoofden van de zwenkwielen zijn verstelbaar	663. 48	4
N83	615226	Vouwbaar wagentje met aandrijfhoepels op de grote achterwielen en twee afneembare of wegklapbare arm- en voetsteunen of afneembare en opklapbare voetenplank. Het gewicht met arm- en voetsteunen en wielen met luchtbanden inbegrepen is maximum 20 kg	657. 56	4
N80	695321	Bipolaire humeruskop	656. 27	4
N80	699403	Zelfexpandeerbare slokdarmstent in kunststof, per stent	655. 84	4
N80	688122	Embolisatiekatheter en -materiaal naar aanleiding van het verrichten van de verstrekking 589131 - 589142	652. 17	4
N80	686265	Neurostimulator bij chronische kritieke niet opereerbare ischemie van de onderste ledematen - implantaten neurochirurgie : ingeplante elektrode en toebehoren voor neurostimulator	646. 41	4
N80	731323	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243036 - 243040 via endoscopische weg	640. 06	4
N83	615182	Vouwbare wandelwagen om voort te duwen met twee afneembare en/of wegklapbare arm- en voetsteunen of afneembare en opklapbare voetenplank. Het gewicht met arm- en voetsteunen en wielen met luchtbanden inbegrepen is maximum 20 kg	638. 35	4
N80	685882	Het geheel van implanteerbaar materiaal gebruikt tijdens de verstrekking 589455 - 589466 voor de sluiting van de verbinding tussen de aorta en de arteria pulmonalis of ductus arteriosus met diameter kleiner dan 4 mm. De diameter van het defect dient op een objectiveerbare manier te worden gemeten	630. 02	4
N80	694783	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 243751 - 243762 via endoscopische weg	626. 67	4
N80	695284	Cefalische prothese	624. 48	4

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N82	611822	Erectieprothese geplaatst wegens impotentie ten gevolge van vasculaire of neurologische aandoening.	619. 70	3
N82	613841	Afzonderlijke iliaca stent	619. 70	3
N80	683126	Ingeplante elektrode en toebehoren voor neurostimulator	619. 67	3
N80	685263	Endovasculaire filter van vena cava, die percutaan wordt geplaatst, inclusief het materiaal gebruikt voor de plaatsing ervan	618. 59	3
N82	612080	Peritoneoveneuze shunt voor ascitesbehandeling	614. 62	3
N82	614460	Weefselexpander, gebruikt als definitieve prothese na totale mammectomie of unilaterale agenesie of ten gevolge van een mutilerende ingreep op een borst	609. 56	3
N80	686523	Geheel van toestellen gebruikt tijdens de verstrekking 244753 - 244764	609. 37	3
N80	687960	Biopsiekatheter naar aanleiding van het verrichten van de verstrekking 476652 - 476663	608. 67	3
N80	732885	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 431351 - 431362 via endoscopische weg	601. 29	3
N80	730785	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 262334 - 262345 bij open chirurgie	596. 20	3
N80	694665	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242292 - 242303 via endoscopische weg	593. 36	3
N80	733541	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242314 - 242325 via endoscopische weg	593. 36	3
N80	694842	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242336 - 242340 via endoscopische weg	593. 16	3
N80	694540	Gebruik van radiofrequente catheters bij endoscopische ablatie van levertumoren	584. 95	3
N80	685764	Implanteerbare endocardiale bipolaire elektrode voor de verstrekking 684530 - 684541 of de verstrekking 684375 - 684386, per elektrode	571. 36	3
N80	685742	Implanteerbare endocardiale unipolaire elektrode voor de verstrekking 684530 - 684541 of de verstrekking 684375 - 684386, per elektrode	571. 08	3
N80	685786	Implanteerbare myocardiale elektrode voor de verstrekking 684530 - 684541 of de verstrekking 684375 - 684386, per elektrode	569. 97	3
N80	732605	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 229574 - 229585 via endoscopische weg, met endoscopisch preleveren van de arteria mammaria	564. 71	3
N80	689441	Niet-modulaire cupula uit één stuk met binnenbekleding voor metaal-op-metaal of keramiek-op-keramiek	564. 34	3
N80	731905	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241452 - 241463 bij open chirurgie	556. 81	3
N83	615344	Vouwbaar wagentje met aandrijfhoepels op de grote achterwielen	552. 59	3
N80	689780	Veneuze drainage met selectieve lediging van arteria pulmonalis en sinus coronarius, ongeacht het aantal samenstellende elementen	546. 07	3
N80	730903	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243110 - 243121 via endoscopische weg	539. 84	3
N80	686545	Geheel van toestellen gebruikt tijdens de verstrekking 228012 - 228023, 241415 - 241426, 241430 - 241441 of 241452 - 241463	526. 74	3
N80	686582	Geheel van toestellen gebruikt tijdens de verstrekking 228174 - 228185 uitgevoerd zonder tubulatie van de maag	526. 74	3
N80	699285	Zelfexpandeerbare bronchiale of pulmonale stent in kunststof, per stent	524. 68	3
N80	686501	Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen - Access Review 7438	513. 26	3
N80	695343	Humeruskop in keramiek	509. 16	3
N82	611505	Multi- of autoprogrammeerbare hydrocefalusklep	507. 04	3
N80	694621	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 261796 - 261800 via endoscopische weg	499. 82	3
N80	687400	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 243036 - 243040	495. 76	3
N80	687422	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 243051 - 243062	495. 76	3
N80	731286	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243014 - 243025 via endoscopische weg	492. 22	3
N82	614445	Weefselexpander, tijdelijk gebruikt na totale mammectomie of unilaterale agenesie of ten gevolge van een mutilerende ingreep op een borst	463. 63	3
N80	694923	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 228115 - 228126 via endoscopische weg	463. 23	3
N80	730844	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 228174 - 228185 bij open chirurgie	462. 64	3
N80	688085	Gebruik van één of meerdere niet-coronaire dilatatiekatheters tijdens de verstrekkingen 589094 - 589105 of 589050 - 589061 met of zonder de verstrekking 589072 - 589083	460. 75	3
N80	686700	Geheel van toestellen gebruikt tijdens een transcolische uitvoering van de verstrekking 243110 - 243121	444. 12	3
N80	686560	Geheel van toestellen gebruikt tijdens de verstrekking 244031 - 244042	444. 12	3

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	733600	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 431373 - 431384 via endoscopische weg	443. 46	3
N80	694761	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 244193 - 244204 via endoscopische weg	442. 75	3
N80	730822	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 261671 - 261682 via endoscopische weg	439. 76	3
N80	730763	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 261634 - 261645 via endoscopische weg	439. 05	3
N80	730800	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 261656 - 261660 via endoscopische weg	437. 43	3
N80	732863	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 431336 - 431340 via endoscopische weg	434. 68	3
N80	732620	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257235 - 257246 via endoscopische weg	418. 10	3
N80	699263	Bronchiale of pulmonale stent in kunststof, per stent	411. 41	3
N80	732023	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244031 - 244042 bij open chirurgie	410. 74	3
N80	685462	Implantaten gebruikt voor de constructie van een beenverankering voor epithese, voor wat betreft de inwendige delen, inclusief alle toebehoren en de drilboor, per verankeringspunt	406. 57	3
N80	688903	Niet-modulaire cupula uit één stuk, met binnendeel vervaardigd uit polyethyleen en metalen buitendeel voorzien van een osteotrope bedekkingslaag of een poreuze coating	404. 07	3
N82	612102	Reservoir voor intraperitoneale catheter voor herhaalde transcutane injecties	398. 53	3
N82	638761	Prothese humeruskop : zeer groot	389. 41	3
N80	731883	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241430 - 241441 bij open chirurgie	388. 24	3
N80	695306	Standaard humeruskop of binnenkopje van bipolaire kop	388. 09	3
N80	731846	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 228012 - 228023 bij open chirurgie	387. 94	3
N80	731824	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 228012 - 228023 via endoscopische weg	386. 11	3
N80	730726	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 260433 - 260444 bij open chirurgie	384. 41	3
N80	688866	Bipolaire kop voor heupsteel	376. 84	3
N80	687046	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 241290 - 241301	375. 95	3
N82	611343	Hydrocefalusklep met twee kamers	373. 27	3
N80	687444	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 243235 - 243246	371. 82	3
N80	689205	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 241614 - 241625	371. 82	3
N80	689242	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 244156 - 244160	371. 82	3
N80	689286	Niet-implanteerbaar endoscopisch gebruiksmateriaal gebruikt tijdens de ingreep 242631 - 242642	371. 82	3
N80	689183	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 241474 - 241485	371. 82	3
N80	689684	Materiaal aangewend naar aanleiding van de verstrekking 473712 - 473723, met inbegrip van een niet-expandeerbare kunststofprothese (uitgezonderd biliaire stent)	371. 36	3
N80	684246	Transvaginaal aangebrachte suburethrale band ter behandeling van stress-incontinentie naar aanleiding van de verstrekking 432751-432762	370. 18	3
N80	731861	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241415 - 241426 bij open chirurgie	369. 84	3
N82	638960	Vingerprothese	367. 32	3
N80	731065	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242631 - 242642 via endoscopische weg	366. 13	3
N80	731345	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243036 - 243040 bij open chirurgie	364. 93	3
N80	731382	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243051 - 243062 bij open chirurgie	364. 34	3
N80	686884	Neurostimulator bij dysfunctie van de lage urinewegen (procedure via categorie 5) - programmer neurostimulator urinewegen	361. 63	3
N80	689301	Endoscopisch gebruiksmateriaal voor het preleveren van de vena saphena magna bij de verstrekkingen 229014 - 229025, 229515 - 229526, 229574 - 229585 en 229611 - 229622	361. 49	3
N80	686685	Gebruik van een toestel tijdens een transanale uitvoering van de verstrekking 243110 - 243121	361. 49	3
N80	688166	Gebruik van één of meer katheters naar aanleiding van het verrichten van de verstrekking 589175 - 589186	359. 43	3

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N82	614482	Weefselexpander, gebruikt na excisie van huidtumoren of littekens, leidend tot belangrijk weefselverlies, of bij reconstructie van congenitale of traumatische afwijkingen	358. 42	3
N82	614423	Borstprothese na totale mammectomie of unilaterale agenesie of wegens sequelen van een mutilerende ingreep op een borst	357. 11	3
N80	687923	Geheel van materiaal nodig voor het meten van een coronaire fraction flow reserve door middel van druk- of flowmeting	349. 04	3
N80	732141	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242690 - 242701 via endoscopische weg	346. 39	3
N82	638746	Prothese humeruskop : klein, middelgroot, groot	338. 21	3
N80	731625	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241054 - 241065 bij open chirurgie	334. 03	3
N80	685506	Implantaten gebruikt voor de gehoekte opbouw (console abutment) van een beenverankering voor epithese, inclusief alle toebehoren en de drilboor, per verankeringspunt	333. 60	3
N80	731426	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243073 - 243084 bij open chirurgie	333. 00	3
N80	684703	Geheel van toestellen gebruikt tijdens de verstrekkingen 227216 - 227220, 227253 - 227264, 227452 - 227463 zonder sectie van de bronchus	330. 50	3
N82	614025	Reservoir met intravasculaire catheter voor herhaalde transcutane injecties	329. 63	3
N80	688844	Kop voor heupsteel voor gebruik met acetabulaire cupula-metaal voor contact met metalen oppervlak	329. 36	3
N80	730881	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243110 - 243121 bij open chirurgie	327. 07	3
N80	687024	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 244775 - 244786	325. 34	3
N80	730601	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242712 - 242723 via endoscopische weg	320. 35	3
N80	730623	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242712 - 242723 bij open chirurgie	317. 02	3
N80	688822	Kop voor heupsteel voor gebruik met acetabulaire cupula - keramiek	317. 01	3
N80	732185	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244554 - 244565 bij open chirurgie	316. 36	3
N80	688984	Buitendeel van een modulaire cupula - voorzien van een osteotrope bedekkingslaag of een poreuze coating	314. 87	3
N80	687282	Geheel van gebruiksmateriaal en implantaten ter fixatie van vena saphena magna aan aorta tijdens de verstrekkingen 229633 - 229644	309. 85	3
N82	637965	Raam	308. 75	3
N80	688225	Gebruik van één of meerdere niet-coronaire dilatatiekatheters tijdens de verstrekking 589374 - 589385	308. 75	3
N80	688181	Extractiemateriaal gebruikt naar aanleiding van de verstrekking 589433 - 589444	307. 82	3
N80	688144	Embolisatiekatheter en -materiaal naar aanleiding van het verrichten van de verstrekking 589411 - 589422	307. 33	3
N82	637980	Plaat	300. 06	3
N80	695365	Glenoid voor schouderprothese - Standaard in polyethyleen	299. 16	3
N82	638245	Samengesteld implantaat (één verankeringsimplantaat (gesteelde of corporeale schroef, stift met schroefdraad, gesteelde of lamaire haak, agrafe,...) met alle stukken voor vasthechten, aanpassing, repositie en blokkering van dit éénverankeringsimplantaat aan het hoofdimplantaat)	295. 79	3
N83	617105	Stijve zit, anatomisch model met laagprofiel en voorgevormde ingebouwde abductieklos, 5 graden geïnclineerd, voorzien van geïntegreerd gelkussen in vormvaste gel met slijtlaag	295. 30	3
N80	731942	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241555 - 241566 bij open chirurgie	294. 93	3
N80	732686	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432670 - 432681 via endoscopische weg	294. 44	3
N80	685985	Implantaten gebruikt bij het plaatsen van een hoorprothesen met beenverankering in het slaapbeen, tweede (slapend) fixatiepunt, inclusief alle toebehoren	294. 36	3
N80	684681	Geheel van toestellen gebruikt tijdens de verstrekkingen 227194 - 227205, 227216 - 227220, 227231 - 227242, 227253 - 227264 gepaard gaande met sectie van de bronchus	294. 36	3
N80	732701	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432736 - 432740 via endoscopische weg	294. 30	3
N80	694945	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 228115 - 228126 bij open chirurgie	292. 80	3
N80	694805	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 243751 - 243762 bij open chirurgie	290. 49	3
N80	694864	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242336 - 242340 bij open chirurgie	290. 49	3
N80	694680	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242292 - 242303 bij open chirurgie	290. 49	3

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	733563	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242314 - 242325 bij open chirurgie	290. 49	3
N80	732045	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244716 - 244720 via endoscopische weg	287. 46	3
N80	694820	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 241091 - 241102 via endoscopische weg	285. 80	3
N80	695402	Buitendeel van een modulaire glenoid voor schouderprothese - standaard	281. 86	3
N80	733585	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 227275 - 227286 bij open chirurgie	280. 41	3
N80	688424	Geheel van endoscopisch instrumentarium en implantaten gebruikt tijdens de verstrekkingen 432655 - 432666, 432670 - 432681 en 431270 - 431281 indien deze laatste langs laparoscopische weg is uitgevoerd	277. 95	3
N80	731220	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241290 - 241301 via endoscopische weg	276. 95	3
N80	686862	Neurostimulator bij dysfunctie van de lage urinewegen (procedure via categorie 5) - extensie bij neurostimulator urinewegen	275. 91	3
N80	688306	Neurostimulatoren bij chronische kritieke niet opereerbare ischemie van de onderste ledematen, artikel 35, categorie 5 : ingeplante elektrode en toebehoren - hernieuwing in geval van end of life	275. 91	3
N80	689986	Neurostimulatoren bij dysfunctie van de lage urinewegen, artikel 35, categorie 5 : extensie - hernieuwing in geval van revisie, infectie of end of life van de stimulator	275. 91	3
N80	732163	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243250 - 243261 via endoscopische weg	274. 72	3
N80	731500	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241614 - 241625 bij open chirurgie	273. 98	3
N80	731581	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244156 - 244160 bij open chirurgie	273. 85	3
N80	731463	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241474 - 241485 bij open chirurgie	273. 49	3
N80	686442	Neurochirurgie - Neurostimulator en toebehoren ingeplant voor de behandeling van onregelmatige bewegingen (procedure via categorie 5) - vervanging extensie	272. 99	3
N80	731441	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241474 - 241485 via endoscopische weg	272. 81	3
N80	731485	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241614 - 241625 via endoscopische weg	272. 69	3
N80	687363	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal - met uitzondering van netje of patch - aangewend tijdens de ingreep 241334 - 241345	272. 67	3
N80	731566	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244156 - 244160 via endoscopische weg	272. 51	3
N80	731021	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242034 - 242045 via endoscopische weg	267. 68	3
N80	732384	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 229574 - 229585 via endoscopische weg, met endoscopisch preleveren van vena saphena magna	266. 08	3
N80	732406	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 229611 - 229622 via endoscopische weg, met endoscopisch preleveren van vena saphena magna	265. 90	3
N80	732362	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 229515 - 229526 via endoscopische weg, met endoscopisch preleveren van vena saphena magna	265. 51	3
N80	732340	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 229014 - 229025 via endoscopische weg, met endoscopisch preleveren van vena saphena magna	265. 04	3
N80	730365	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 246654 - 246665	264. 03	3
N80	688962	Buitendeel van een modulaire cupula - standaard	262. 30	3
N80	688940	Binnendeel van een modulaire cupula- metaal of keramiek voor gebruik met kop in metaal of keramiek	261. 89	3
N80	732524	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 228196 - 228200 via endoscopische weg	259. 97	3
N80	733084	Geheel van materiaal voor het nemen van een leverbiopsie via een transjugulaire katherisatie, gebruikt tijdens de verstrekking 473410 - 473421	258. 21	3
N80	732922	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 229633 - 229644 via endoscopische weg, met endoscopisch preleveren van vena saphena magna	257. 95	3
N82	638002	Synthetisch ligament	257. 44	3
N80	687245	Kruis voor reconstructie met peri-acetabulaire fixatie	256. 31	3
N82	638024	Verbinding tussen hoofdimplantaten (het kan gaan om een transversale of longitudinale verbinding)	253. 81	3
N80	694960	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de	252. 53	3

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
		verstrekking 228130 - 228141 via endoscopische weg		
N80	731124	Geheel van gebruiksmateriaal gebruikt tijdens de verstrekking 473712 - 473723 via endoscopische weg	251. 43	3
N80	687385	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 243014 - 243025	247. 88	3
N80	689662	Materiaal aangewend naar aanleiding van de verstrekking 473690 - 473701 gepaard gaande met een steenextractie	247. 88	3
N80	689146	Niet-implanteerbaar endoscopisch gebruiksmateriaal gebruikt tijdens de ingreep 432073 - 432084 indien deze endoscopisch is uitgevoerd	247. 88	3
N80	687341	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal - met uitzondering van netje of patch - aangewend tijdens de ingreep 241312 - 241323	247. 88	3
N82	637943	Schacht met behandeld oppervlak (b.v. de gezandstraalde schacht of met diamant bewerkte oppervlakken)	246. 01	3
N83	617363	Afneembare of wegklapbare armsteun regelbaar in hoogte, per paar	243. 78	3
N80	732303	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227216 - 227220 zonder sectie van de bronchus, bij open chirurgie	243. 75	3
N80	732266	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227253 - 227264 zonder sectie van de bronchus, bij open chirurgie	243. 39	2
N80	732325	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227452 - 227463 zonder sectie van de bronchus, bij open chirurgie	243. 13	2
N80	688446	Geheel van endoscopisch instrumentarium en implantaten gebruikt tijdens de verstrekkingen 432596 - 432600 en 432633 - 432644	242. 71	2
N80	688461	Geheel van endoscopische instrumentarium gebruikt tijdens de verstrekkingen 432552 - 432563, 432574 - 432585 en 432611 - 432622	242. 71	2
N80	731205	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244775 - 244786 via endoscopische weg	238. 78	2
N83	616066	Aanpassing voor rugverstelling tot 30°, inclusief tussenbuis voor rugversteviging	238. 75	2
N80	730741	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 261752 - 261763 bij open chirurgie	237. 51	2
N80	685624	Tracheotomieklep in combinatie met spraakprothese (forfait voor disposable schijfjes, klep, kleefmateriaal en diafragma)	237. 34	2
N80	731765	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243235 - 243246 bij open chirurgie	234. 54	2
N82	611424	Reservoir met epidurale of intrathecale enkele of dubbele catheter voor herhaalde transcutane injecties	231. 47	2
N82	638864	Prothese voor os lunatum - kobalt/chroom of titaan	227. 22	2
N80	733224	Cysto-enterostomieset of cystogastrostomieset gebruikt tijdens de verstrekking 473911 - 473922	221. 61	2
N80	732200	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227194 - 227205 met sectie van de bronchus, bij open chirurgie	217. 09	2
N80	732222	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227231 - 227242 met sectie van de bronchus, bij open chirurgie	216. 52	2
N80	732281	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227216 - 227220 met sectie van de bronchus, bij open chirurgie	216. 46	2
N80	732244	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227253 - 227264 met sectie van de bronchus, bij open chirurgie	216. 41	2
N82	637420	Plaat met sporen voor osteotomie - kobalt/chroom of titaan	213. 73	2
N82	636521	Intramedullaire vergrendelbare spijkers	212. 84	2
N80	687304	Tijdelijk proximaal afsluitingssysteem voor het maken van een CABG-anastomose op de aorta zonder afklemming gebruikt tijdens de verstrekking 229633 - 229644	206. 57	2
N80	732664	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432655 - 432666 via endoscopische weg	205. 75	2
N80	688925	Binnendeel van een modulaire cupula-polyethyleen	205. 74	2
N80	689463	Acetabulaire steun voor cupula met cement fixatie	205. 21	2
N77	604085	Toerusting voor langdurig gebruik na de opneming in een ziekenhuis tijdens welke de canule is geplaatst : canule van Montgomery	198. 36	2
N82	637081	Plaat met telescopisch gedeelte voor spijker of schroef (al dan niet voor compressie)	195. 36	2
N83	617083	Stijve zit, anatomisch model met laagprofiel en voorgevormde ingebouwde abductieklos, 5 graden geïnclineerd	194. 77	2
N80	687223	Niet-implanteerbaar endoscopisch gebruiksmateriaal aangewend tijdens de ingreep 243353 - 243364	191. 07	2
N80	695424	Binnendeel van een modulaire glenoid voor schouderprothese	189. 09	2
N83	616044	Verstevigd model met zit van meer dan 48 cm breed voor personen die meer dan 95 kg wegen of een heupomtrek van meer dan 130 cm hebben	188. 49	2
N83	617385	Tafeltje in kunststof of hout	188. 49	2
N83	616825	Stijve rug, uitgehold model of anatomisch model bevestigingssysteem inbegrepen	188. 11	2
N82	638724	Glenoïdcomponent voor schouderprothese	187. 12	2

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	689345	Niet-implanteerbaar endoscopisch gebruiksmateriaal gebruikt tijdens de ingreep 261236 - 261240 indien deze endoscopisch is uitgevoerd	185. 91	2
N80	688800	Kop voor heupsteel voor gebruik met acetabulaire cupula-inox of chroom/cobalt	184. 80	2
N80	730682	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 262231 - 262242 via endoscopische weg	183. 89	2
N80	730424	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257036 - 257040 via endoscopische weg	183. 82	2
N80	730446	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257036 - 257040 bij open chirurgie	183. 77	2
N80	730380	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257014 - 257025 via endoscopische weg	183. 63	2
N80	730461	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257073 - 257084 via endoscopische weg	183. 63	2
N80	730402	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257014 - 257025 bij open chirurgie	183. 54	2
N80	730483	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257073 - 257084 bij open chirurgie	183. 27	2
N80	730645	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432073 - 432084 via endoscopische weg	182. 37	2
N80	731102	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 473830 - 473841 via endoscopische weg	181. 95	2
N80	731301	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243014 - 243025 bij open chirurgie	181. 15	2
N80	688785	Kop voor heupsteel en bestemd om te worden gebruikt zonder acetabulaire cupula	180. 05	2
N80	687621	Geheel van het materiaal voor autotransfusie met behulp van een cellsaving-systeem gebruikt bij een majeure neurochirurgische, thoracale, vasculaire, orthopedische of abdominale ingreep met ernstig bloedverlies	179. 70	2
N80	732745	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432633 - 432644 via endoscopische weg	178. 35	2
N80	732723	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432596 - 432600 via endoscopische weg	178. 34	2
N82	611321	Hydrocefalusklep met één kamer	178. 22	2
N80	732782	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432574 - 432585 via endoscopische weg	178. 09	2
N80	732760	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432552 - 432563 via endoscopische weg	178. 02	2
N80	688881	Niet-modulaire cupula vervaardigd uit polyethyleen	178. 01	2
N80	732804	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432611 - 432622 via endoscopische weg	177. 71	2
N80	685484	Implantaten gebruikt voor de standaard opbouw (abutment) van een beenverankering voor epithese, per verankeringspunt	176. 61	2
N80	689220	Niet-implanteerbaar endoscopisch gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de ingreep 242491 - 242502	173. 51	2
N80	732583	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227533 - 227544 bij open chirurgie	167. 38	2
N80	687945	Synthetisch weefsel gebruikt bij tracheale autotransplantatie voor de behandeling van larynxcarcinoom, U 5,3 per cm²	166. 84	2
N82	611800	Testikelprothese	165. 11	2
N80	733121	Gastric button	164. 88	2
N83	616280	Aanpassing van de zithoogte voor volwassenen bij wie de afstand tussen de knieplooi en de hiel korter is dan 35 cm, of voor hemiplegiepatiënten . Bij deze aanpassing moeten de achterwielen een diameter van minimum 550 mm en de voorwielen een diameter van minimum 120 mm hebben	158. 67	2
N80	694724	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 240516 - 240520 via endoscopische weg	157. 25	2
N80	694746	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 240494 - 240505 via endoscopische weg	157. 25	2
N80	695461	Rehausseur voor omgekeerde schouderprothese	154. 92	2
N83	520483	Loophulpmiddel met 3 of 4 wielen	154. 29	2
N82	613620	DACRON MET COLLAGEEN meer dan 12 mm diameter, per 10 cm lengte	152. 55	2
N80	731684	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 244053 - 244064 bij open chirurgie	152. 09	2
N82	612065	Transendoscopische balloncatheter type Fogarty voor galsteenextractie	151. 80	2
N80	689021	Acetubulair toebehoren ter voorkoming van luxatie	151. 65	2
N82	614342	Polytetrafluorethyleen, versterkt met ringen, meer dan 12 mm diameter, per 10 cm lengte	151. 10	2
N83	616943	Stijve zit, anatomisch model	150. 79	2
N82	614320	Polytetrafluorethyleen, versterkt met ringen, tot 12 mm diameter, per 10 cm lengte	150. 51	2
N82	637486	Laminaplaat	150. 49	2

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N82	639063	Patellaprothese	148. 80	2
N80	731706	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241533 - 241544 via endoscopische weg	148. 36	2
N80	730704	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 262371 - 262382 via endoscopische weg	146. 95	2
N82	638120	Schroef (heeft betrekking op de schoeven die specifiek zijn ontworpen voor vertebrale osteosynthesen)	146. 50	2
N83	520461	Loophulpmiddel met 2 vaste steunen en 2 wielen met zit	145. 00	2
N80	687783	Externe filter en kleefmateriaal voor tracheale humidificator met metalen behuizing voorzien in de verstrekking 687735 - 687746 of 687750 - 687761	144. 60	2
N80	731986	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243176 - 243180 bij open chirurgie	144. 36	2
N80	732826	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 261236 - 261240 via endoscopische weg	136. 47	2
N82	611785	Toebehoren voor percutane nefrostomie voor de behandeling van nierstenen	136. 13	2
N82	637464	Spijkerplaat monobloc	134. 12	2
N82	639041	Scheenbeenplateauprothese - kobalt/chroom of titaan	133. 23	2
N80	731640	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243331 - 243342 via endoscopische weg	132. 63	2
N80	694702	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 243611 - 243622 via endoscopische weg	129. 41	2
N80	694643	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 260094 - 260105 via endoscopische weg	129. 36	2
N80	694886	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 243191 - 243202 via endoscopische weg	129. 36	2
N80	694901	Geheel van gebruiksmateriaal en van implanteerbaar materiaal gebruikt tijdens de verstrekking 242373 - 242384 via endoscopische weg	129. 36	2
N80	731544	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242491 - 242502 bij open chirurgie	127. 94	2
N80	731522	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242491 - 242502 via endoscopische weg	127. 74	2
N82	637442	Plaat met sporen voor osteotomie - roestvrij	125. 99	2
N80	689640	Materiaal aangewend naar aanleiding van de verstrekking 473690 - 473701 gepaard gaande met een papillotomie	123. 94	2
N80	689743	Materiaal gebruikt tijdens een gastro-enterologisch onderzoek gepaard gaande met een echo-endoscopie en punctie	123. 94	2
N80	685646	Externe filter voor tracheale humidificator	123. 82	2
N82	612861	Set voor autotransfusie van bloed voor de verstrekkingen 229014-229025, 229051-229062, 229073-229084, 229213-229224, 229272-229283, 229316-229320, 229515-229526, 229530-229541, 229552-229563, 236014-236025, 236036-236040, 236051-236062, 237016-237020, 237031-237042, 237053-237064, 237075-237086, 237156-237160, 242292-242303, 242314-242325, 242336-242340, 242631-242642, 281551-281562, 281573-281584, 281654-281665, 281794-281805, 281971-281982, 282052-282063, 293436-293440, 318054-318065, 318076-318080.	122. 30	2
N82	637501	Platen met speciale vorm voor botuiteinde (b.v. platen met lepel-, klaver-, T- en L-vorm voor tibiale epifyse)	122. 21	2
N80	685602	Spraakprothese voor permanente plaatsing in een tracheoesophagale shunt	121. 82	2
N82	613045	Sonde van het type Fogarty : voor thrombectomie	120. 16	2
N82	613664	Polytetrafluorethyleen meer dan 12 mm diameter, per 10 cm lengte	113. 47	2
N82	613642	Polytetrafluorethyleen tot 12 mm diameter, per 10 cm lengte	111. 02	2
N80	730660	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 261811 - 261822 via endoscopische weg	110. 21	2
N82	612743	Thermodilutiecatheter voor hartdebietmeting met of zonder pacing probe, maximum één per verstrekking	109. 68	2
N82	636904	Intertrochanterkopschroef	105. 68	2
N82	637722	Plaat met meer dan 20 gaten - titaan	105. 54	2
N83	617260	Opklapbare beensteun met lengtecorrectie van het onderbeenstuk, per stuk	104. 35	2
N80	689706	Materiaal aangewend naar aanleiding van de verstrekking 473270 - 473281	103. 28	2
N80	686722	Toestel voor rechte hechting gebruikt voor een linker hemipancreatectomie naar aanleiding van de verstrekking 242056 - 242060	103. 28	2
N80	689161	Geheel van toestellen gebruikt tijdens de verstrekking 242012 - 242023	103. 28	2
N80	688240	Tweewegdraineersonde gebruikt naar aanleiding van de verstrekking 589234 - 589245	103. 23	2
N82	638562	Vast bedrag voor tijdelijk gebruik van het materieel voor uitwendige fixatie	103. 01	2
N82	613944	Weefsel voor angioplastiek : 6 x 6 duim	102. 24	2
N82	611726	Shunt voor hemodialyse (volledig)	100. 34	2
N80	682780	Plooibare of multifocale intra-oculaire lens	100. 17	2
N80	682765	Intra-oculaire lens, in polymethylmethacrylaat, ongecoat en gecoat	100. 16	2

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	732642	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 257235 - 257246 bij open chirurgie	95. 47	2
N82	613605	DACRON MET COLLAGEEN tot 12 mm diameter, per 10 cm lengte	92. 35	2
N82	614003	Getunneliseerde centrale veneuze catheter type Hickman-Broviac voor langdurig gebruik	92. 26	2
N80	731080	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 473690 - 473701 via endoscopische weg	91. 31	2
N83	617120	Verstelbare en afneembare beensteun, per stuk	91. 03	2
N80	731183	Geheel van gebruiksmateriaal gebruikt tijdens een gastro-enterologisch onderzoek gepaard gaande met een echo-endoscopie en punctie	90. 88	2
N80	732546	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227334 - 227345 via endoscopische weg	90. 82	2
N83	616022	Aanpassing voor persoon bij wie een dijbeenamputatie of een amputatie onder de knie beiderzijds is verricht (verplaatsing van de achterwielen volgens het zwaartepunt)	87. 96	2
N82	638142	Haak of agrafe	84. 36	2
N80	686663	Gebruik van een toestel tijdens de verstrekking 244053 - 244064	82. 63	2
N80	733106	Geheel van materiaal voor het plaatsen van een gastrostomiesonde, inclusief de gastrostomiesonde en de eventuele gastro-jejunale sonde, gebruikt tijdens de verstrekking 355950 - 355961	82. 60	2
N83	616840	Regelbaar kussentje, per stuk	81. 68	2
N77	604026	Toerusting voor langdurig gebruik na de opneming in een ziekenhuis tijdens welke de canule is geplaatst : van metaal	79. 90	2
N82	637685	Plaat met 11 tot 20 gaten - titaan	79. 20	2
N80	682522	Combinatie van een visco-elastisch product op basis van hyaluronzuur met een viscositeit lager dan 1.000.000 centipoise met een visco-elastisch product op basis van hyaluronzuur met een viscositeit hoger dan 1.000.000 centipoise of op basis van chondroïtine, met een totaalvolume van 0,8 ml tot en met 1,2 ml, ongeacht de verpakking	78. 07	2
N80	731006	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242034 - 242045 bij open chirurgie	77. 46	2
N80	699366	Pancreasstent in kunststof , per stent	77. 46	2
N82	613686	BIOLOGISCH per 5 cm lengte	77. 31	2
N80	730984	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242012 - 242023 via endoscopische weg	76. 28	2
N80	730962	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242012 - 242023 bij open chirurgie	76. 19	2
N82	613023	Sonde van het type Fogarty : voor embolectomie	76. 16	2
N80	730925	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242056 - 242060 bij open chirurgie	76. 15	2
N80	731146	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 473270 - 473281 via endoscopische weg	76. 09	2
N80	730940	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 242056 - 242060 via endoscopische weg	75. 98	2
N80	699322	Biliaire stent in kunststof, per stent	75. 73	2
N80	682485	Visco-elastische producten op basis van hyaluronzuur met een viscositeit hoger dan 1.000.000 centipoise of op basis van chondroïtine, met een volume groter dan 0,6 ml	75. 22	2
N80	689360	Niet-implanteerbaar endoscopisch gebruiksmateriaal gebruikt tijdens de ingreep 432530 - 432541 indien deze endoscopisch is uitgevoerd	74. 36	2
N82	613583	DACRON meer dan 12 mm diameter, per 10 cm lengte	68. 71	2
N82	611763	Blijvende catheter (type Tenckhoff) met het oog op een chronische peritoneale dialyse	66. 57	2
N82	636344	Plaat met gaten voor compressie : 12 gaten en meer - kobalt/chroom of titaan.	64. 42	2
N80	682441	Visco-elastische producten op basis van hyaluronzuur met een viscositeit lager dan of gelijk aan 1.000.000 centipoise, met een volume groter dan 0,6 ml	63. 43	2
N80	682500	Combinatie van een visco-elastisch product op basis van hyaluronzuur met een viscositeit lager dan 1.000.000 centipoise met een visco-elastisch product op basis van hyaluronzuur met een viscositeit hoger dan 1.000.000 centipoise of op basis van chondroïtine, met een totaalvolume kleiner dan 0,8 ml, ongeacht de verpakking	63. 42	2
N82	637921	Schacht met glad oppervlak. (Electrolytisch polijsten. Het snijden van schroefdraad of inkepen wordt niet beschouwd als een behandeling van het oppervlak)	62. 48	2
N82	612345	Tijdelijk gebruik van een elektrodecatheter, intracavitair of in de slokdarm, voor elektrosystolisch stimuleren van het hart	61. 79	2
N80	687525	Elektrodekatheter(s), intracavitair of in de slokdarm, voor tijdelijk elektrosystolisch stimuleren van het hart	61. 57	2
N82	613561	DACRON tot 12 mm diameter, per 10 cm lengte	58. 87	2
N83	617326	Afneembare of wegklapbare armsteunen, per paar	57. 59	2
N82	636823	Schroef voor elleboogpunt	57. 56	2

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	687584	Disposable drainagesysteem van de thorax (pericard, pleura, mediastinum) met minstens drie kamers per stuk	56. 37	2
N82	612706	Disposable drainagesysteem van de thorax (pericard, pleura, mediastinum) met drievoudige kamer	55. 92	2
N82	637700	Plaat met meer dan 20 gaten - roestvrij staal	55. 77	2
N82	636300	Plaat met gaten voor compressie : 9 tot 11 gaten - kobalt/chroom of titaan	55. 62	2
N82	637302	Spijker of schroef voor plaat met telescopisch gedeelte (inbegrepen fixatieschroef)	55. 36	1
N80	732841	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432530 - 432541 via endoscopische weg	54. 58	1
N82	613760	Teflon vilt : Dikte 1/8 : 10 x 10 cm	54. 27	1
N82	638886	Gewrichtsprothese in silicone voor geneeskundig gebruik	54. 26	1
N82	613922	Weefsel voor angioplastiek : 4 x 4 duim	54. 21	1
N80	682463	Visco-elastische producten op basis van hyaluronzuur met een viscositeit hoger dan 1.000.000 centipoise of op basis van chondroïtine, met een volume kleiner dan of gelijk aan 0,6 ml	53. 40	1
N82	637825	Plaat voor bekken	51. 41	1
N82	611402	Proximale of distale draineercatheter	51. 20	1
N82	636366	Plaat met gaten voor compressie : 12 gaten en meer - roestvrij.	51. 08	1
N82	637641	Plaat tot 10 gaten - titaan	50. 09	1
N80	694061	Geheel van gebruiksmateriaal bij de ingreep : 246654 - 246665	49. 99	1
N80	694466	Geheel van gebruiksmateriaal bij de ingreep 227533 - 227544	49. 99	1
N82	636484	Intramedullaire spijker voor femur	49. 37	1
N82	637221	Intertrochanterspijker - kobalt/chroom of titaan	47. 51	1
N82	636683	Bout voor femurcondylus en scheenbeenplateau - kobalt/chroom of titaan	46. 31	1
N80	682426	Visco-elastische producten op basis van hyaluronzuur met een viscositeit lager dan of gelijk aan 1.000.000 centipoise, met een volume kleiner dan of gelijk aan 0,6 ml	43. 91	1
N82	636263	Plaat met gaten voor compressie : 5 tot 8 gaten - kobalt/chroom of titaan	41. 21	1
N82	636543	Schroef voor vergrendeling, maximum vier per spijker	40. 86	1
N82	636322	Plaat met gaten voor compressie : 9 tot 11 gaten - roestvrij.	40. 32	1
N82	637663	Plaat met 11 tot 20 gaten - roestvrij staal	40. 25	1
N80	694201	Geheel van gebruiksmateriaal bij de ingreep 262334 - 262645	39. 97	1
N80	694400	Geheel van gebruiksmateriaal bij de ingreep 244554 - 244565	39. 97	1
N82	636506	Intramedullaire spijker voor tibia	39. 18	1
N77	604041	Toerusting voor langdurig gebruik na de opneming in een ziekenhuis tijdens welke de canule is geplaatst : van kunststof	37. 91	1
N80	694260	Geheel van gebruiksmateriaal bij de volgende ingrepen : 241452 - 241463, 241555 - 241566, 243176 - 243180, 244031 - 244042, 244053 - 244064, 244716 - 244720, 244753 - 244764	37. 88	1
N80	694481	Geheel van gebruiksmateriaal bij de ingreep 228174 - 228185	37. 50	1
N80	694363	Geheel van gebruiksmateriaal bij de ingreep 243073 - 243084	37. 19	1
N82	612765	Ultrafijn chirurgisch membraan in geëxpandeerd polytetrafluorethyleen, per 10 cm²	35. 99	1
N80	689006	Schroef of spike gebruikt bij het plaatsen van een acetabulaire cupula - maximum vijf stuks, per stuk	34. 17	1
N82	637265	Intertrochanterschroef - kobalt/chroom of titaan	34. 03	1
N82	611085	Implant van Garrique, kegelvormig, nieuw model, grote as 21 mm (volwassene)	34. 02	1
N80	689065	Cement - met of zonder antibiotica - gebruikt bij het plaatsen van een gewrichtsprothese - per 20 g	33. 76	1
N82	613745	Teflon vilt : Dikte 1/16 : 10 x 10 cm	32. 75	1
N80	694282	Geheel van gebruiksmateriaal bij de volgende ingrepen : 241533 - 241544, 244016 - 244020	31. 30	1
N80	694120	Geheel van gebruiksmateriaal bij de volgende ingrepen : 260433 - 260444 en 261752 - 261763	31. 30	1
N82	636845	Schroef met moerplaatjes voor femurcondylus of scheenbeenplateau	31. 28	1
N77	604063	Toerusting voor langdurig gebruik na de opneming in een ziekenhuis tijdens welke de canule is geplaatst : pediatrische canule	31. 12	1
N82	637243	Intertrochanterspijker - roestvrij	30. 98	1
N82	638341	Carpale scaphoïde schroef	30. 95	1
N82	638525	Haakje	30. 83	1
N80	689043	Cerclagemateriaal ter behandeling van een heupfractuur per fixatiepunt	29. 99	1
N80	694341	Geheel van gebruiksmateriaal bij de ingreep 242690 - 242701	29. 96	1
N80	694142	Geheel van gebruiksmateriaal bij de ingreep 261634 - 261645	29. 96	1
N82	636285	Plaat met gaten voor compressie : 5 tot 8 gaten - roestvrij	29. 44	1
N82	611520	Haak in teflon	28. 77	1
N82	638326	Coracoclaviculaire schroef	28. 73	1
N82	636226	Plaat met gaten voor compressie : 2 tot 4 gaten - kobalt/chroom of titaan	27. 89	1

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N82	637626	Plaat tot 10 gaten - roestvrij staal	27. 81	I
N80	731264	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241334 - 241345 via endoscopische weg	27. 26	I
N83	617142	Afneembare en wegklapbare voetsteun, per stuk	26. 65	I
N82	636624	Intertrochanterdraadstift	26. 16	I
N83	617525	Veiligheidsgordel of bekkenriem	26. 09	I
N82	611100	Implant van Garrique, kegelvormig, nieuw model, grote as 10 mm (kind en vrouw)	26. 03	I
N80	694186	Geheel van gebruiksmateriaal bij de ingreep 262231 - 262242	25. 00	I
N80	694385	Geheel van gebruiksmateriaal bij de ingreep 243250 - 243261	25. 00	I
N80	694525	Geheel van gebruiksmateriaal bij de volgende ingrepen : 229574 - 229585, 257235 - 257246	25. 00	I
N80	694105	Geheel van gebruiksmateriaal bij de volgende ingrepen : 257014 - 257025, 257036 - 257040, 257073 - 257084	25. 00	I
N82	611063	Implant : nieuw model, grote as : 15, 17 of 20 mm	24. 79	I
N80	731242	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 241312 - 241323 via endoscopische weg	24. 78	I
N82	636101	Plaat met ronde gaten : 10 gaten en meer - kobalt/chroom of titaan	24. 73	I
N80	687260	Elektrodekatheter(s), epicardiaal voor tijdelijk postoperatief elektrosystolisch stimuleren van het hart	22. 78	I
N82	637280	Intertrochanterschroef - roestvrij	21. 78	I
N82	639321	Acrylcement voor fixeren van prothesen met uitzondering van de heupprothesen en van de schouderprothesen	21. 66	I
N82	636462	Intramedullaire spijker voor radius/cubitus	21. 44	I
N82	636720	Epifysebout voor scheenbeenplateau - kobalt/chroom of titaan	20. 66	I
N80	733062	Materiaal voor percutane leverbiopsie gebruikt tijdens de verstrekking 355751 - 355762	20. 66	I
N80	687820	Obturator gebruikt bij het plaatsen van een femorale steel	20. 65	I
N80	733143	Vervanggastrostomiesonde	20. 62	I
N82	637523	Platen voor kleine fragmenten (b.v. kleine Y-platen)	20. 61	I
N82	636123	Plaat met ronde gaten : 10 gaten en meer - roestvrij	20. 58	I
N82	636241	Plaat met gaten voor compressie : 2 tot 4 gaten - roestvrij	20. 49	I
N80	694223	Geheel van gebruiksmateriaal bij de ingreep 262371 - 262382	20. 25	I
N82	636440	Intramedullaire spijker voor humerus	20. 16	I
N82	636860	Epifyseschroef voor malleolus - kobalt/chroom of titaan	20. 05	I
N80	731043	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 243353 - 243364 via endoscopische weg	19. 11	I
N80	694245	Geheel van gebruiksmateriaal bij de volgende ingrepen : 241054 - 241065, 243331 - 243342	18. 80	I
N82	636064	Plaat met ronde gaten : 6 tot 9 gaten - kobalt/chroom of titaan	18. 43	I
N80	694304	Geheel van gebruiksmateriaal bij de volgende ingrepen : 242071 - 242082, 242410 - 242421, 243235 - 243246, 243272 - 243283	17. 94	I
N80	694584	Geheel van gebruiksmateriaal bij de volgende ingrepen : 431336 - 431340, 431351 - 431362	17. 46	I
N82	638621	Stift voor uitwendige of inwendige fixatie, diameter 3 mm of groter	16. 83	I
N80	682404	Visco-elastische producten op basis van cellulosederivaten	16. 70	I
N82	636705	Bout voor femurcondylus en scheenbeenplateau - roestvrij	16. 37	I
N82	636425	Intramedullaire spijker voor sleutelbeen	16. 36	I
N80	683421	Synthetisch weefsel van dura mater voor gebruik tijdens een neurochirurgische ingreep, U 5,3 per cm^2	16. 27	I
N82	611365	Stop voor trepaanopening	15. 49	I
N82	636020	Plaat met ronde gaten : 2 tot 5 gaten - kobalt/chroom of titaan	15. 49	I
N82	636086	Plaat met ronde gaten : 6 tot 9 gaten - roestvrij	15. 47	I
N83	617341	Remverlengers, per paar	15. 27	I
N80	730284	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 294755 - 294766	15. 02	I
N80	730343	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 246595 - 246606	15. 00	I
N80	694444	Geheel van gebruiksmateriaal bij de ingreep 227334 - 227345	14. 98	I
N80	730026	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 283194 - 283205	14. 98	I
N80	730181	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 287114 - 287125	14. 98	I
N80	730041	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 283231 - 283242	14. 98	I
N80	730203	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 300370 - 300381	14. 98	I

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N80	730166	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 287092 - 287103	14. 98	I
N80	730240	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 294114 - 294125	14. 98	I
N80	730225	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 294092 - 294103	14. 98	I
N80	730306	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 300296 - 300300	14. 98	I
N80	730085	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 284336 - 284340	14. 98	I
N80	694024	Geheel van gebruiksmateriaal bij de volgende ingrepen : 283194 - 283205, 283231 - 283242, 283312 - 283323, 284336 - 284340, 284351 - 284362, 287011 - 287022, 287033 - 287044, 287092 - 287103, 287114 - 287125, 294092 - 294103, 294114 - 294125, 294733 - 294744, 294755 - 294766, 300296 - 300300, 300311 - 300322, 300370 - 300381	14. 98	I
N80	694164	Geheel van gebruiksmateriaal bij de ingreep 261811 - 261822	14. 98	I
N80	730063	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 283312 - 283323	14. 98	I
N80	730262	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 294733 - 294744	14. 98	I
N80	730122	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 287011 - 287022	14. 98	I
N80	730321	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 300311 - 300322	14. 98	I
N80	694046	Geheel van gebruiksmateriaal bij de ingreep : 246595 - 246606	14. 97	I
N80	730144	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 287033 - 287044	14. 97	I
N82	613723	Teflon vilt : Dikte 1/16 : 7,5 x 7,5 cm	14. 75	I
N80	730100	Geheel van gebruiksmateriaal gebruikt tijdens de arthroscopische ingreep 284351 - 284362	14. 74	I
N82	611542	Zuiger in teflon	14. 45	I
N82	637781	Schroef van titaan	13. 14	I
N80	694422	Geheel van gebruiksmateriaal bij de volgende ingrepen : 226936 - 226940, 226973 - 226984, 226995 - 227006, 227054 - 227065	12. 50	I
N80	694562	Geheel van gebruiksmateriaal bij de volgende ingreep : 238195 - 238206	12. 50	I
N80	731161	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 473771 - 473782 via endoscopische weg	12. 39	I
N80	689721	Materiaal aangewend naar aanleiding van de verstrekking 473771 - 473782 gepaard met of zonder het plaatsen van een clip	12. 39	I
N80	733165	Naald voor het injecteren van scleroserende agentia gebruikt tijdens één van de verstrekkingen 472555 - 472566, 472570 - 472581, 473211 - 473222, 473270 - 473281, 473675 - 473686, 473756 - 473760 of 473771 - 473782	11. 69	I
N80	730564	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 255872 - 255883	11. 47	I
N80	730520	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 255651 - 255662	11. 47	I
N80	694083	Geheel van gebruiksmateriaal bij de volgende ingrepen : 255592 - 255603, 255651 - 255662, 255673 - 255684, 255872 - 255883, 255894 - 255905	11. 47	I
N80	730505	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 255592 - 255603	11. 47	I
N80	730542	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 255673 - 255684	11. 47	I
N80	730586	Geheel van medische hulpmiddelen gebruikt tijdens de verstrekking 255894 - 255905	11. 47	I
N82	636042	Plaat met ronde gaten : 2 tot 5 gaten - roestvrij.	11. 35	I
N80	732900	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 432692 - 432703 via endoscopische weg	10. 85	I
N83	617201	Hielsteun, per stuk	10. 27	I
N82	637744	Meshes van titaan per 10 gaten	9. 82	I
N80	732465	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 226973 - 226984 bij open chirurgie	9. 41	I
N80	732480	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 226995 - 227006 bij open chirurgie	9. 26	I
N80	732502	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 227054 - 227065 bij open chirurgie	9. 23	I
N80	694503	Geheel van gebruiksmateriaal bij de ingreep 228196 - 228200	8. 99	I
N82	638186	Dubbele ring	8. 17	I
N80	694326	Geheel van gebruiksmateriaal bij de ingreep 242115 - 242126	7. 54	I
N82	611041	Gewone implant van Bruneau-Charpentier	7. 23	I

N-group	NIHDI code	Label-Dutch	Avg_reim	Price group
N82	638400	Schroef met schuine groef - kobalt/chroom of titaan	7. 22	I
N80	732443	Geheel van gebruiksmateriaal en implanteerbaar materiaal gebruikt tijdens de verstrekking 226936 - 226940 via endoscopische weg	5. 87	I
N82	611144	Oliva in acryl voor de enucleatieholte, 14, 16 of 18 mm, grote as	5. 16	I
N82	636742	Epifysebout voor scheenbeenplateau - roestvrij	5. 16	I
N82	638363	Gewone draadschroef, zelftappende schroef - kobalt/chroom of titaan	5. 16	I
N82	636882	Epifyseschroef voor malleolus - roestvrij	5. 13	I
N82	637766	Schroef van roestvrij staal	5. 01	I
N80	694606	Geheel van gebruiksmateriaal bij de ingreep : 432692 - 432703	4. 96	I
N82	638643	Stift voor uitwendige of inwendige fixatie, diameter kleiner dan 3 mm	4. 69	I
N80	733202	Sonde voor het meten van de zuurtegraad, gebruikt tijdens de verstrekking 473594 - 473605	4. 65	I
N77	641480	Forfaitair dagbedrag voor een ileostomiepatiënt	3. 27	I
N77	641502	Forfaitair dagbedrag voor een ureterostomiepatiënt	3. 26	I
N77	641465	Forfaitair dagbedrag voor een colostomiepatiënt	3. 26	I
N82	638422	Schroef met schuine groef - roestvrij	3. 10	I
N82	638385	Gewone draadschroef, zelftappende schroef - roestvrij	3. 10	I
N82	638164	Enkele ring	3. 08	I
N77	641524	Forfaitair dagbedrag in geval van incontinentie voor de produkten bedoeld door de verstrekkingen 640010, 640032, 640054, 640113 of 640150	2. 10	I
N80	733025	Lus voor het endoscopisch verwijderen van poliepen of nodulaire letsels in de gastro-intestinale tractus, gebruikt tijdens één van de verstrekkingen 473130 - 473141, 473174 - 473185, 473211 - 473222, 473756 - 473760, 473793 - 473804 of 472570 - 472581	2. 07	I
N82	612382	Implanteerbaar netje voor herstel van breuk of eventratie, per 10 cm²	2. 04	I
N80	733246	Cytologieborstel gebruikt tijdens één van de verstrekkingen 472356 - 472360, 473056 - 473060, 473734 - 473745, 473093 - 473104, 473690 - 473701 of 473712 - 473723	1. 55	I
N80	733261	Cytologieborstel gebruikt tijdens één van de verstrekkingen 471715 - 471726 of 471730 - 471741	1. 55	I
N80	733040	Tang voor het endoscopisch nemen van een biopsie in de gastro-intestinale tractus gebruikt tijdens één van de verstrekkingen 472356 - 472360, 472415 - 472426, 472452 - 472463, 472555 - 472566, 472570 - 472581, 473056 - 473060, 473093 - 473104, 473130 - 473141, 473174 - 473185, 473211 - 473222, 473432 - 473443, 473756 - 473760 of 473793 - 473804	1. 55	I

Table 3.15: Classification of implants by average reimbursement (2004-2005)

Implant group	NIHDI reimbursements 2004-2005 (in €)	Units billed
Gr 1 (<Q1)	25 039 410	3 671 750
Gr 2 (Q1 - <Q2)	67 613 776	523 282
Gr 3 (Q2 - <Q3)	134 562 380	386 350
Gr 4 (Q3-<P99)	417 574 895	247 156
Gr 5 (>P99)	24 503 479	1 306
Total	669 293 939	4 829 842

The fifth price class contains the extremely expensive implants as defined by the 99th percentile and given in Table 3.16. Although the 99th percentile is frequently chosen as a cut-off value for extremely expensive implants it remains an ad hoc choice. Sensitivity analysis implementing other thresholds could be conducted.

Table 3.16: P99 implant codes

NIHDI code	Label	Average unit reimbursement (in €)
684725	Ventricle assist device for "bridge-to-transplant"	55 564.34
683701	Complete audio implant for intracochlear electrical stimulation with multiple electrodes	20 386.03
686302	Implantable heart defibrillator + accessories	17 579.78
687982	Heart defibrillator replacement + accessories	17 311.56
686921	Neurostimulator - bilateral system Kinetra	12 625.48
686346	Neurostimulator - bilateral system Kinetra	12 494.43
685344	Contra lateral cochlear implants, incl. external microphone, speech processor and sound transmission system	11 660.00

Pharmaceutical specialties

On July 1, 2006 a prospective budget for pharmaceuticals administered to patients hospitalized in an acute hospital was introduced (section 3.4.3.2). The following adjustments were entered into the data of 2005 to be coherent with the current legislation and regulation. The HBD of 2005 contains the CNK-code[g] and the pseudo-codes[h] for the prophylactic use of antibiotics in surgical interventions. Not the antibiotic is registered but the nomenclature code of the relative surgical intervention (Abolished since July 1, 2006 with the introduction of a prospective budget for pharmaceuticals).

The expenses of all reimbursed pharmaceuticals are divided into 3 groups:

- Expenses for the group prophylactic use of antibiotics (field <farmprof>);
- Expenses for pharmaceutical specialties eligible for the lump sum financing since July 1, 2006 (limitative list as of July 1, 2008) (field <farminf>);
- Expenses for all other reimbursed pharmaceutical specialties (field <farmexf>).

Expenses in each group represent 100% reimbursement.

Blood-plasma-radioisotopes etc.

Reimbursements for blood, plasma, radioisotopes etc. are grouped in 2 N-codes of the NIHDI nomenclature. Group N86 exclusively contains pharmaceutical products other than pharmaceutical specialties. These products do not enter the lump sum introduced in 2006.

N-groups for reimbursements of blood & derivates, radio-isotopes

N-group	Label	NIHDI reimbursements 2005 (in €)
N48	Radio-isotopes	12 250 612
N86	Pharmaceutical products	60 094 335

Medical imaging

The financing of medical imaging was described in section 3.4.3.1. NIHDI expenses for medical imaging were aggregated in five variables per stay:

- The field <N50other>: fee- for service expenses, except for angiography;
- The field <N50angio>: fee- for service expenses for angiography. Expenses for angiography are aggregated in a separate group since, in analogy with their exclusion from the original system of reference amounts, for some APR-DRGs they may entail a large variation in expenses;
- The field <N50fopn>: expenses for the lump sum per admission;
- The field < N50consu>: expenses for the lump sum consultancy fee;
- The field <N50fpres>: expenses for the lump sum per prescription and per day for ambulatory medical imaging.

Other fees not included in the hospital budget

As a general principle all other expenses are aggregated in accordance with the N-codes. Before aggregation some specific expenses were extracted from the N-codes:

- The lumps sums for the medical permanent guard duty (field <N00perm> are extracted from the N-group N00. Consequently the remaining codes in N00 refer to surveillance fees and consultations at the bedside (field <N00toez>);

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g Code National in French, Nationale Kode in Dutch. A CNK-code consists of 7 digits and is a unique identification number for each packaging of a drug in Belgium.

h Pseudo-codes are codes used in the billing system for medical acts not included in the nomenclature.

- Expenses for cardiac catheterizations (field <N55cath>) were extracted from N55. The remaining codes in N55 are grouped in the variable <N55other> - Table 3.17);
- The lump sums for renal dialysis (field <N81forf>) were separated from the other fees for renal dialysis (field <N81other>).

Table 3.17 NIHDI codes for cardiac catheterization related reimbursements (inpatient codes)

N-group	NIHDI-code	Label
N55	476022	Hartcatheterismen met grafisch registreren van de drukcurven op verschillende niveaus, inclusief eventueel de afnamen van bloedmonsters voor doseren, de radioscopische controles met televisie, de elektrocardiografische controles, de denudatie en de inspuiting van contrastmiddelen met of zonder krachtsinspanningsproef of farmacodynamische proef, met protocol en tracés (mogen niet worden gecumuleerd met de raadplegingen) : Langs de aders
N55	476044	Hartcatheterismen met grafisch registreren van de drukcurven op verschillende niveaus, inclusief eventueel de afnamen van bloedmonsters voor doseren, de radioscopische controles met televisie, de elektrocardiografische controles, de denudatie en de inspuiting van contrastmiddelen met of zonder krachtsinspanningsproef of farmacodynamische proef, met protocol en tracés (mogen niet worden gecumuleerd met de raadplegingen) : Langs de aders met transseptale punctie
N55	476066	Hartcatheterismen met grafisch registreren van de drukcurven op verschillende niveaus, inclusief eventueel de afnamen van bloedmonsters voor doseren, de radioscopische controles met televisie, de elektrocardiografische controles, de denudatie en de inspuiting van contrastmiddelen met of zonder krachtsinspanningsproef of farmacodynamische proef, met protocol en tracés (mogen niet worden gecumuleerd met de raadplegingen) : Langs de slagaders
N55	476081	Hartcatheterismen met grafisch registreren van de drukcurven op verschillende niveaus, inclusief eventueel de afnamen van bloedmonsters voor doseren, de radioscopische controles met televisie, de elektrocardiografische controles, de denudatie en de inspuiting van contrastmiddelen met of zonder krachtsinspanningsproef of farmacodynamische proef, met protocol en tracés (mogen niet worden gecumuleerd met de raadplegingen) : Langs de aders en de slagaders, gecombineerd
N55	476125	Meten van het hartdebiet door de curven van thermodilutie of door de curven van kleurstofdilutie en berekenen van de circulatietijden : Bij rust, minimum twee afzonderlijke metingen
N55	476140	Meten van het hartdebiet door de curven van thermodilutie of door de curven van kleurstofdilutie en berekenen van de circulatietijden : Minimum twee afzonderlijke metingen bij rust en drie metingen bij inspanning
N55	476184	Kwantitatieve analyse met computer van het ventriculogram met op zijn minst het berekenen van het systolisch eindvolume, het diastolisch eindvolume en de uitstotingsfractie, minimum twee metingen, met protocol
N55	476206	Hartcatheterismen met het oog op angiocardiografieën en/of angiopneumografieën, inclusief de eventuele denudatie, radioscopische controles met televisie, elektrocardiografische controles
N55	476280	Uitgebreid elektrofysiologisch onderzoek zonder ablatie voor het opwekken en beëindigen van tachycardieën met behulp van drie of meer catheters,inclusief afname van bloedstalen, radioscopische en electrocardiografische controles, toediening van farmaca en contraststoffen, met protocol en tracés
N55	476302	Beperkt elektrofysiologisch onderzoek zonder ablatie tot studie van de sinusknoopfunctie en van de atrioventriculaire geleiding met behulp van een of meerdere catheters met inbegrip van de electrocardiografische opnamen
N55	476324	Diagnose en/of behandeling van tachycardieën door middel van electrische prikkels via één of meerdere endocavitair geplaatste catheters met inbegrip van de electrocardiografische opnamen
N55	476641	Electrocardiografische mapping van tachy-arytmieën tijdens chirurgie voor hartritmestoornissen met protocol en tracés
N55	476663	Hartcatheterisatie met endomyocardbiopsie langs veneuze weg

Remunerations for in-hospital guard duties (figuring in NIHDI nomenclature group N00 along with patient surveillance fees), constitute a specific problem, since their payment is dependent on which (combination of) guard services are provided for by a particular hospital. In fact there are 3 kinds of guards: one general guard for all hospital wards, one for emergency department and a third one for intensive care; all require a 24h/24h/7d presence of an acknowledged physician, and all are remunerated with a lump sum chargeable on patient admission. Moreover, all have different and cumulative tariffs. Taking into account those hospital specific differences, would have necessitated the elaboration of a separate, hospital specific allocation formula, for obvious reasons different from the hospital severity score (see later). However, fearing to end up with too much complexity in this exploratory study, we chose not to do so and, consequently, left the in-hospital guard duties fees in the database. Again, this creates another bias in the price calculations (and hospital allocation results). The impact amounts to 0.9%. Yet we think it is still quite acceptable.

Table 3.18: NIHDI codes for in-hospital guard duties

NIHDI code	Description	Creation	Deletion
590166	Lump sum for in-hospital 24/24/7 medical guard, chargeable per admission in acute hospital department (A, C, D, E, G, H, (i), K, L, M or NIC); for a general hospital with 'first aid' emergency function	20010301	20071201
590225	Lump sum for in-hospital 24/24/7 medical guard duty, chargeable per admission in acute hospital department (A, C, D, E, G, H, (i), K, L, M or NIC); for a general hospital with emergency department and intensive care function	20010301	20071201
590181	Lump sum for in-hospital 24/24/7 medical guard duty in emergency department, chargeable per admission in acute hospital department (A, C, D, E, G, H, (i), K, L, M or NIC)	20010301	29991231
590203	Lump sum for in-hospital 24/24/7 medical guard duty in intensive care department, chargeable per admission in acute hospital department (A, C, D, E, G, H, (i), K, L, M or NIC)	20010301	29991231

Total N00_perm 2005	Total (inclusive) billings 2005	Fraction N00_perm
54.096.906	5.909.627.814	0,9%

(590166 and 590225 both apply to general hospital guard duty, but the latter is chargeable by hospitals with emergency and IC dept.)

Outsourced services

In the hospital billing data the NIHDI reimbursements for outsourced services or external stays in day care are registered in the record of the stay in the hospital of admission. A decision had to be made on how to treat expenses for outsourced services when

- calculating the DRG weights: should these expenses be included or should they be treated separately? When treated separately, in what way should this be done? As one group of expenses or separately for each source of hospital financing (e.g. laboratory tests and tests in nuclear medicine in vivo are frequently outsourced to laboratories of other hospitals)?
- allocating the total budget to individual hospitals.

Given that reimbursements for outsourced services amount to only 3.1% of the total budget for 2004-2005, it was decided to integrate these expenses into the total budget (Table 3.19). In other countries, e.g. in the German G-DRG system, transferred patients have a reduction of their DRG weights.[i]

Table 3.19: NIHDI reimbursements for outsourced and under own management activities (2004-2005)

Source of hospital financing	Under own management or outsourced	NIHDI reimbursements 2004-2005	% outsourced
Implants	Own management	313 626 260	3.9%
	Outsourced	12 699 756	
Blood-, plasma, mother's milk & radioisotopes	Own management	67 450 664	0.5%
	Outsourced	349 555	
Hospital budget	Own management	559 942 785	0.6%
	Outsourced*	3 382 550	
Fees	Own management	1 671 508 966	3.7%
	Outsourced	64 662 029	
Total	**Own management**	**2 612 528 675**	**3.10%**
	Outsourced	**81 093 890**	
*Day care in another hospital than the hospital of admission			

Also, in the linked MCD-HBD for inpatient stays (2004-2005) 7 682 stays have a lump sum for day care. It concerns to-and-from transfers from the hospital of admittance to the day care department of another hospital. In the linked data base all costs (inpatient and day care) are invoiced in the record of the hospital of admittance.

[i] DRGs as a financing tool. HOPE, European Hospital and Healthcare. December 2006.

APPENDIX 3.2 ADJUSTMENTS TO LUMP SUM REIMBURSEMENTS

Appendix 3.2 is an appendix to section 5.3.4 in the main text.

Adjustments to lump sum reimbursements for laboratory testing

Financing of laboratory testing partly consists of a fee-for-service system and partly of lump sum payments. Both are available in the hospital billing data. Since a hospital receives a lump sum per admission and per nursing day for each hospitalized and day care patient whether there was an act for laboratory testing or not, lump sum payments have little connection with actual practice.

To restore the link with actual practice, it was decided to replace the lump sum payments by extrapolated fee-for-service amounts. In this way only a "theoretical" 100% fee-for-service reimbursement is obtained, since no account is taken of possible changes in the behavior of the hospital or of the health care professionals due to the lump sum payments. The extrapolation factor is calculated separately per type of hospital (acute versus chronic) and per year in which the tests were invoiced. The extrapolation factor is based on the fee-for-service expenses for all stays in 2004 and 2005 in the original hospital billing data, hence before linkage to the case-mix data (Table 3.20). It has to be noted that for the tests realized in 2003 and 2005 extrapolated reimbursements are based on an incomplete invoicing period (18 or more months is considered to be a complete invoicing period).

Table 3.20: Extrapolation of fee-for-service reimbursements for laboratory testing

Type_hosp	Realized year	Fee-for-service	Lump sums	Total	Extrapolation factor
A	2003	3 708 944	12 738 469	16 447 413	**4.434527489**
C	2003	69 667	381 435	451 100	**6.475306267**
A	2004	73 225 352	301 681 570	374 906 922	**5.119906029**
C	2004	689 778	3 879 812	4 569 590	**6.624723699**
A	2005	78 891 370	328 193 829	407 085 199	**5.160072635**
C	2005	801 240	2 272 913	3 074 153	**3.836744350**

Adjustments to lump sum reimbursements for medical imaging

As for laboratory testing, financing of medical imaging partly consists of a fee-for-service system and partly of lump sum payments. Hospitals receive a lump sum per admission and a lump sum consultancy fee, whether there was an act for medical imaging or not. Also here the lump sum payments were replaced by extrapolated fee-for-service amounts, calculated in the same way as for laboratory testing (Table 3.21).

Table 3.21: Extrapolation of fee-for-service reimbursements for medical imaging

Type_hosp	Realized year	Fee-for-service	Lump sums	Total	Extrapolation factor
A	2003	1 979 429	5 506 801	7 486 230	**3. 782014231**
C	2003	57 803	90 938	148 741	**2. 573250106**
A	2004	97 450 204	178 131 056	275 581 261	**2. 827918754**
C	2004	681 795	1 138 972	1 820 767	**2. 670549271**
A	2005	123 432 771	168 354 004	291 786 775	**2. 363932787**
C	2005	756 516	996 412	1 752 928	**2. 317104629**

Table 3.22 NIHDI-codes for the variable part of the hospital budget (general hospitals, 2004-2005)

NIHDI_CODE	Label	N_gr
761036	Vast bedrag voor verpleegdag, gebruik gipskamer, bedrag per dag	N87gips
761132	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait A	N87ABCD
761143	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait A	N87ABCD
761154	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait B	N87ABCD
761165	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait B	N87ABCD
761176	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait C	N87ABCD
761191	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait D	N87ABCD
761202	Vast bedrag voor verpleegdag - experiment dagziekenhuisfunctie - forfait D	N87ABCD
761213	Vast bedrag voor verpleegdag - miniforfait : bij dringende opname of bij intraveneuze infusie	N87ABCD
761235	Vast bedrag voor verpleegdag - maxiforfait : bij algemene anesthesie of in geval van oncologisch dagziekenhuis	N87mini
761246	Vast bedrag voor verpleegdag - maxiforfait : bij algemene anesthesie of in geval van oncologisch dagziekenhuis	N87maxi
761272	Forfaitaire verpleegdag nierdialyse	N81dial
761283	Forfaitaire verpleegdag nierdialyse	N81dial
768025	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : acute ziekenhuizen - bedrag per dag	N87dag
768036	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : chirurgisch dagziekenhuis - bedrag per opneming	N87opn
768040	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : chirurgisch dagziekenhuis - bedrag per opneming	N87opn
768051	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : chirurgisch dagziekenhuis - bedrag per dag	N87dag
768062	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : chirurgisch dagziekenhuis - bedrag per dag	N87dag
768084	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : Sp-diensten andere dan palliatieve - bedrag per opname. Voor de Sp-diensten andere dan palliatieve mag deze pseudocode niet meer gebruikt worden voor de prestaties vanaf 1/7/2005	N87spo
768106	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : Sp-diensten andere dan palliatieve - bedrag per dag	N87spd
768143	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : palliatieve Sp-diensten - bedrag per dag	N87pal
768165	Ziekenhuisverpleging - variabel gedeelte op basis van ingediende facturen : centra voor brandwonden - bedrag per dag	N87brw

Table 3.23 Possible primary and secondary exclusions, BFM 2005

Primary selection criteria			After secondary filter		
Item	Specification	Select	Acute hosp	Chron hosp	Palliative care
A10100	0100 Immeuble-A1	1	0	0	0
A10200	0200 Gros Travaux d'entretien-A1	1	0	0	0
A10300	0300 Charges financières-A1	1	0	0	0
A10400	0400 1ère installation-A1	1	0	0	0
A10500	0500 Matériel médical-A1	1	1	0	0
A10560	0560 Matériel médical supplément-A1	1	1	0	0
A10700	0700 Matériel non médical-A1	1	1	0	0
A10760	0760 Matériel non médical supplément-A1	1	1	0	0
A10850	0850 Matériel médical et non médical (Sp et Psychiatrique)-A1	1	0	0	0
A10860	0860 Matériel médical et non médical (Sp et Psychiatrique) supplément-A1	1	0	0	0
A10900	0900 Matériel roulant-A1	1	0	0	0
A20200	0200 Forfait A2-A2	1	1	0	0
A20860	0860 Matériel médical et non médical (Sp et Psychiatrique) supplément-A1	1	0	0	0
A30200	0200 RMN : Immeuble-A3	1	0	0	0
A30400	0400 RMN : Charges Financières-A3	1	0	0	0

Primary selection criteria			After secondary filter		
Item	**Specification**	**Select**	**Acute hosp**	**Chron hosp**	**Palliative care**
A30600	0600 Forfait RMN AR 26/2/1991 (RMN < 1 tesla)-A3	1	0	0	0
A31200	1200 Radiothérapie : Immeuble-A3	1	0	0	0
A31400	1400 Radiothérapie : Charges financières-A3	1	0	0	0
A31600	1600 Radiothérapie : Forfait-A3	1	0	0	0
A32600	2600 Petscan : Forfait-A3	1	0	0	0
B10200	0200 Budget B1-B1	1	1	0	0
B10600	0600 Financement du transport des patients K-B1	1	0	0	0
B10650	**0650 Hôpital de jour chirurgical art 33 § 1 et 2-B1**	**0**	0	0	0
B10700	**0700 Service Social lits G-B1**	**0**	0	0	0
B10750	0750 Service Social lits G isolés-B1	1	0	0	0
B11000	1000 Dispositions particulières au 01/07/2005 Psy-B1	1	0	0	0
B10800	0800 Financement du Service Social-B1	1	0	0	0
B20200	0200 Budget B2-B2	1	1	0	0
B20600	0600 Supplément par lit (Sp)-B2	1	0	0	0
B21000	**1000 Dispositions particulières au 01/07/2005 Psy-B2**	**0**	0	0	0
B30200	0200 RMN AR 26/2/1991 (RMN < 1 tesla)-B3	1	0	0	0
B30600	0600 Radiothérapie-B3	1	0	0	0
B30800	0800 Petscan-B3	1	0	0	0
B40100	0100 Recyclage-B4	1	0	0	0
B40200	**0200 Plateforme de concertation en santé mentale-B4**	**1**	0	0	0
B40300	0300 Accord social 1989-B4	1	0	0	0
B40400	0400 Réviseur d'entreprises-B4	1	1	0	0
B40500	0500 Médecin Chef-B4	1	1	0	0
B40600	0600 Infirmière hygiéniste-B4	1	1	0	0
B40700	0700 Médecin hygiéniste-B4	1	1	0	0
B40800	0800 RCM - RIM - RPM (Hôpitaux généraux)-B4	1	1	0	0
B40900	0900 RPM en psychiatire-B4	1	0	0	0
B41000	1000 SMUR-B4	1	0	0	0
B41100	1100 Prime d'intégration-B4	1	0	0	0
B41200	1200 Colloqués-B4	1	0	0	0
B41300	1300 Transport interne-B4	1	0	0	0
B41500	1500 Formation permanente-B4	1	1	0	0
B41600	1600 Formation permanente hôpitaux publics-B4	1	0	0	0
B41700	1700 Conventions de 1er emploi (ex stagiaires ONEM)-B4	1	0	0	0
B41800	1800 Absence de longue durée-B4	1	0	0	0
B41900	1900 Cotisation patronale de pensions (hôpitaux publics)-B4	1	0	0	0
B42200	2200 Fonction palliative : équipe mobile-B4	1	1	0	0
B42300	2300 Protocole médecins généralistes - hôpitaux-B4	1	0	0	0
B42400	2400 Infections nosocomiales-B4	1	0	0	0
B42500	2500 Contractuels subventionnés-B4	1	0	0	0
B42800	2800 Prime syndicale et frais d'affiliation-B4	1	1	0	0
B43000	**3000 Enregistrement SMUR et Urgences-B4**	**0**	0	0	0
B43100	3100 Financement fin de carrière (45+)-B4	1	1	0	0
B43500	3500 Financement Personnel accompagnant-B4	1	1	0	0
B43600	3600 Financement equipe mobile (Sp, Sp pal, Psy)-B4	1	0	0	0
B43700	3700 Activites ludiques et soutien psycho-social (provenant du B2)-B4	1	0	0	0
B43800	3800 Personnel supplémentaire (provenant du B2)-B4	1	1	0	0
B43900	3900 Oncologie pédiatrique (provenant du B2)-B4	1	0	0	0
B44000	4000 Transplantations-B4	1	0	0	0
B44100	4100 Article 74-B4	1	0	0	0
B44200	4200 Fécondation in vitro-B4	1	0	0	0
B44400	4400 Coordination et encadrement psychologique de grands brûlés	1	0	0	0
B44300	**4300 Fonction de médiation-B4**	**0**	0	0	0
B50200	0200 Masse B5-B5	1	1	0	0
B60200	0200 Masse B6-B6	1	0	0	0
B70250	0250 Différence points B2-B7	1	0	0	0
B70300	0300 Diminution B2-B7	1	0	0	0
B70600	0600 Masse C-B7	1	0	0	0
B70800	0800 Masse D-B7	1	0	0	0

Primary selection criteria			After secondary filter		
Item	Specification	Select	Acute hosp	Chron hosp	Palliative care
B70900	0900 Sous partie B7 A-B7	I	0	0	0
B70999	0999 Adaptations-B7	I	0	0	0
B80200	0200 Masse article 78, 1° a)-B8	I	0	0	0
B80400	0400 Masse médiation interculturelle-B8	I	0	0	0

Table 3.24: Argumentation for primary and secondary exclusions, BFM 2005

Primary exclusions		
Excluded budgets		**Argumentation**
Psy	Psychiatry	Hospital exclusive = not in all hospitals
G	Specialized G-hospitals	
Sp	Chronic (Sp) hospitals	
GB	Burns centres	
Excluded budget items		**Argumentation**
B1	0650 Day-surgery centre; art 33 § 1 en 2 (B1)	Day care centre
B1	0700 Social services G-beds (B1)	Extra muros activity
B2	1000 Special provisons per 01/07/2005 Psy (B2)	Psychiatry excluded
B4	0200 Concertation platform mental health (B4)	Psychiatry excluded
B4	1000 Mobiel emergency group (B4)	Extra muros activity
B4	4200 In vitro fertilisation (B4)	Day care center
C1-C4	Start-up costs, budget readjustments and corrective amounts	Data unavailable
Secondary exclusions		
Any budget item primarily not excluded, but not present in all hospitals = 'hospital exclusivity'		Not in all hospitals

APPENDIX 3.3 DATA CLEANING

Appendix 3.3 is an appendix to section 5.3.6 in the main text.

Mixed stays

In Table 3.3 an overview was given of the different stays in the original minimal clinical data (MCD) and linked data. The typology was based on the hospital department in which the patient stayed. In addition to the exclusion of 45 243 psychiatric stays, another 15 981 stays are marked as being mixed acute-chronic stays (hosptype 09 and 13). In these mixed stays acute and chronic care is combined. In the registration process, each hospital stay is characterized by the primary diagnosis. Given this primary diagnosis, a stay is assigned to a single APR-DRG and to one of four levels of severity. Hence billing data for chronic care can be included in an 'acute' APR-DRG which makes these stays unsuited for calculating DRG weights and case values. Palliative stays are a typical example. Comparing the number of stays with hosptype 09 and 13 (15 981) with own calculations based on the number of invoiced days in the linked MCD-HBD database, a larger number of mixed stays is attained (18 565).

Missing or questionable values

Some stays have missing values for essential billing codes, others have dubious lengths of stays (LOS).

Absence of billing data

For 177 stays total billing amounts were equal to zero. For another 1 423 stays in acute hospitals and 3 707 stays in chronic hospitals billing amounts for the variable part of the hospital budget (lump sum per day and/or per admission) were equal to zero.

Doubtful LOS

In Appendix 3.1 the difference in the LOS according to data source (MCD or HBD) and variable was shown. 10 091 stays were eliminated because the difference in LOS between the variables LOS_MKG and tot_inv_d was more than one day.

APPENDIX 3.4 HOSPITAL SEVERITY SCORE

Appendix 3.4 is an appendix to section 5.3.8 in the main text.

APR-DRG severity scoring based on percentage stays in SOI 3-4

The share of stays in SOI 3 and 4 is not uniformly distributed among the APR-DRGs. Instead, a curvilinear shape emphasizes the increasing share of SOI 3 and 4 stays for more severe APR-DRGs.

In a first step all inpatient and day care stays in de MCD for 2004 and 2005 were added up per APR-DRG-SOI at the national level. Second, the share of stays in SOI 3 and 4 in the total number of stays was calculated.

(1) $$\text{Fraction}_{DRG_x,SOI_{3-4}} = \frac{\text{Stays}_{DRG_x,SOI_{3-4}}}{\text{Stays}_{DRG_x,SOI_{1-4}}}$$

Since the so-called "waste basket" APR-DRGs (955-invalid principal diagnosis and 956-ungroupable stay) have no SOI-level, they were not taken into account. Next, a weight was attached to the other APR-DRGs based on their share of SOI 3 and 4 stays. We call this weight the "inter-APR-DRG severity score_1". It is calculated as follows:

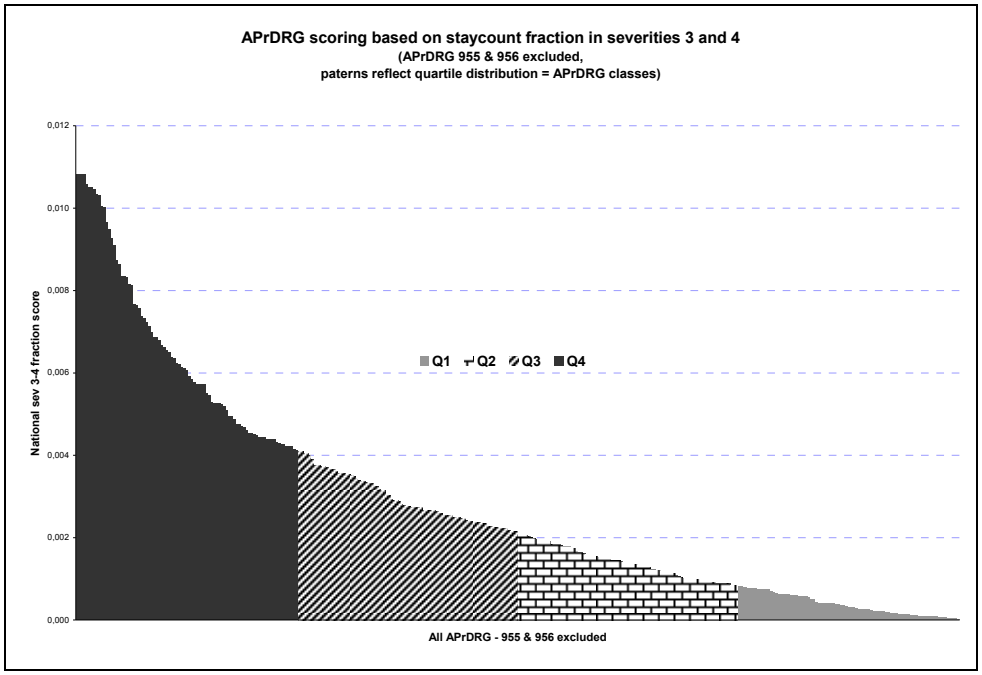
(2) $$\text{DRG severity score}_{DRG_x} = \frac{\text{Fraction}_{DRG_x,SOI_{3-4}}}{\sum_1^n \text{Fraction}_{DRG_x,SOI_{3-4}}}$$

with

(3) $$\sum_1^n \text{DRG severity score}_{DRG_x} = 1$$

The resulting order of APR-DRGs is given in Figure 3.1. For illustrative purposes, APR-DRGs are grouped into 4 quartile classes.

Figure 3.1: Inter-APR-DRG severity score based on the share of stays in SOI 3 and 4



APR-DRG severity scoring based on average NIHDI billing amounts in SOI 3-4

A weight is attached to all APR-DRGs in acute hospitals[i] based on their national mean NIHDI reimbursements in SOI 3 and 4. We call this weight the "inter-APR-DRG severity score_2".

$$\text{Avg NIHDI billing}_{DRG_x,SOI_{3-4}} = \frac{\text{NIHDI billing total}_{DRG_x,SOI_{3-4}}}{\text{Stays}_{DRG_x,SOI_{3-4}}}$$

The "inter-APR-DRG severity score_2" is calculated according to (4):

$$\text{(4)}\quad \text{DRG severity score}_{DRG_x} = \frac{\text{Avg NIHDI billing}_{DRG_x,SOI_{3-4}}}{\sum_1^n \text{Avg NIHDI billing}_{DRG_x,SOI_{3-4}}}$$

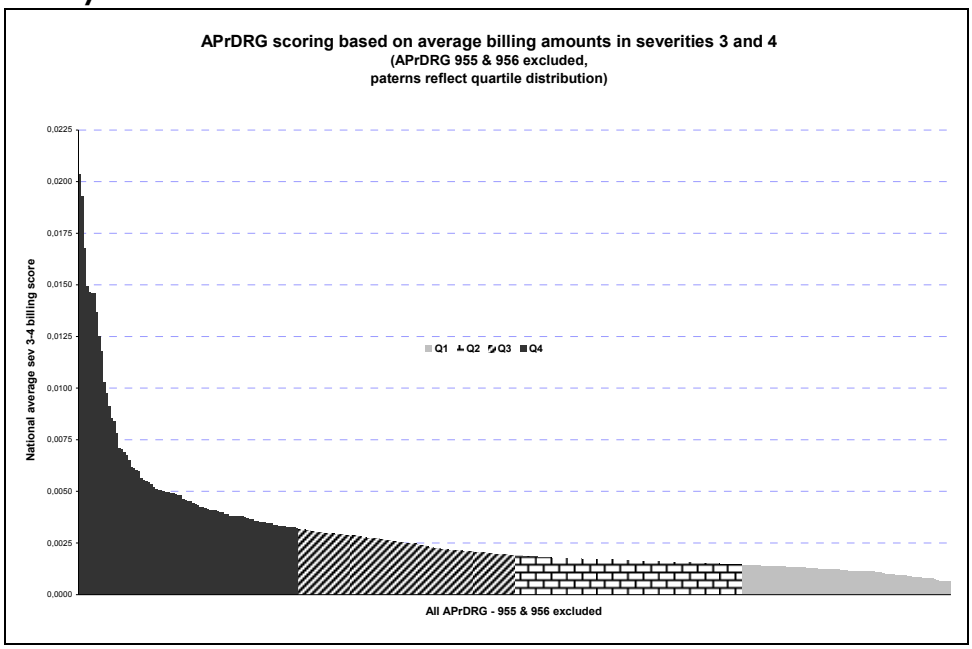
with

$$\text{(5)}\quad \sum_1^n \text{DRG severity score} = 1$$

The resulting order of APR-DRGs is given in Figure 3.2. Again, for illustrative purposes, APR-DRGs are grouped into 4 quartile classes.

i The same exercise could be done for chronic hospitals.

Figure 3.2: Inter-APR-DRG severity score based on mean reimbursements for stays in SOI 3 and 4



Hospital severity scoring

In a next step, scores at the level of the APR-DRGs are transferred to a score at the level of the hospital. For every hospital (a□z) APD-DRGs with stays in SOI 3 and 4 (1□n) are multiplied by their corresponding inter-APR-DRG severity score (_1 or _2).

(6) $$\text{Points}_{DRG_x,H_y} = \text{Score}_{DRG_x} \times \text{Stays}_{DRG_x,SOI_{3-4},H_y}$$

Next, these points are summed up at the level of the hospital.

(7) $$\text{Points}_{H_y} = \sum_1^n \text{Points}_{H_y,DRG}$$

Finally, the score per hospital is expressed as a share of the national score

(8) $$\text{Hospital severity score}_{H_y} = \frac{\text{Points}_{H_y}}{\sum_a^z \text{Points}_H}$$

with

(9) $$\sum_a^z \text{Hospital severity score} = 1$$

The resulting "hospital severity score" in (8) can be used for allocating the BFM to individual stays. For illustrative purposes, hospitals were classified into 5 'severity groups' based on the distribution of the hospital severity score (Q1-Q2-Q3-Q4-P99). Figure 3.3 (bar graph) and Figure 3.4 (bubble diagram) give the results per hospital for both methods. The correlation between the two methods as measured by the R^2 was 0.9821 (see Figure 3.4). Again, the same method can be applied to chronic hospitals.

Figure 3.3: Hospital severity score (bar graph)

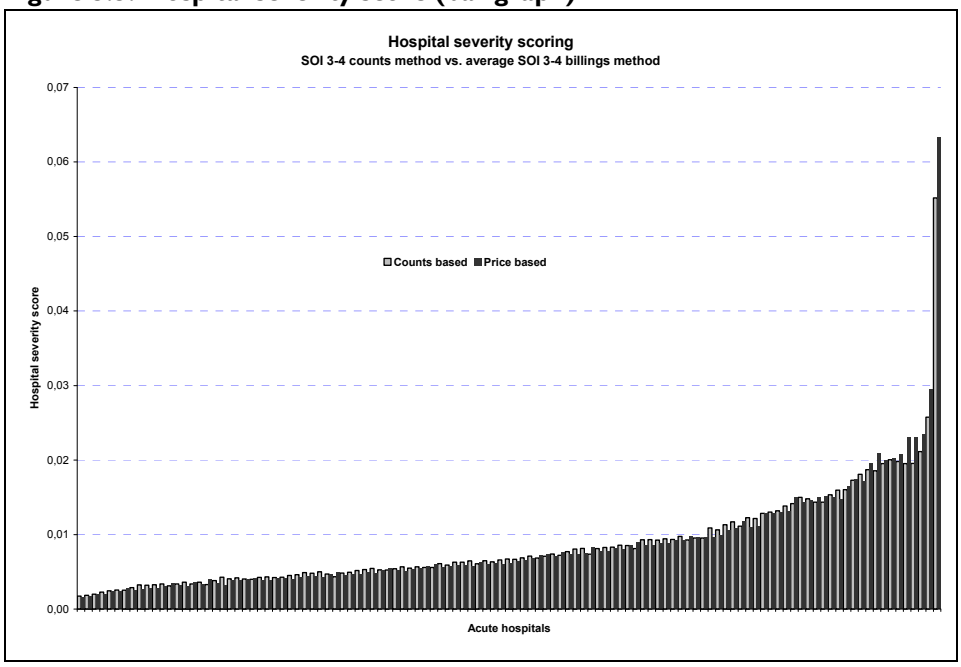
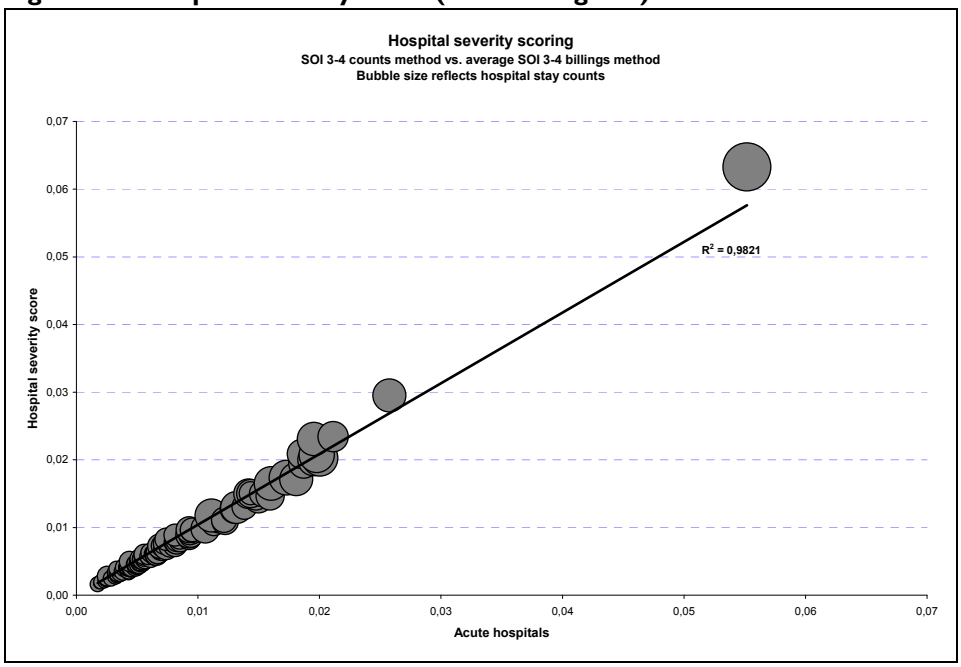


Figure 3.4: Hospital severity score (bubble diagram)



Validity of hospital severity scoring

Does the hospital severity score measure what is claims to measure? In other words, can the hospital severity score be implemented as an indicator for the allocation of the BFM to individual stays, taking into account the case-mix of the hospital? The hospital severity score is compared with the B1-B8 part of the BFM, with the A-part of the BMF and with the total BFM.[k] Although a comparison with the current calculation of the individual hospital budget does not correct for possible inefficiencies in the actual system, no other comparator was available. All three comparisons lead to the conclusion that the hospital severity score can be used as an indicator to distribute the budget of financial means

[k] Again, only the inpatient fraction after primary and secondary exclusions is taken into account.

A. Validity with respect to the B1-B8 part of the BFM (2005)

The hospital severity score for each hospital was compared with its "B1-B8 weight", measured as the share of the hospital in the B1-B8 part of the BFM in 2005. Figure 3.5 and Figure 3.6 present the correlation (R^2) of both hospital severity scores with the B1-B8 weights. The second method, with the inter-APR-DRG severity score based on mean reimbursements for stays in SOI 3 and 4, gives slightly better results (R^2=0.8972 versus R^2=0.8764). On the other hand, the first method with the inter-APR-DRG severity score based on the share of stays in SOI 3 and 4, has the advantage that all stays –inpatient and day care- for two consecutive years could be included. Taking into account inpatient and day care stays avoids possible bias caused by APR-DRGs of which stays in SOI 1 and 2 are primarily treated in day care where the opposite is true for stays in SOI 3 and 4. In the second method these stays get a larger weight. As shown in Table 3.25 the percentage SOI 3 and 4 stays in day care differ largely per APR-DRG. Of course, once the data on linked stays for day dare will be made available and validated (registration year 2006), the advantage of the first method disappears.

Figure 3.5: Inter-APR-DRG severity score based on the share of stays in SOI 3 and 4 and B1-B8 weight

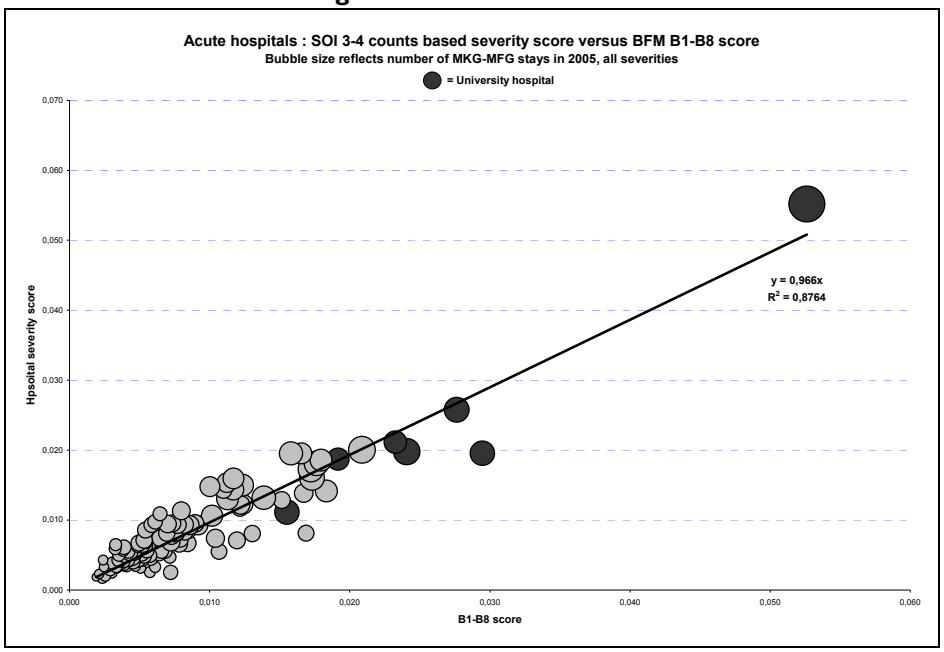
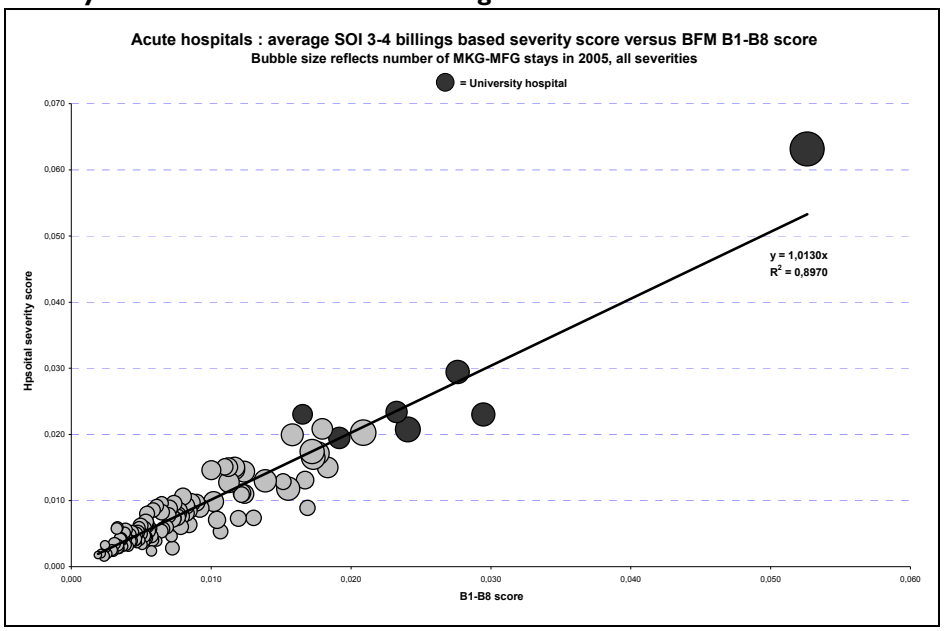


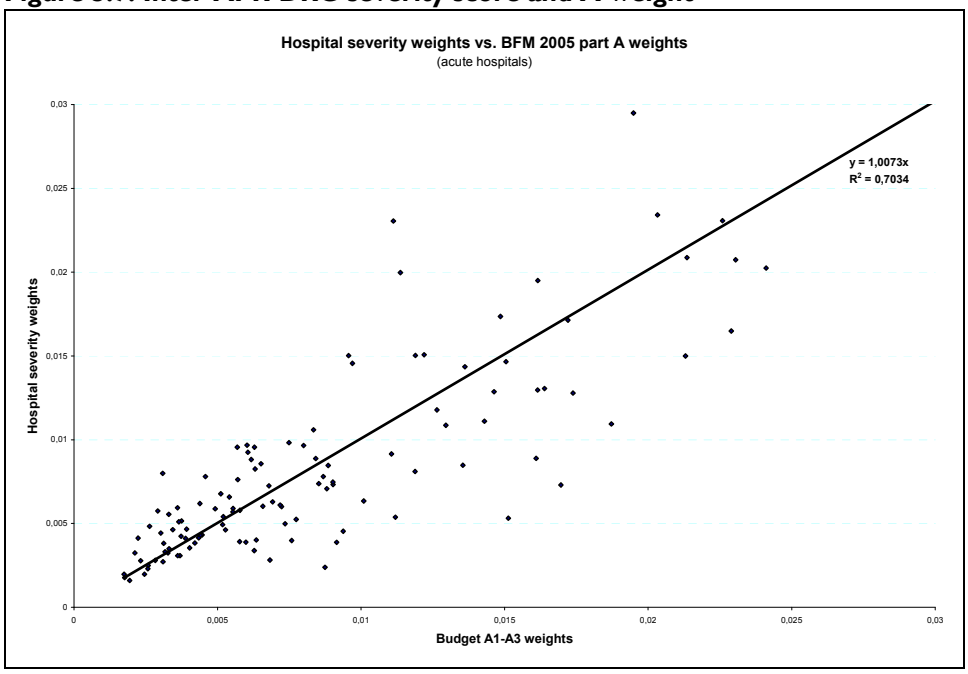
Figure 3.6: Inter-APR-DRG severity score based on mean reimbursements for stays in SOI 3 and 4 and B1-B8 weight



B. Validity with respect to the A-part of the hospital budget (2005)

The correlation is lower when comparing the hospital severity score based on mean reimbursements for stays in SOI 3 and 4 with the "A-weight", measured as the share of the hospital in the A1-A3 part of the BFM in 2005 (Figure 3.7). Budgets for part A may vary substantially from one year to another (see section 3.4.5). The international comparison in Chapter 4 demonstrated that different choices are made with respect to the treatment of capital costs in case-mix financing. Given the current financing structure of capital costs of hospitals in Belgium (including the division of responsibilities between federal and regional authorities) it was concluded to exclude part A of the BFM from an all-inclusive case-mix prospective hospital reimbursement.

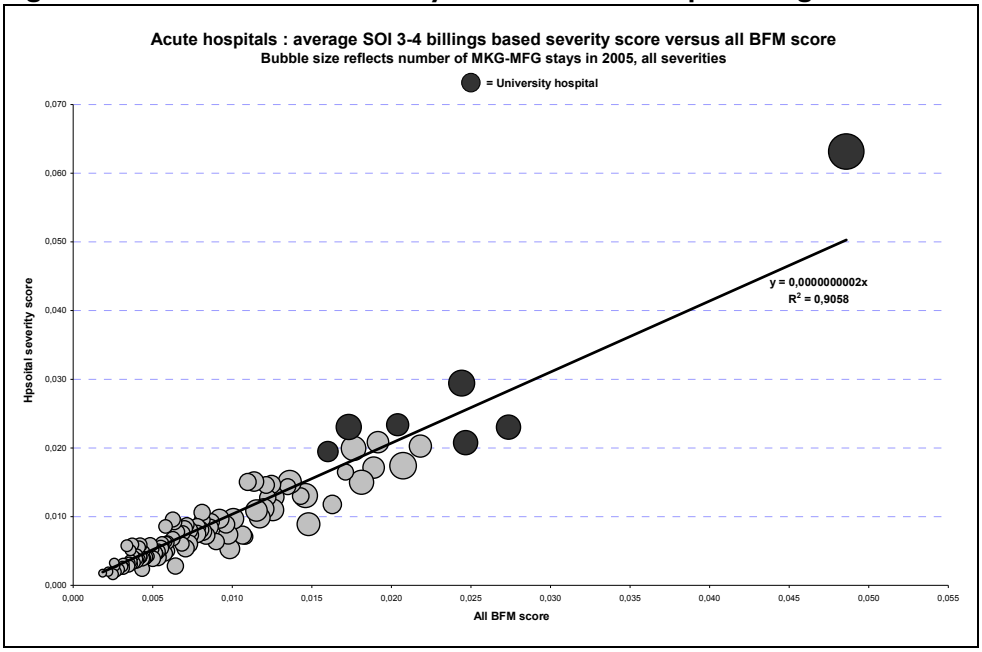
Figure 3.7: Inter-APR-DRG severity score and A-weight



C. Validity with respect to the total BFM (2005)

The correlation between the hospital severity score based on mean reimbursements for stays in SOI 3 and 4 and total BFM weight in 2005, measured as the share of the hospital budget in total BFM in 2005, is higher than the correlation with the B1-B8 weight (Figure 3.8).

Figure 3.8: Inter-APR-DRG severity score and total hospital budget



Hospital severity score to reallocate the national hospital: shifts

The above analyses have indicated that the hospital severity score could be used as an indicator or weighing instrument in the price model for the allocation of the budget of financial means to individual stays. However, at the level of an individual hospital, substantial budget shifts are possible. The difference (positive and negative) in individual hospital budget between the real budget B1-B8 and the budget based on the hospital severity score (based on mean reimbursements for stays in SOI 3 and 4) is measured in relative (Figure 3.9) and absolute (Figure 3.10) terms. For some hospitals the difference is substantial, especially when expressed in absolute amounts. Analogous results are found when total hospital budget weight is compared to the hospital severity score (Figure 3.11 for relative and Figure 3.12 for absolute differences). These figures only show the differences between the hospital severity score and a weight based on the current BFM budget. To assess whether these differences are legitimate or not demands a thorough hospital-specific investigation, but this is beyond the scope of the current study.

Figure 3.9: Relative budget differences between hospital severity score and B1-B8 weight

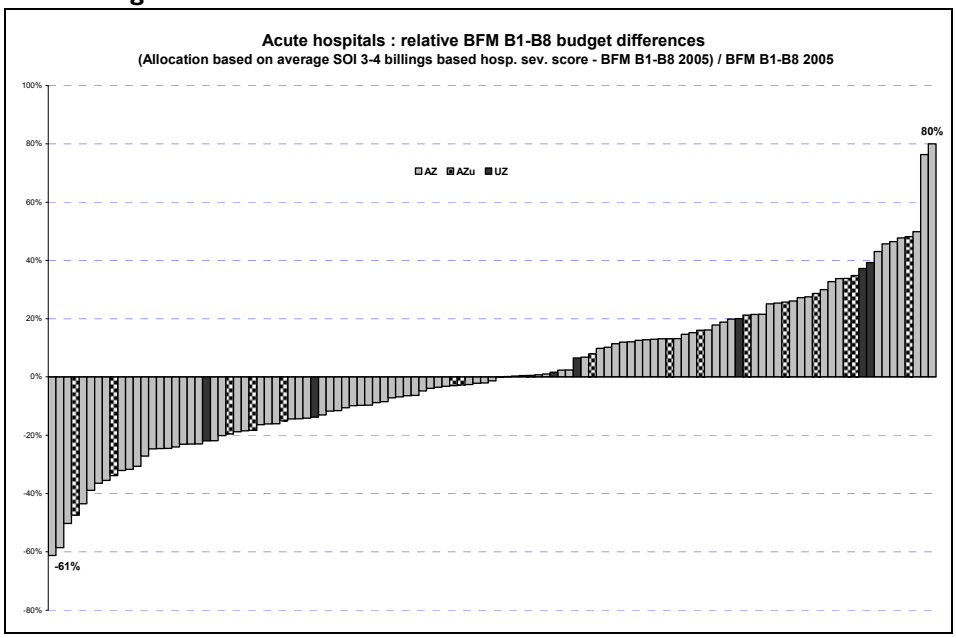


Figure 3.10: Absolute budget differences between hospital severity score and B1-B8 weight

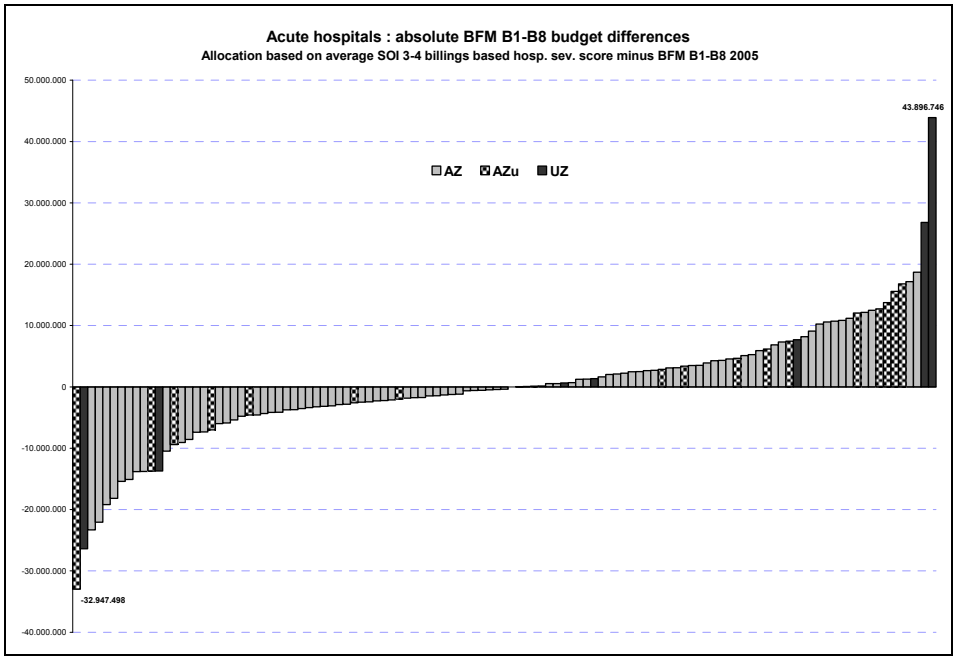


Figure 3.11: Absolute budget differences between hospital severity score and total hospital budget weight

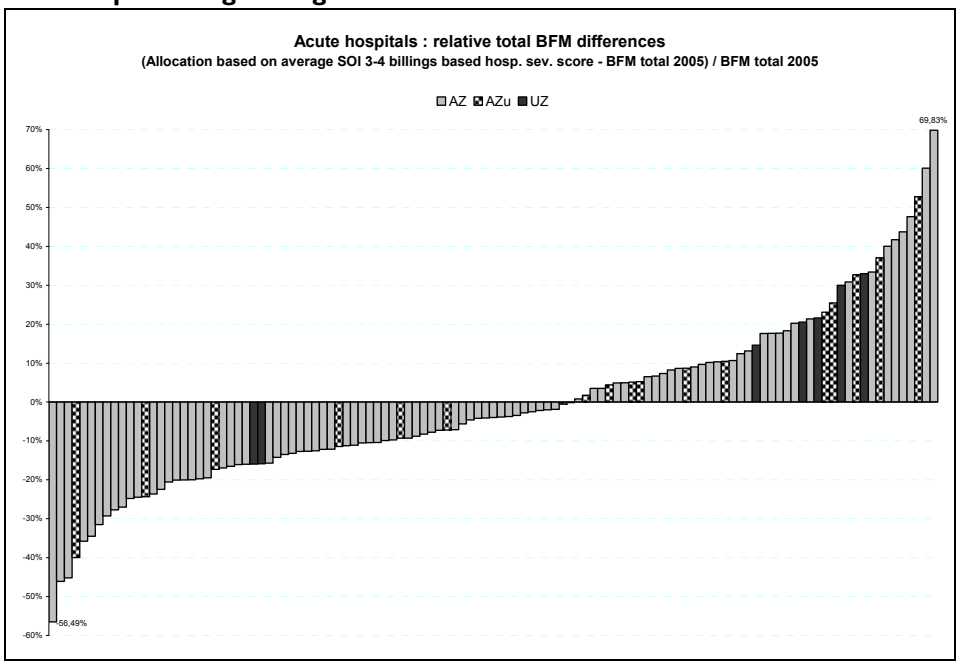


Figure 3.12: Relative budget differences between hospital severity score and total hospital budget weight

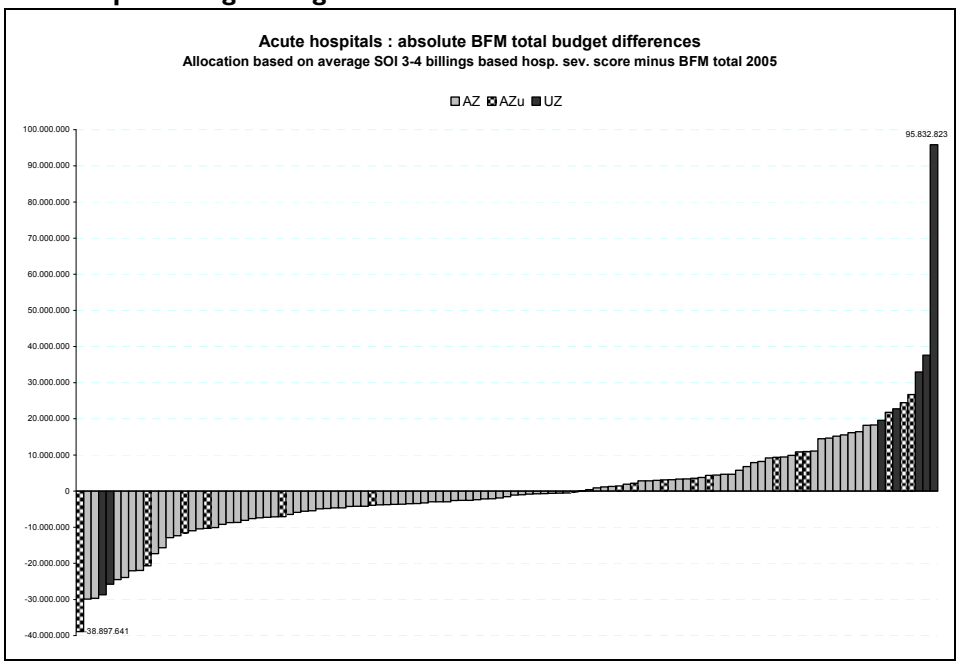


Table 3.25 SOI 3 AND 4 STAYS IN DAY CARE (MCD 2004-2005)

APR-DRG	All stays in day care	% SOI 3-4 day care
179	32.358	0,01%
516	10.753	0,03%
092	3.418	0,03%
481	2.901	0,03%
097	68.368	0,04%
313	76.513	0,04%
093	6.787	0,06%
319	11.380	0,06%
316	50.363	0,06%
513	19.573	0,07%
544	25.420	0,07%
515	11.173	0,07%
094	41.961	0,07%
363	12.058	0,07%
564	1.225	0,08%
850	33.415	0,08%
114	134.349	0,09%
501	20.918	0,10%
517	24.106	0,10%
483	10.132	0,11%
091	881	0,11%
320	11.067	0,12%
317	16.994	0,12%
484	32.270	0,12%
227	4.182	0,12%
025	47.876	0,13%
792	1.556	0,13%
318	34.283	0,13%
098	48.830	0,14%
315	11.611	0,14%
096	713	0,14%
464	18.149	0,14%
228	9.253	0,16%
364	41.077	0,17%
811	591	0,17%
640	589	0,17%
342	14.482	0,17%
565	1.106	0,18%
347	103.121	0,18%
226	11.507	0,19%
314	8.332	0,24%
361	10.734	0,25%
756	774	0,26%
532	6.354	0,28%
095	313	0,32%
384	6.761	0,34%
026	291	0,34%
043	4.649	0,37%
383	1.822	0,38%
115	9.994	0,39%
203	3.782	0,42%
310	3.979	0,43%
111	695	0,43%
244	24.025	0,45%
344	222	0,45%
312	643	0,47%
952	3.418	0,50%
072	34.320	0,51%
054	2.535	0,51%

APR-DRG	All stays in day care	% SOI 3-4 day care
309	191	0,52%
177	187	0,53%
249	19.202	0,56%
245	15.046	0,56%
198	1.405	0,57%
775	2.738	0,58%
446	7.618	0,59%
071	4.325	0,60%
790	1.447	0,62%
350	4.776	0,63%
073	147.322	0,63%
467	3.006	0,63%
349	616	0,65%
057	1.023	0,68%
561	289	0,69%
563	1.123	0,71%
810	1.651	0,73%
754	537	0,74%
423	11.131	0,76%
791	2.867	0,77%
465	4.626	0,78%
250	107.761	0,80%
192	15.483	0,81%
081	362	0,83%
651	1.192	0,84%
351	11.904	0,85%
345	116	0,86%
246	346	0,87%
950	2.962	0,88%
204	1.917	0,89%
202	1.396	0,93%
385	8.693	0,94%
199	530	0,94%
047	418	0,96%
776	207	0,97%
840	188	1,06%
113	3.544	1,07%
512	89	1,12%
241	11.600	1,17%
229	509	1,18%
861	3.968	1,21%
500	4.840	1,24%
711	311	1,29%
243	20.494	1,30%
758	750	1,33%
445	508	1,38%
740	71	1,41%
247	1.368	1,46%
193	68	1,47%
176	659	1,52%
225	63	1,59%
405	371	1,62%
082	1.772	1,64%
360	304	1,64%
531	181	1,66%
422	7.380	1,68%
773	58	1,72%
770	401	1,75%
223	228	1,75%
755	223	1,79%
812	3.083	1,82%

APR-DRG	All stays in day care	% SOI 3-4 day care
284	2.580	1,82%
348	18.579	1,84%
340	212	1,89%
402	53	1,89%
815	423	1,89%
683	1.153	1,91%
046	1.167	1,97%
050	302	1,99%
341	150	2,00%
862	92.786	2,00%
207	1.542	2,01%
543	1.340	2,01%
135	98	2,04%
090	97	2,06%
070	290	2,07%
463	3.071	2,15%
221	43	2,33%
774	43	2,33%
443	423	2,36%
201	9.425	2,37%
282	1.295	2,39%
171	83	2,41%
560	1.019	2,55%
144	4.662	2,66%
346	10.760	2,72%
566	7.163	2,78%
693	564.549	2,82%
261	103	2,91%
222	170	2,94%
110	1.825	2,96%
692	1.175	2,98%
710	99	3,03%
680	66	3,03%
760	128	3,13%
141	1.125	3,20%
721	462	3,25%
168	92	3,26%
173	2.838	3,35%
058	2.166	3,37%
260	28	3,57%
894	138	3,62%
860	138	3,62%
380	109	3,67%
308	26	3,85%
191	4.286	3,90%
197	8.566	4,03%
056	99	4,04%
112	717	4,04%
893	317	4,10%
021	73	4,11%
174	218	4,13%
682	120	4,17%
200	751	4,26%
045	163	4,29%
143	301	4,32%
302	23	4,35%
420	879	4,66%
040	656	4,73%
813	3.186	5,12%
121	538	5,20%
003	38	5,26%

APR-DRG	All stays in day care	% SOI 3-4 day care
220	302	5,30%
447	821	5,36%
122	182	5,49%
042	738	5,56%
541	36	5,56%
637	36	5,56%
205	51	5,88%
120	17	5,88%
691	34.101	6,04%
134	81	6,17%
024	64	6,25%
421	1.918	6,26%
180	322	6,52%
461	4.523	6,70%
142	547	6,76%
681	646	6,81%
381	794	6,93%
466	1.148	6,97%
722	330	6,97%
240	14.485	7,08%
690	7.147	7,11%
053	1.757	7,51%
382	8.900	7,54%
444	104	7,69%
591	13	7,69%
757	750	7,73%
242	433	7,85%
830	74	8,11%
343	40.971	8,79%
190	1.806	8,80%
139	857	8,98%
442	22	9,09%
175	2.978	9,60%
049	238	9,66%
530	1.392	9,99%
664	14.825	10,26%
264	371	10,78%
137	408	11,03%
138	9	11,11%
283	2.068	11,12%
140	1.308	11,24%
694	9.999	11,62%
052	172	11,63%
131	179	11,73%
462	380	12,37%
194	460	12,39%
723	924	13,10%
196	480	13,13%
424	1.434	13,39%
206	1.050	13,52%
055	154	13,64%
892	58	13,79%
048	11.213	14,14%
400	21	14,29%
167	14	14,29%
136	6.636	14,62%
280	1.504	14,63%
724	1.930	14,77%
133	163	15,34%
178	123	15,45%
759	19	15,79%

APR-DRG	All stays in day care	% SOI 3-4 day care
022	12	16,67%
281	5.591	17,37%
460	534	17,98%
195	98	18,37%
041	1.405	18,86%
540	63	19,05%
004	5	20,00%
248	86	22,09%
662	228	24,56%
020	8	25,00%
262	4	25,00%
580	41	26,83%
660	717	29,01%
663	48.006	31,94%
639	9	33,33%
931	6	33,33%
169	3	33,33%
132	3	33,33%
581	578	35,99%
753	128	39,84%
044	304	42,76%
750	96	45,83%
661	6.743	47,09%
930	59	47,46%
720	304	49,34%
005	2	50,00%
630	2	50,00%
468	30.203	51,63%
161	62	56,45%
891	53	62,26%
911	9	66,67%
751	981	74,41%
165	2	100,00%
910	2	100,00%
All 'day care'	2.620.297	3,03%

APPENDIX 3.5 DRG GROUPER ALGORITHM: DEFINITION OF PRINCIPAL DIAGNOSIS

Clinical rationale has to deal with DRG grouper algorithms. In Belgium 3M™ grouper software is used for assigning APR-DRGs based on algorithms elaborated in the U.S. (version 15.0) (see section 2.2.1 in the main text).

Since 1999 the Belgian Minimal Clinical Data registration instruction manual has followed the Uniform Hospital Discharge Data Set (UHDDS) definitions in the U.S.: the principal diagnosis is defined as "that condition established, after study, to be chiefly responsible for occasioning the admission of the patient to the hospital for care." Before 1999, Belgian principal diagnosis definition was different: it was defined as "that condition established, after study, to be chiefly accountable for health care resources usage during the hospital stay". Consequences of definition change on APR-DRG assignments were considerable: a patient, for example, admitted for inguinal hernia repair in 1998, but developing an acute myocardial infarction postoperatively, necessitating PTCA procedure with stenting, would have been labeled with a 410* code for acute myocardial infraction as principal diagnosis and would therefore be assigned to APR-DRG 174 - percutaneous cardiovascular procedures with AMI and not necessarily end up as an outlier. The same patient admitted in 1999 or later, would have got code a 550* – inguinal hernia as principal diagnosis and fall:

- either in APR-DRG 228 - inguinal & femoral hernia procedures, be it with serious secondary diagnoses, causing him with great likelihood to end up as an outlier;

- or in APR-DRG 950 - extensive procedures unrelated to principal diagnosis.

A good illustration of the possible impact of principal diagnosis definition change comes with the evolution of stay count rates for APR-DRG 950 (Table 3.26).

Table 3.26: Evolution of stay counts in APR-DRG 950

Year	APR-DRG 950	All (linked) stays	Fraction APR-DRG 950
1997	2 167	1 251 666	0.17%
2000	7 132	1 500 554	0.48%
2001	6 756	1 528 852	0.44%
2002	6 285	1 525 454	0.41%
2003	5 761	1 532 567	0.38%
2004	5 657	1 526 872	0.37%
2005	5 641	1 557 245	0.36%

APPENDIX 3.6 MEASURES OF LOCATION, DISPERSION AND SHAPE: EMPIRICAL RESULTS

Appendix 3.6 is an appendix to section 5.3.9.1 in the main text.

Measures of central location include the mean (geometric and arithmetic), the median and the mode. Measures of dispersion or variability include the range, interquartile range, standard deviation, variance and the coefficient of variation. In addition to measures of location and variability, a measure of the shape of a distribution can add important insights. A numerical measure of the shape of a distribution is the skewness. Another but less often discussed measure related to the shape of a distribution is the kurtosis.

Central location

The mean, median and mode are three measures of central location. An important difference between the three measures is how they are influenced by outliers. In short it can be stated that the mode is not affected by outliers, and that outliers do not affect the median as strongly as they do the mean. The mean will be pulled in the direction of the skewness (see below). Especially for skewed or asymmetric distributions, this difference in behaviour may be important. In a normal or Gaussian distribution these measures coincide. The concrete choice of measure of central location depends on the purpose of the exercise or more specific, on the choice of measure of variability. If the variance is to be minimized, the mean is the most appropriate statistic. If on the other hand absolute deviation is to be minimized, the median is the optimal estimator.

The mode is the value that occurs the most frequently in a data set. The mode is not necessarily unique, since the same maximum frequency may be attained at different values. A distribution is called unimodal if there is only one major "peak" in the distribution of scores when represented as a histogram.

Dispersion or variability

When assessing the variability of a data set, there are two key components: (1) 'How spread out are the data values near the centre?' And (2) 'How spread out are the tails?' Different measures give different weight to these two elements:

- Variance: the average of the squared differences from the mean. Squaring the distance from the mean has the effect of giving greater weight to values that are further from the mean which makes the measure largely dependent upon the tail behaviour.
- Standard deviation: the square root of the variance.
- Range: the largest value minus the smallest value in a data set. This measure is based only on the lowest and highest extreme values, but the spread near the centre of the data is not captured.

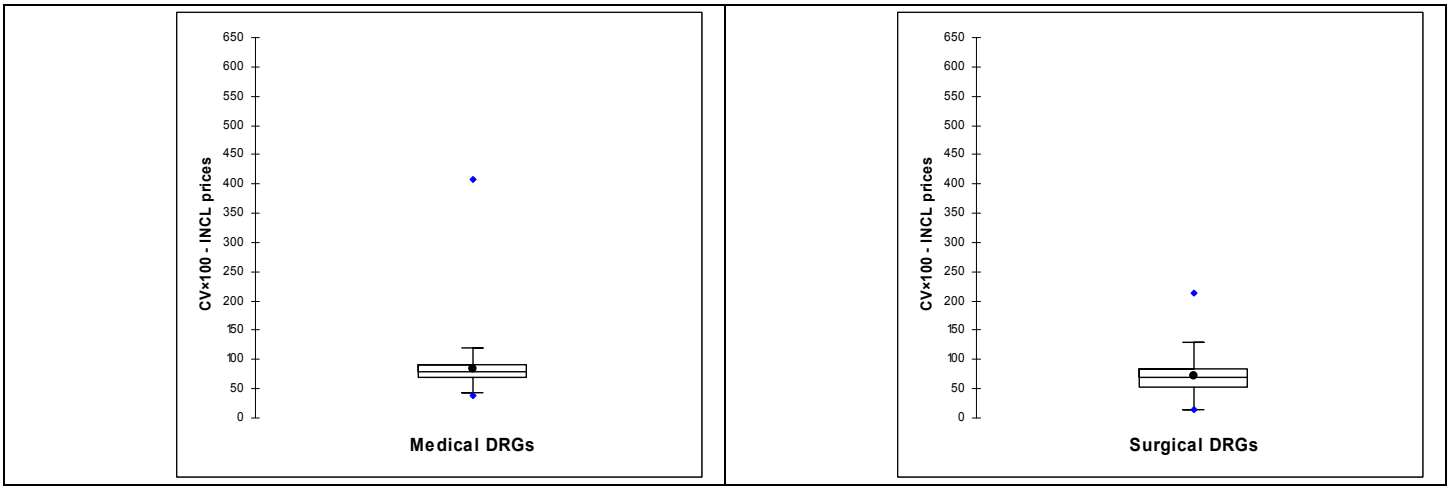
- Interquartile range (IQR): the value of the 75th percentile (Q_3) minus the value of the 25th percentile (Q_1). This measure of scale attempts to measure the variability of points near the centre.
- Coefficient of variation (CV): a normalized measure of dispersion of a distribution, defined as the ratio of the standard deviation (σ) to the mean (μ). The CV can be expressed as a fraction or as a percentage (CV×100) and is a dimensionless (scale-free) number. When comparing between data sets with different units or widely different means, the coefficient of variation is more appropriate than the standard deviation.

Coefficient of variation comparisons on Belgian APR-DRG-SOI billing data are useful to answer some commonly uttered questions, such as:

- Is there any substantial difference in variability between surgical and medical DRGs? (Figure 3.13)
- And what about the "other" DRG groups? (Figure 5.3.14)

Results are graphically represented by boxplots. A boxplot summarizes the median (Q_2), upper and lower quartiles -the lower quartile is the 25th percentile (Q_1) and the upper quartile is the 75th percentile (Q_3)- and minimum and maximum data values. A boxplot contains the middle 50% of the data. Also outliers can be included by calculating some additional points (L1 = lower quartile - 1.5 IQR and U1 = upper quartile + 1.5 IQR). The line in the box indicates the median value. A 'whisker' symbol is drawn at the minimum and maximum points. Points less than L1 or greater than U1 are drawn as small star or diamond like dots.

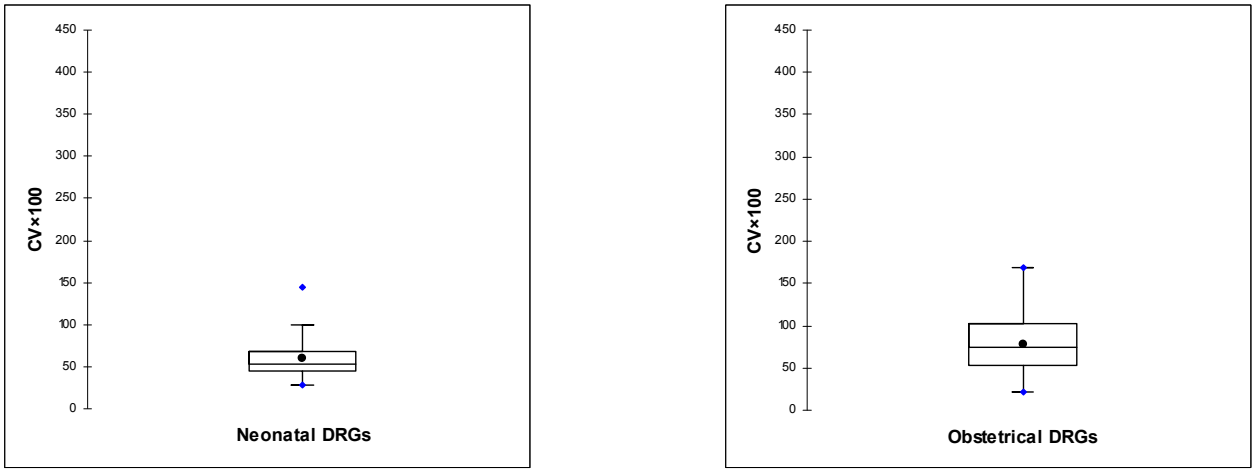
Figure 3.13: Boxplots of the coefficient of variation for medical and surgical DRGs; inclusive method



Contrarily to sometimes circulated 'expert opinions' there is no indication that medical DRGs show greater variability than surgical DRGs: in fact, it seems to be the opposite (for the inclusive and exclusive method), be it with one exception (APR-DRG-SOI 661- Coagulation disorders, SOI 3 - 338 stays in 2005). Overall, most of the CVs (×100) are less than 100, which means that the related APR-DRG-SOI cells may be considered as 'acceptably' low-variant.

For "other" DRG groups, results are given in Figure 3.14. Equally, except for the 'residual' DRGs (950 and above), most of the CVs (×100) in those groups are less than 100.

Figure 3.14: Boxplots of the coefficient of variation for medical and surgical DRGs; inclusive method



Shape

Skewness is a measure of symmetry. A normal distribution has skewness equal to 0, i.e. is perfectly symmetrical. If the left tail is more pronounced than the right tail, the distribution is said to have negative skewness. If the reverse is true, it has positive skewness. With positive skewness the mean (μ) usually has a higher value than the median (Q2), with negative skewness the opposite holds.

There is by now a huge literature on ways to handle skewed data in health cost or health utilisation analysis, such as a transformation of the data (e.g. a logarithmic transformation) or non-parametric or distribution-free methods.[1] Although it is beyond of the scope of this study to go deeper into this literature, when applying an all-inclusive case-based reimbursement system, it is adviseable to go through it.

In the Belgian APD-DRG-SOI billing data only few cells exhibit a negative skewness (Figure 3.15) and most APR-DRG-SOI are positively skewed, the highest being 225 - Appendectomy, SOI 1 (Figure 3.16).

[1] See f.e. Mullagy J, Econometric modeling of health care costs and expenditures: a survey of analytical issues and related policy considerations, Medical Care, July 2009, 47(7 Suppl 1):S104-8 and included references; Manning WG, Basu A, Mullahy J., Geralized modeling approaches to risk adjustment of skewed outcomes data. Journal of Health Economics, 2005 May;24(3):465-88.

Figure 3.15: Negative skewness in APR-DRG-SOI billing data (inclusive method)

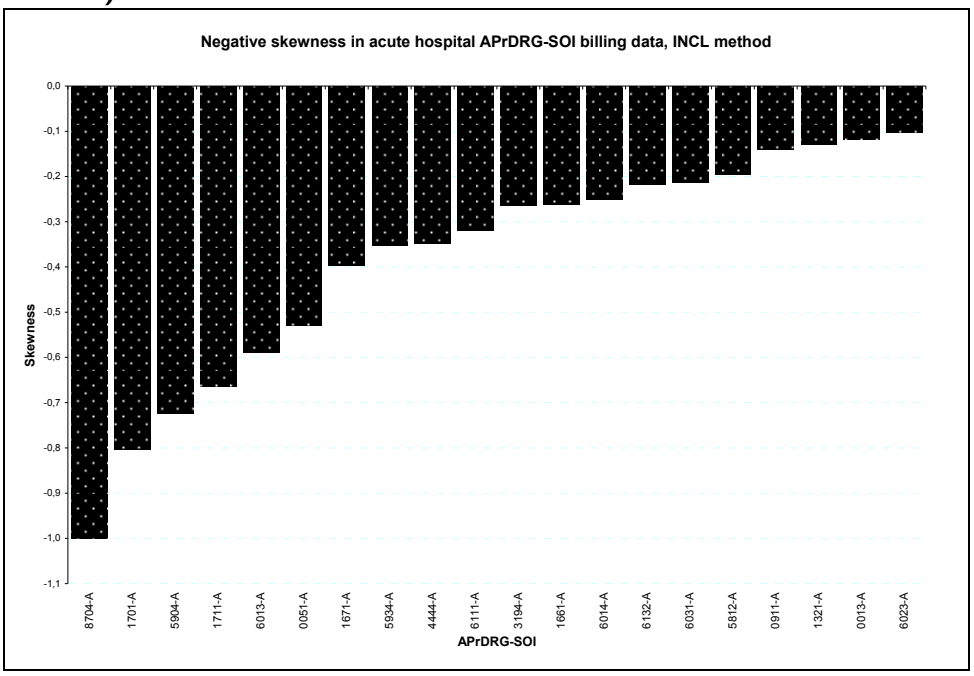
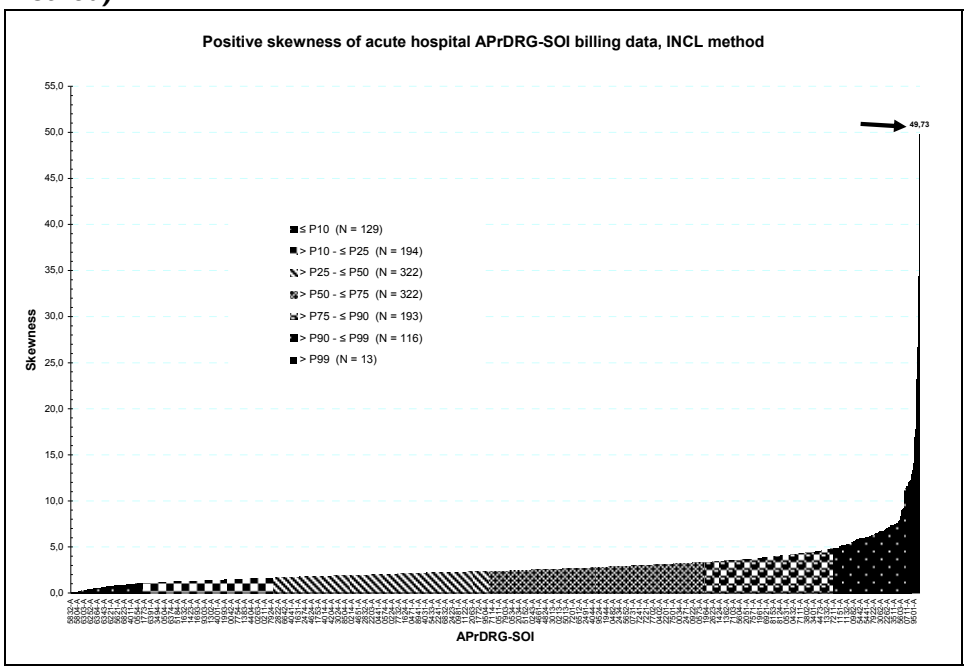
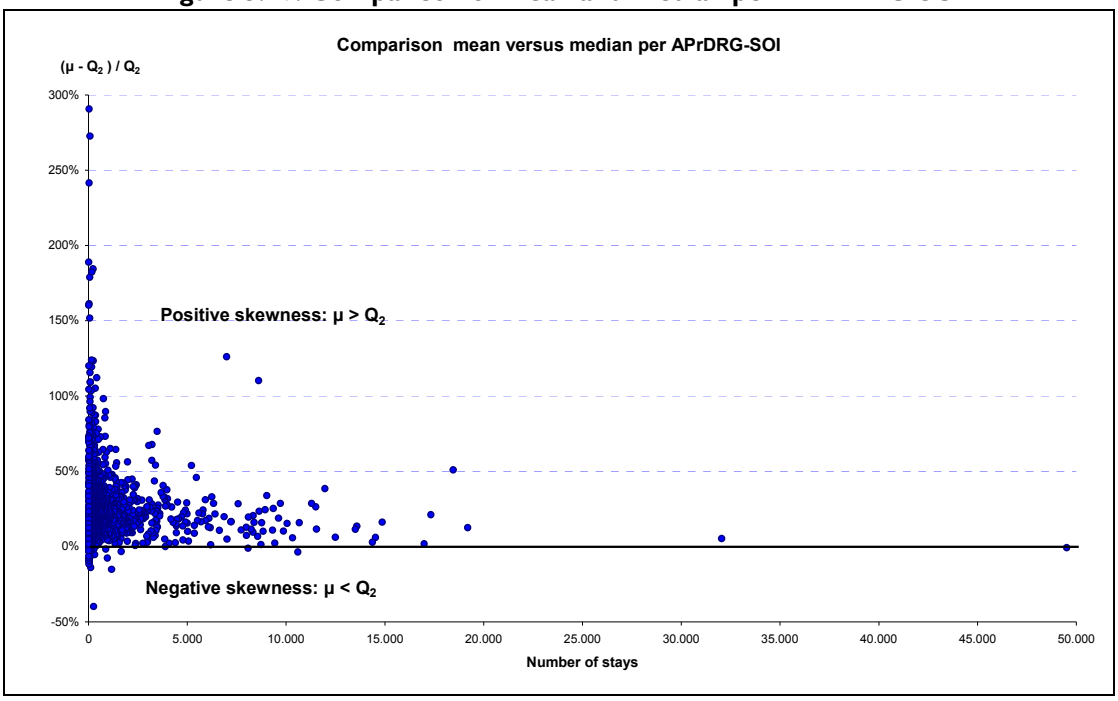


Figure 3.16: Positive skewness in APR-DRG-SOI billing data (inclusive method)



Another, more intuitive way to look at and compare skewness in distinct data groups is to calculate the difference of the mean and the median ($\square$ - Q_2). For representational purposes this difference can be expressed as a share of the median (Figure 3.17).

Figure 3.17: Comparison of mean and median per APR-DRG-SOI



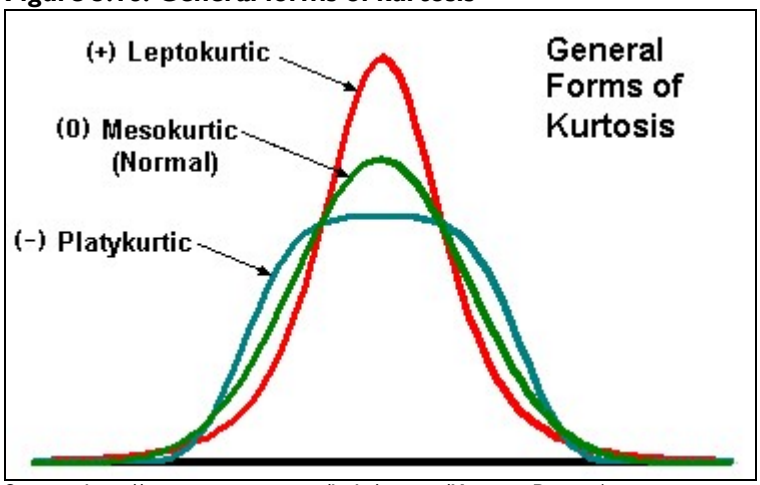
It is clear from above scatter diagram that:

- Few APR-DRG-SOI show negative skewness;
- Most APR-DRG-SOI show positively skewed;
- The higher the sample size the lesser the μ - Q_2 difference.

There is however one caveat with the □ - Q_2 difference, namely in the presence of extremes (outliers).

For illustrative purposes, also a second measure of shape is discussed. **Kurtosis** characterizes the relative peakedness or flatness of a distribution compared to the normal distribution. The kurtosis for a standard normal distribution is 3 but often 'excess kurtosis' is used (excess kurtosis = kurtosis – 3). Distributions with an excess kurtosis around zero (> -0.5 and < 0.5) are referred to as normal or mesokurtotic (Figure 3.18 and Figure 3.19). Positive excess kurtosis indicates a "peaked" distribution (leptokurtosis – Figure 3.20) and negative excess kurtosis indicates a "flat" distribution (platykurtosis – Figure 3.21).

Figure 3.18: General forms of kurtosis



Source: http://mvpprograms.com/help/images/KurtosisPict.jpg)

Figure 3.19: Mesokurtosis in acute hospital APR-DRG-SOI billing data, inclusive method

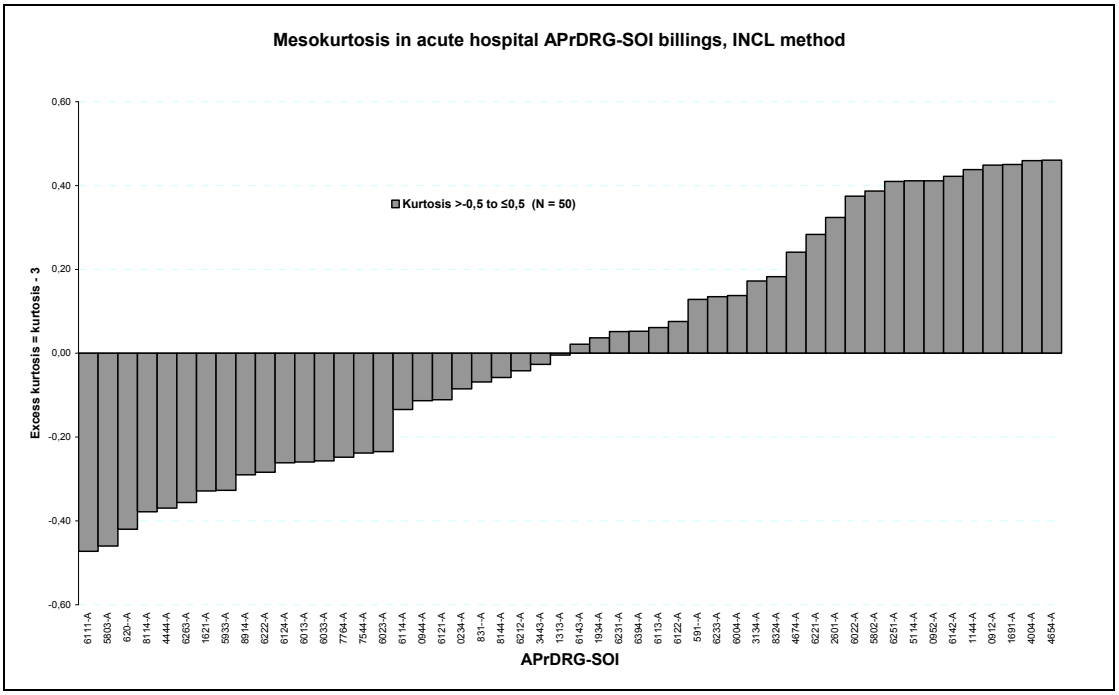


Figure 3.20: Leptokurtosis in acute hospital APR-DRG-SOI billing data, inclusive method

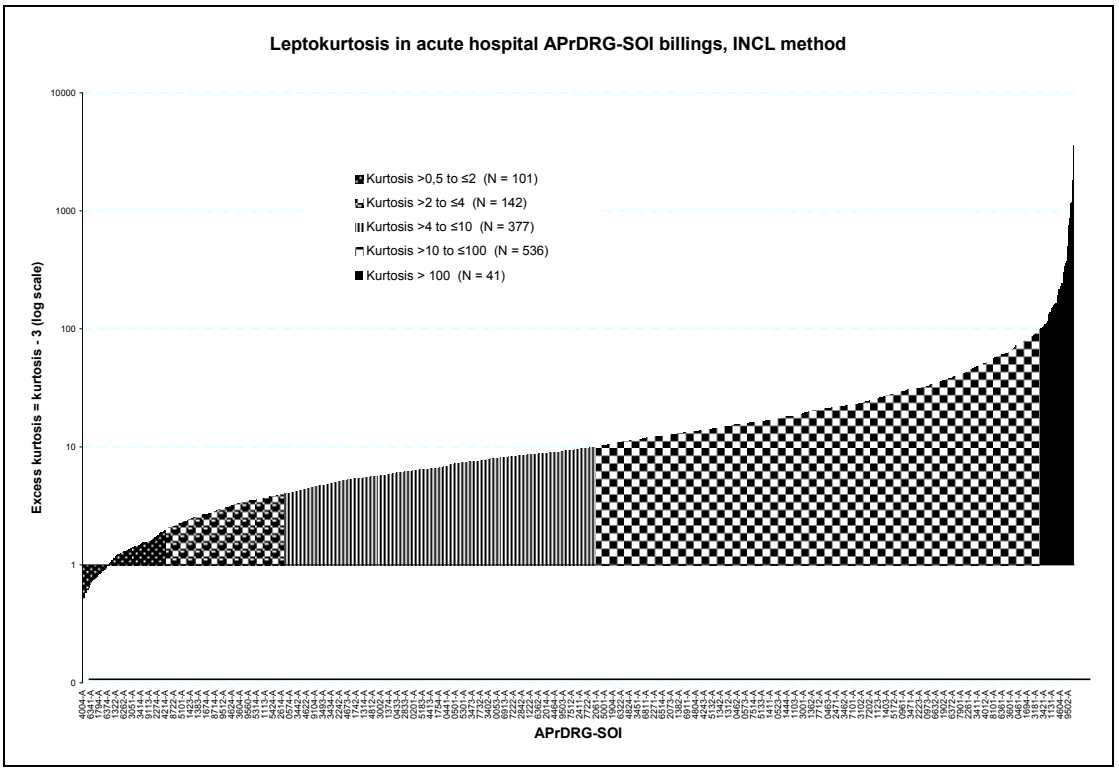
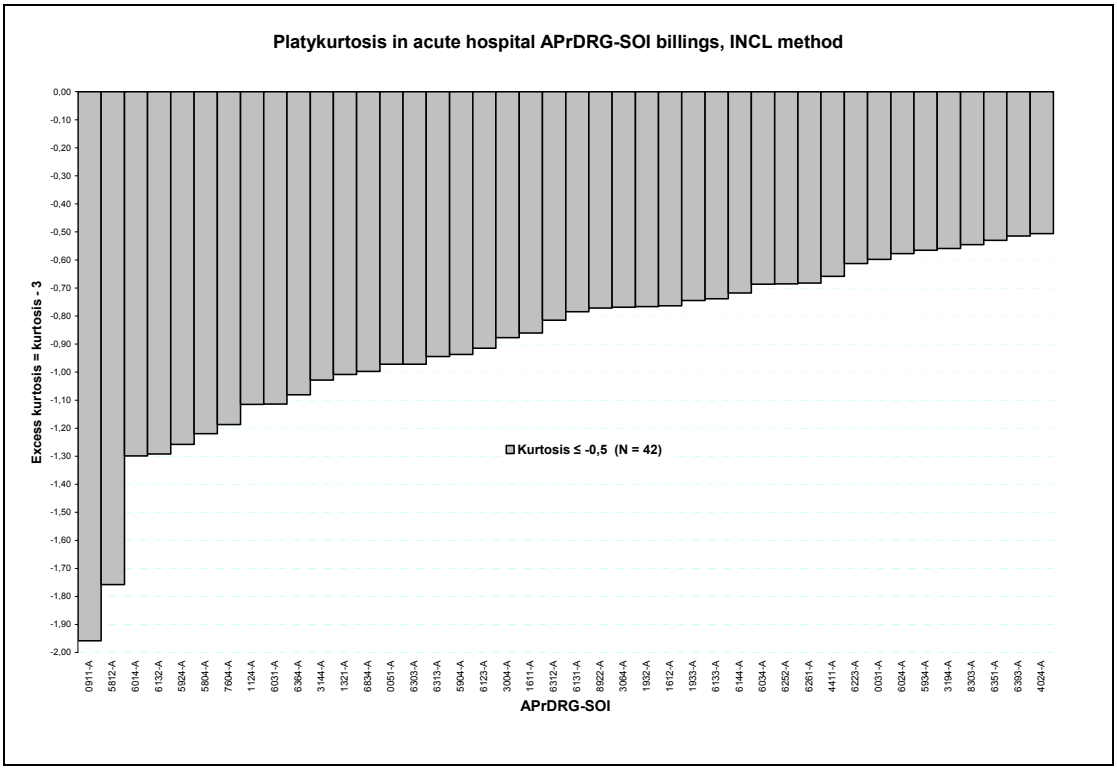
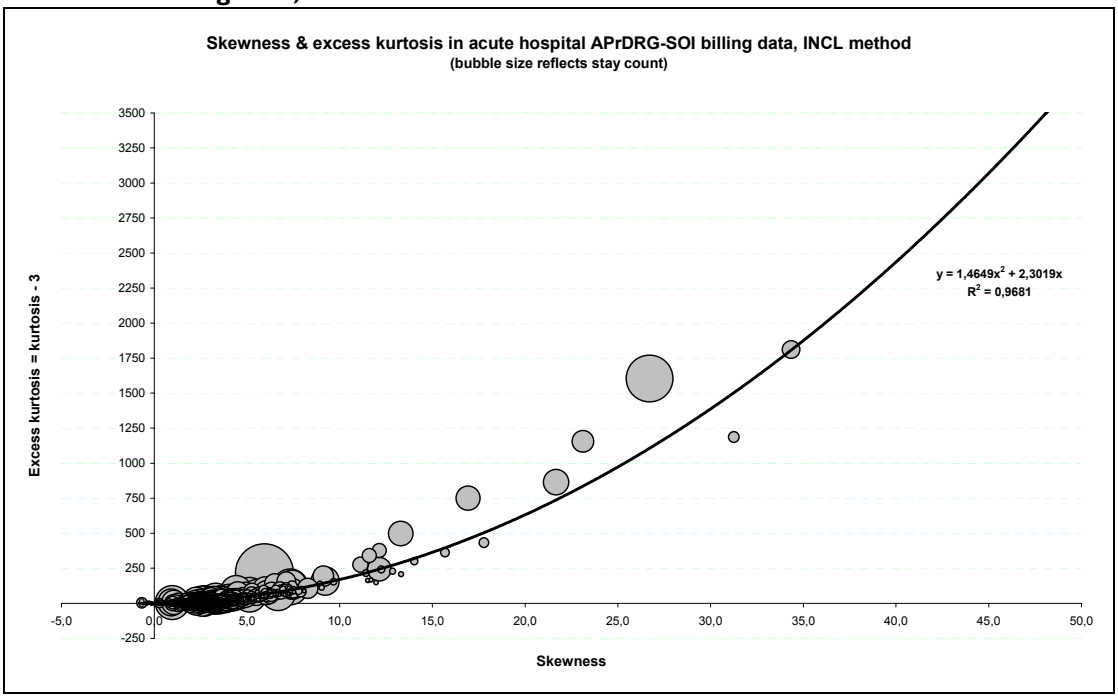


Figure 3.21: Platykurtosis in acute hospital APR-DRG-SOI billing data, inclusive method



Kurtosis and skewness (except for symmetrical distributions with near zero skewness) are closely related: the higher the skewness the higher kurtosis (Figure 3.22).

Figure 3.22: Skewness and excess kurtosis in acute hospital APR-DRG-SOI billing data, inclusive method



APPENDIX 3.7 OUTLIERS

Appendix 3.7 is an appendix to section 5.3.9.2 in the main text.

The classical non-parametric trimming point for outliers is Q_3 + 1,5 × IQR. In price based outlier demarcation, however, we find stays going beyond double and even triple this 1,5 × IQR limit. Such stays we call 'extremes' and, for better reference purposes, we subdivide them in 'high' (> Q3 + 4,5 × IQR) and 'low' extremes (> Q3 + 3 × IQR), depending on the factor chose for multiplying the interquartile range (IQR – see Table 3.27).

Table 3.27: Inlier stays and categories of outlier stays in linked MCD-HBD 2005 (acute & chronic stays) - Q3 + 1.5 × IQR definition

Billing category	N_APR-DRG-SOI	N_stays	Days_billed	NIHDI billing amounts 2005	% of total
Inliers ≤ Q3 + 1.5 × IQR	1.320	1.458.612	9.612.305	5.017.421.029	84,90%
Outliers > Q3 + 1.5 × IQR	1.207	52.145	1.066.176	498.634.773	15,10%
Extremes > Q3 + 3 × IQR	994	15.051	401.521	184.505.954	
Extremes > Q3 + 4.5 × IQR	885	14.365	452.131	209.066.059	
			Total 2005	**5.909.627.814**	

The corresponding trimming points are interesting in that they can be useful in dealing with reimbursement methods for outlier stays. Furthermore, it is rather striking that 15.1% of 2005 billing data are in effect outlier stay reimbursements.

If we take Q_3 + 2 × IQR for outlier limit this percentage drops to 11.45% (Table 3.28).

Table 3.28: Inlier stays and categories of outlier stays in linked MCD-HBD 2005 (acute & chronic stays) - Q3 + 2 × IQR definition

Billing category	N_APR-DRG-SOI	N_stays	Days_billed	NIHDI billing amounts 2005	% of total
Inliers ≤ Q3 + 2×IQR	1.320	1.499.206	10.427.928	5.360.045.915	88,55%
Outliers ≤ Q3 + 2× IQR	1.190	56.368	1.500.426	692.752.732	11,45%
			Total 2005	**5.909.627.814**	

Right trimmed mean as a (price) location parameter

Given the positively skewed distributions of APR-DRGs, a crucial question is which location parameter would be preferable. Of course, the answer depends on policy objectives (e.g. efficiency versus equity), and choices in this field have to made by public health authorities. Again, for illustrative purposes, the following figures are constructed to answer two questions:

- What is, at the level of an APR-DRG, the effect of right sided trimming on the mean?
- How does the right trimmed mean (μ_{rt}) relate to the median (Q_2) as location parameter per APR-DRG?

Figure 3.23 concerns the first question and shows that the difference $\square$-$\square_{rt}$ varies strongly over the different APR-DRGs.

Figure 3.23: Effect of right sided trimming on the mean per APR-DRG

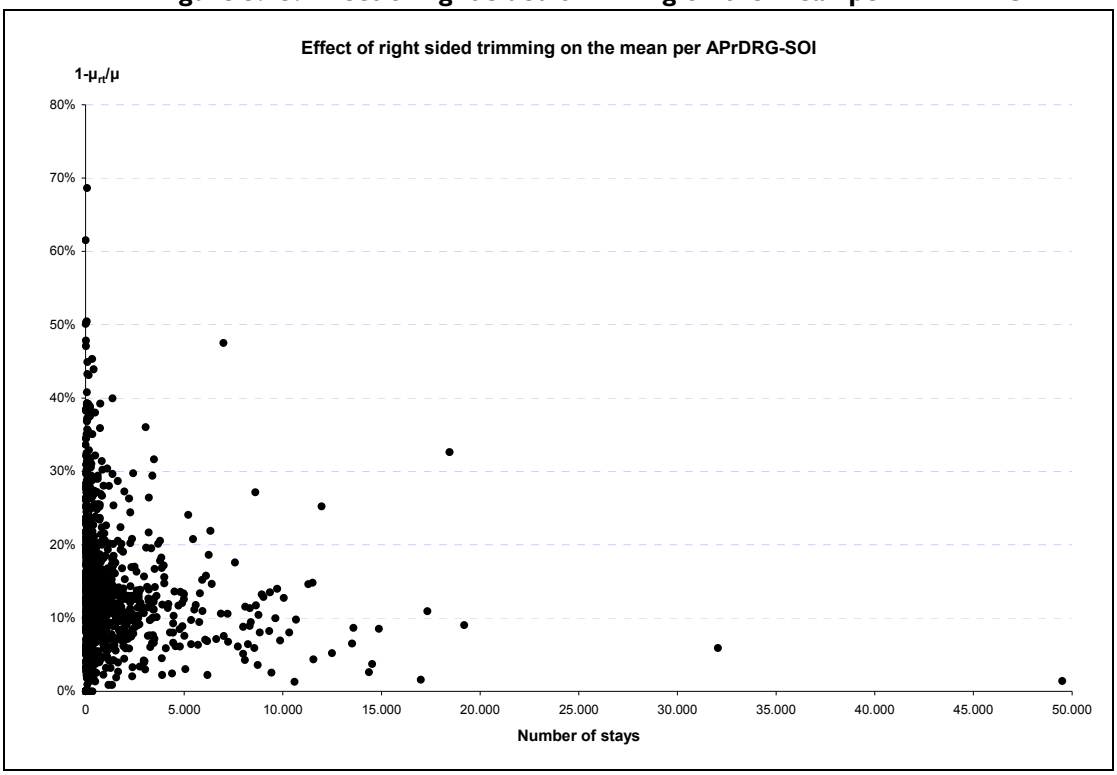


Figure 3.24 deals with the second question. One could argue that for positively skewed APR-DRGs the right trimmed mean would be the preferable while for negatively skewed APR-DRGs (only 170/1313=13%, smalls cells not included), it probably would be more prudent to take the median as location parameter for price.

Table 3.29 gives location and variability parameters per APR-DRG-SOI and stay type.

Figure 3.24: Comparison of right trimmed mean and median per APR-DRG

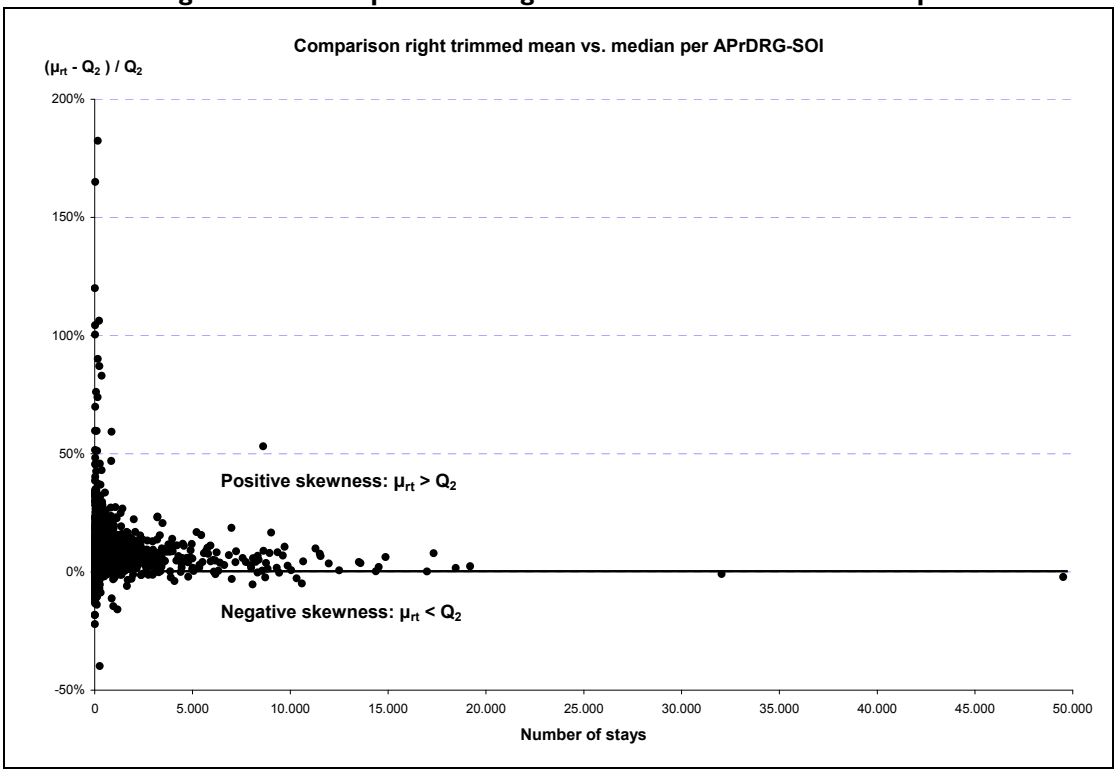


Table 3.29 Location and dispersion parameters per stay type and APR-DRG-SOI

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
0013-A	38	32.946,24	9.450,89	28.352,37	31.697,28	39.438,09	28,69	56.066,68	32.946,24	38	0
0014-A	159	58.864,61	47.077,86	32.860,08	42.351,99	60.666,95	79,98	102.377,25	44.364,78	139	20
0023-A	30	36.496,04	10.366,62	34.220,39	36.058,18	38.476,06	28,40	44.859,57	34.196,94	27	3
0024-A	69	68.683,09	49.308,10	40.873,15	47.343,98	86.211,87	71,79	154.219,95	57.226,11	64	5
0031-A	43	14.295,60	11.608,33	4.434,11	11.820,89	24.423,87	81,20	54.408,49	14.295,60	43	0
0032-A	89	17.584,91	10.117,60	11.024,00	15.442,39	22.552,01	57,54	39.844,02	16.600,02	86	3
0033-A	170	24.977,58	13.701,65	16.409,61	20.848,27	28.618,46	54,86	46.931,73	21.642,40	155	15
0034-A	338	38.653,00	30.678,66	21.059,70	28.397,33	44.802,58	79,37	80.416,91	32.308,85	315	23
0041-A	15	6.903,05	7.434,18	1.313,05	4.213,57	9.688,32	107,69	22.251,22	5.543,54	14	1
0042-A	57	12.001,31	10.457,52	5.096,21	8.140,89	14.107,70	87,14	27.624,93	9.239,08	51	6
0043-A	202	22.874,80	13.904,14	12.281,30	21.101,07	29.801,27	60,78	56.081,21	21.757,82	197	5
0044-A	1.785	50.036,54	31.774,78	29.383,75	42.898,53	61.824,35	63,50	110.485,25	45.100,62	1.699	86
0051-A	37	8.508,90	4.217,21	5.154,94	9.458,47	11.495,78	49,56	21.007,06	8.508,90	37	0
0052-A	122	11.722,33	6.083,90	7.753,74	12.096,46	14.084,07	51,90	23.579,57	11.025,73	118	4
0053-A	124	15.457,58	11.079,80	9.957,27	12.793,42	17.730,07	71,68	29.389,27	12.625,51	112	12
0054-A	163	27.207,12	17.518,24	15.151,04	23.103,86	35.109,29	64,39	65.046,65	25.313,47	158	5
0201-A	111	5.528,72	3.111,02	3.505,21	5.015,94	6.884,51	56,27	11.953,46	5.104,00	107	4
0202-A	142	7.644,25	4.090,76	4.882,91	7.001,84	10.244,13	53,51	18.285,95	7.287,06	139	3
0203-A	173	10.703,16	7.021,09	6.157,39	8.595,91	13.306,46	65,60	24.030,07	9.662,91	165	8
0204-A	212	18.938,68	14.238,97	9.692,37	16.595,02	24.322,47	75,18	46.267,62	17.809,48	209	3
0211-A	1.054	7.520,19	4.174,43	4.848,96	7.007,38	9.211,07	55,51	15.754,23	6.879,67	1.003	51
0212-A	1.336	9.922,39	5.939,74	6.926,57	8.968,07	11.673,94	59,86	18.794,99	8.859,55	1.256	80
0213-A	732	13.437,26	7.947,40	8.273,12	12.066,28	16.611,91	59,14	29.120,10	12.400,83	703	29
0214-A	708	21.856,70	14.533,74	11.987,83	18.677,42	28.211,77	66,50	52.547,67	20.216,87	686	22
0221-A	145	4.788,74	2.284,58	3.734,61	4.530,41	5.350,17	47,71	7.773,52	4.293,33	134	11
0222-A	279	6.479,08	4.252,42	4.127,60	5.286,10	7.350,81	65,63	12.185,62	5.478,99	255	24
0223-A	122	11.207,32	8.496,22	4.819,06	8.461,48	15.345,42	75,81	31.134,96	9.871,94	116	6
0224-A	82	16.066,09	12.025,20	7.344,20	13.470,85	21.387,02	74,85	42.451,25	14.142,53	78	4
0231-A	569	3.957,29	2.990,83	1.735,49	3.184,69	5.310,32	75,58	10.672,57	3.632,12	549	20
0232-A	341	6.767,13	5.500,85	3.255,78	5.463,65	8.972,53	81,29	17.547,65	6.009,13	328	13
0233-A	157	12.328,87	7.571,95	7.211,45	10.276,81	16.306,72	61,42	29.949,63	11.511,55	152	5
0234-A	54	21.385,45	12.342,17	10.967,30	19.904,58	28.925,35	57,71	55.862,42	21.385,45	54	0
0241-A	1.033	3.251,06	1.281,96	2.576,87	3.008,48	3.571,74	39,43	5.064,06	3.027,47	973	60
0242-A	2.267	4.123,67	2.248,41	2.920,24	3.441,75	4.567,97	54,52	7.039,56	3.657,56	2.113	154
0243-A	679	7.413,74	5.624,96	3.513,82	5.680,91	9.174,47	75,87	17.665,44	6.490,72	644	35
0244-A	88	18.205,80	12.779,69	9.503,33	14.153,14	23.031,63	70,20	43.324,08	16.178,86	83	5
0251-A	2.416	1.491,72	1.827,17	819,20	1.057,47	1.341,29	122,49	2.124,42	1.047,78	2.153	263
0252-A	234	3.040,63	3.537,95	1.015,31	1.582,11	3.374,59	116,36	6.913,50	1.866,18	203	31
0253-A	63	7.415,08	10.569,66	1.329,55	2.945,71	7.281,59	142,54	16.209,65	3.673,94	54	9
0261-A	659	4.304,50	3.193,79	1.544,00	3.952,19	6.439,35	74,20	13.782,36	4.096,31	649	10
0262-A	442	7.052,85	5.174,66	2.778,08	6.248,89	10.216,78	73,37	21.374,83	6.723,25	435	7
0263-A	278	12.006,71	7.791,78	6.599,09	11.189,68	15.154,92	64,90	27.988,66	10.845,49	265	13
0264-A	73	22.858,12	13.996,74	13.501,85	20.336,32	30.368,78	61,23	55.669,19	21.928,01	72	1
0401-A	154	1.776,19	1.502,75	801,47	1.288,82	2.346,35	84,61	4.663,68	1.516,98	146	8
0402-A	178	3.444,90	3.671,36	1.306,13	2.318,00	3.942,23	106,57	7.896,38	2.496,89	161	17
0403-A	118	5.900,94	4.708,62	2.318,08	4.837,38	8.066,22	79,79	16.688,43	5.266,68	113	5
0404-A	36	8.557,78	5.988,54	4.548,75	7.603,62	10.732,97	69,98	20.009,30	7.261,12	33	3
0411-A	338	3.014,71	2.424,08	1.407,05	2.537,31	3.765,91	80,41	7.304,19	2.640,98	323	15
0412-A	1.129	4.202,15	3.272,89	1.968,62	3.507,45	5.405,12	77,89	10.559,87	3.683,52	1.075	54
0413-A	850	7.519,70	5.844,25	3.792,12	6.171,16	9.685,54	77,72	18.525,66	6.718,41	818	32
0414-A	206	10.972,75	8.547,07	5.423,58	8.962,59	14.325,53	77,89	27.678,44	9.654,05	196	10
0421-A	1.900	3.280,08	3.546,53	1.139,26	2.346,41	4.119,50	108,12	8.589,85	2.655,70	1.789	111
0421-C	80	9.285,89	9.909,80	2.916,13	6.200,53	12.402,95	106,72	26.633,19	7.243,94	75	5
0422-A	4.906	5.183,29	4.253,27	2.551,66	4.175,59	6.627,05	82,06	12.740,13	4.558,90	4.688	218
0422-C	248	10.259,36	7.624,31	4.957,41	8.196,84	13.460,54	74,32	26.215,22	9.244,56	237	11
0423-A	2.735	7.965,47	5.701,05	4.320,33	6.634,06	10.224,13	71,57	19.079,83	7.237,78	2.633	102
0423-C	133	11.286,36	8.092,02	5.059,97	9.614,84	15.154,48	71,70	30.296,23	10.513,26	129	4
0424-A	381	13.570,28	9.419,36	7.152,13	11.437,84	17.711,62	69,41	33.550,85	12.377,26	366	15
0424-C	12	12.364,52	6.781,62	7.824,76	11.794,35	15.962,31	54,85	28.168,63	12.364,52	12	0
0431-A	1.123	2.037,30	1.407,77	1.123,31	1.816,07	2.490,37	69,10	4.540,96	1.824,31	1.072	51

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
0431-C	95	11.997,05	14.430,94	2.907,55	6.709,85	11.800,84	120,29	25.140,76	6.609,95	81	14
0432-A	714	3.132,80	2.341,13	1.825,77	2.628,04	3.905,71	74,73	7.025,61	2.751,25	676	38
0432-C	96	14.466,47	14.266,31	4.829,82	7.629,56	21.101,14	98,62	45.508,12	12.182,22	91	5
0433-A	182	5.300,40	4.198,16	2.421,68	4.303,67	7.056,29	79,20	14.008,20	4.802,77	176	6
0433-C	26	9.506,72	13.334,57	2.355,09	2.433,15	12.842,22	140,26	28.572,92	6.448,63	24	2
0434-A	25	10.365,70	7.800,38	4.862,25	7.388,92	14.757,58	75,25	29.600,56	9.470,66	24	1
0441-A	328	3.091,86	2.745,94	949,86	2.451,11	4.285,19	88,81	9.288,17	2.732,38	315	13
0442-A	868	4.497,39	3.530,54	1.688,99	3.852,50	6.275,27	78,50	13.154,70	4.160,68	844	24
0443-A	1.127	5.100,38	5.230,57	1.475,16	3.459,02	6.945,11	102,55	15.150,05	4.244,31	1.071	56
0444-A	470	10.961,29	8.755,45	3.921,09	9.414,99	15.423,12	79,88	32.676,16	10.398,22	462	8
0451-A	866	3.255,32	1.838,07	2.112,06	3.020,36	4.115,93	56,46	7.121,73	3.102,92	848	18
0452-A	5.926	4.776,46	3.105,73	2.942,04	4.070,58	5.747,36	65,02	9.955,33	4.253,61	5.602	324
0453-A	3.216	7.328,41	6.006,39	3.770,00	5.900,78	9.097,97	81,96	17.089,92	6.312,14	3.043	173
0454-A	1.694	11.159,59	8.538,26	5.292,97	8.946,54	14.599,72	76,51	28.559,86	9.967,97	1.621	73
0461-A	471	2.511,55	2.333,29	1.220,41	2.115,86	3.110,56	92,90	5.945,79	2.193,94	453	18
0462-A	1.976	3.919,08	2.747,96	2.201,16	3.450,51	4.903,79	70,12	8.957,73	3.516,19	1.891	85
0463-A	774	6.365,31	4.725,22	3.362,75	5.328,19	7.920,98	74,23	14.758,32	5.609,44	733	41
0464-A	258	10.251,15	8.313,67	5.316,62	8.321,19	12.476,35	81,10	23.215,94	8.492,51	239	19
0471-A	1.245	2.376,88	1.341,02	1.462,66	2.196,44	2.996,66	56,42	5.297,67	2.233,12	1.208	37
0472-A	4.444	3.447,66	2.261,41	2.128,53	3.028,84	4.199,12	65,59	7.305,02	3.127,60	4.250	194
0473-A	1.471	5.509,72	3.798,80	3.090,36	4.587,37	6.779,26	68,95	12.312,61	4.848,48	1.390	81
0474-A	144	9.558,94	6.175,52	4.802,79	8.459,93	13.061,35	64,60	25.449,19	9.092,89	141	3
0481-A	1.397	1.810,72	1.615,20	819,26	1.322,22	2.289,71	89,20	4.495,38	1.516,46	1.318	79
0482-A	2.425	3.390,36	2.261,89	1.956,07	2.844,94	4.233,82	66,72	7.650,44	3.061,79	2.317	108
0483-A	1.964	4.483,53	3.112,81	2.154,89	3.833,27	6.150,40	69,43	12.143,66	4.207,64	1.917	47
0484-A	89	11.923,45	10.263,51	5.698,32	8.630,95	15.502,25	86,08	30.208,15	10.126,99	84	5
0491-A	106	4.147,84	2.071,55	2.965,68	3.877,11	4.927,90	49,94	7.871,23	3.824,08	100	6
0492-A	326	6.953,64	5.685,01	2.978,59	5.700,88	9.405,99	81,76	19.047,08	6.311,58	316	10
0493-A	138	8.062,04	6.084,42	4.069,68	6.927,61	10.601,63	75,47	20.399,57	7.389,01	134	4
0494-A	116	13.797,25	12.166,13	5.679,16	10.141,46	18.991,59	88,18	38.960,24	12.103,36	112	4
0501-A	213	3.237,59	2.544,64	1.609,31	2.767,49	4.100,38	78,60	7.836,99	2.833,21	203	10
0502-A	269	4.477,72	3.580,29	2.077,64	3.329,13	5.852,79	79,96	11.515,51	3.940,04	256	13
0503-A	133	7.667,14	5.717,10	4.144,90	6.038,79	9.796,54	74,57	18.273,99	6.665,05	126	7
0504-A	56	16.559,80	10.066,94	8.925,05	13.708,05	22.328,55	60,79	42.433,79	15.966,58	55	1
0511-A	743	1.831,45	1.024,47	1.201,61	1.607,29	2.190,66	55,94	3.674,23	1.672,54	709	34
0512-A	229	3.025,67	2.179,49	1.479,21	2.289,19	3.996,58	72,03	7.772,63	2.772,40	222	7
0513-A	32	3.550,73	3.376,37	1.655,21	2.260,65	3.422,25	95,09	6.072,81	2.452,40	28	4
0514-A	12	10.628,21	8.729,69	6.934,94	8.619,86	9.357,76	82,14	12.992,00	7.053,22	10	2
0521-A	580	1.578,13	1.131,87	717,65	1.284,43	2.120,90	71,72	4.225,77	1.450,83	561	19
0522-A	559	2.857,72	2.291,47	1.285,14	2.322,74	3.643,49	80,19	7.181,03	2.478,54	531	28
0523-A	561	5.216,82	4.486,09	2.409,89	4.130,44	6.482,76	85,99	12.592,05	4.509,39	534	27
0524-A	228	9.680,55	10.582,53	3.014,42	6.652,88	12.506,34	109,32	26.744,23	7.916,70	217	11
0531-A	5.920	1.294,69	1.086,15	623,30	987,75	1.561,77	83,89	2.969,47	1.097,97	5.574	346
0532-A	4.507	2.518,28	2.336,26	1.084,46	1.944,93	3.181,02	92,77	6.325,86	2.175,28	4.304	203
0533-A	2.486	3.804,87	3.647,12	1.398,69	2.887,82	4.826,53	95,85	9.968,29	3.158,87	2.344	142
0534-A	467	11.448,13	9.794,42	5.587,19	8.448,71	14.551,12	85,55	27.997,03	9.430,34	435	32
0541-A	2.705	1.301,76	906,39	710,82	1.050,75	1.596,09	69,63	2.924,01	1.133,77	2.543	162
0542-A	1.480	2.120,22	1.559,60	1.043,98	1.742,81	2.717,82	73,56	5.228,59	1.896,26	1.417	63
0543-A	217	3.347,58	3.436,24	1.460,96	2.521,38	4.029,36	102,65	7.881,97	2.611,33	200	17
0551-A	507	2.599,99	2.042,49	1.172,81	2.045,39	3.366,03	78,56	6.655,86	2.319,19	487	20
0552-A	563	4.631,54	3.323,84	2.331,66	3.980,00	6.000,54	71,77	11.503,85	4.222,74	542	21
0553-A	407	6.483,02	6.010,39	2.375,97	5.592,78	8.943,30	92,71	18.794,28	5.955,26	398	9
0554-A	175	11.795,14	7.762,24	5.666,70	11.180,70	15.596,36	65,81	30.490,86	10.993,08	169	6
0561-A	777	1.600,85	1.736,63	783,27	1.247,29	1.835,76	108,48	3.414,50	1.305,99	733	44
0562-A	375	3.100,19	2.142,04	1.556,32	2.624,06	4.165,15	69,09	8.078,39	2.888,67	364	11
0563-A	101	6.739,03	6.108,46	2.817,66	6.104,38	8.100,08	90,64	16.023,71	5.642,92	95	6
0564-A	30	12.511,89	9.272,53	5.828,10	11.338,78	16.495,74	74,11	32.497,19	11.484,22	29	1
0571-A	8.331	789,68	535,95	451,63	655,02	937,63	67,87	1.666,64	699,93	7.897	434
0572-A	1.330	1.664,88	1.462,95	748,66	1.205,16	2.076,43	87,87	4.068,08	1.377,38	1.245	85
0573-A	177	4.140,33	4.188,36	1.665,32	2.958,83	5.219,45	101,16	10.550,65	3.408,02	168	9
0574-A	31	7.135,19	6.077,37	3.620,48	4.981,36	7.906,65	85,17	14.335,92	5.139,47	27	4
0581-A	11.967	775,58	810,22	549,39	560,04	758,46	104,47	1.072,07	579,79	10.370	1.597

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
0581-C	19	8.783,05	5.196,67	5.934,47	8.864,39	12.891,94	59,17	23.328,16	8.783,05	19	0
0582-A	6.989	1.542,96	2.165,67	550,22	682,45	1.409,23	140,36	2.697,75	809,70	5.918	1.071
0582-C	99	9.963,44	7.518,37	4.539,19	8.041,39	12.976,92	75,46	25.633,50	8.889,64	94	5
0583-A	1.546	5.003,90	4.397,28	1.567,72	4.063,21	6.914,39	87,88	14.934,39	4.532,64	1.498	48
0583-C	75	11.808,16	9.472,16	5.635,96	8.865,49	13.530,60	80,22	25.372,55	8.915,54	66	9
0584-A	209	12.238,19	9.173,28	6.113,50	9.228,66	16.247,48	74,96	31.448,46	10.859,64	198	11
0584-C	16	11.370,46	7.402,55	5.750,10	11.069,61	15.663,70	65,10	30.534,10	11.370,46	16	0
0701-A	325	2.532,23	2.037,35	1.364,35	1.730,63	2.548,98	80,46	4.325,93	1.804,63	283	42
0702-A	169	2.825,22	2.035,82	1.432,16	1.995,59	3.519,84	72,06	6.651,35	2.397,15	156	13
0703-A	26	7.440,04	6.917,08	2.213,11	6.701,64	10.159,44	92,97	22.078,93	6.330,14	25	1
0711-A	2.991	2.390,03	1.025,00	1.850,34	2.307,75	2.738,54	42,89	4.070,84	2.292,11	2.895	96
0712-A	2.079	2.843,85	1.437,09	2.133,05	2.576,34	3.280,74	50,53	5.002,28	2.637,25	1.986	93
0713-A	86	6.145,75	7.097,70	2.539,22	3.481,07	6.108,16	115,49	11.461,57	3.856,64	75	11
0721-A	1.887	1.439,98	784,81	986,85	1.287,99	1.580,33	54,50	2.470,55	1.250,66	1.729	158
0722-A	477	2.205,06	1.781,84	1.180,10	1.532,37	2.918,95	80,81	5.527,22	1.937,96	456	21
0723-A	63	5.632,37	7.611,81	1.468,34	3.279,10	6.523,60	135,14	14.106,48	3.801,15	57	6
0731-A	4.075	1.418,73	392,98	1.169,48	1.388,91	1.495,60	27,70	1.984,79	1.335,28	3.792	283
0732-A	1.687	1.606,77	1.000,23	1.204,40	1.446,35	1.586,56	62,25	2.159,79	1.397,15	1.523	164
0733-A	156	2.698,91	4.651,49	1.247,21	1.481,39	2.001,58	172,35	3.133,14	1.535,28	133	23
0734-A	15	7.237,41	6.765,86	1.972,09	4.531,62	12.664,28	93,48	28.702,55	7.237,41	15	0
0801-A	199	1.987,22	1.112,64	1.241,99	1.805,03	2.428,78	55,99	4.208,97	1.840,14	192	7
0802-A	102	2.970,69	2.475,73	1.710,50	2.343,92	3.270,66	83,34	5.610,91	2.365,91	94	8
0803-A	20	5.591,49	4.089,14	2.484,29	4.537,49	8.143,56	73,13	16.632,45	5.591,49	20	0
0811-A	236	2.003,58	1.216,80	1.137,96	1.784,96	2.628,17	60,73	4.863,49	1.884,69	229	7
0812-A	284	2.860,10	1.848,25	1.617,08	2.415,00	3.654,48	64,62	6.710,56	2.638,54	274	10
0813-A	87	4.559,66	3.772,11	2.359,76	3.726,79	5.445,32	82,73	10.073,67	3.909,26	83	4
0821-A	785	1.518,53	1.296,51	694,90	1.196,12	1.933,64	85,38	3.791,75	1.314,21	749	36
0822-A	1.335	2.831,20	2.326,46	1.520,68	2.257,78	3.456,24	82,17	6.359,57	2.399,03	1.254	81
0823-A	498	4.933,02	4.089,28	2.526,46	3.935,54	6.002,08	82,90	11.215,52	4.155,62	468	30
0824-A	28	10.124,99	7.862,38	6.005,32	8.804,73	11.344,46	77,65	19.353,17	7.821,05	25	3
0901-A	64	1.439,48	744,11	1.071,98	1.302,24	1.517,53	51,69	2.185,86	1.272,72	59	5
0902-A	128	7.634,78	9.943,06	2.032,06	7.197,54	9.369,11	130,23	20.374,68	6.442,49	125	3
0903-A	27	12.980,96	5.324,58	9.372,30	11.003,80	14.512,13	41,02	22.221,88	11.872,33	25	2
0904-A	97	20.643,62	14.505,82	10.930,06	15.233,32	24.793,47	70,27	45.588,58	17.350,13	89	8
0911-A	255	13.736,23	10.275,18	2.693,73	22.850,11	23.306,84	74,80	54.226,50	13.736,23	255	0
0912-A	167	7.903,53	7.465,01	2.984,05	4.181,88	8.987,43	94,45	17.992,49	4.863,03	140	27
0913-A	46	9.773,33	6.234,38	5.786,57	7.624,97	11.957,03	63,79	21.212,72	7.965,95	41	5
0914-A	82	14.420,77	10.323,21	7.745,06	10.851,84	17.102,15	71,59	31.137,80	12.435,15	77	5
0921-A	3.029	2.339,30	1.306,94	1.562,26	2.159,12	2.918,93	55,87	4.953,94	2.269,84	2.983	46
0922-A	378	3.051,72	2.063,91	1.735,57	2.573,31	3.805,42	67,63	6.910,20	2.776,29	364	14
0923-A	57	7.063,76	4.823,56	4.024,71	6.273,65	8.390,23	68,29	14.938,50	5.821,51	52	5
0931-A	6.181	1.817,84	638,14	1.370,11	1.795,74	2.143,23	35,10	3.302,91	1.777,38	6.086	95
0932-A	1.008	2.280,87	1.476,91	1.503,27	2.008,39	2.486,43	64,75	3.961,17	1.957,08	932	76
0933-A	56	4.940,71	3.790,11	1.978,74	3.940,93	6.723,03	76,71	13.839,47	4.548,11	54	2
0934-A	11	16.464,50	15.176,74	5.227,72	9.575,12	18.490,19	92,18	38.383,88	10.140,92	9	2
0941-A	1.303	1.445,52	1.010,98	914,87	1.206,58	1.629,19	69,94	2.700,67	1.245,05	1.214	89
0942-A	448	2.381,79	2.460,78	1.110,76	1.514,10	2.524,50	103,32	4.645,10	1.730,37	405	43
0943-A	94	5.898,32	6.292,32	2.084,41	4.018,12	7.611,63	106,68	15.902,46	4.824,55	90	4
0944-A	12	14.168,29	10.102,34	5.873,89	11.984,36	21.674,48	71,30	45.375,36	14.168,29	12	0
0951-A	398	1.761,37	750,78	1.233,11	1.571,05	2.131,67	42,62	3.479,52	1.680,59	384	14
0952-A	123	2.062,89	802,72	1.460,16	1.906,54	2.498,50	38,91	4.056,02	2.023,48	121	2
0961-A	794	1.806,45	782,54	1.323,73	1.694,82	2.133,35	43,32	3.347,77	1.726,04	772	22
0962-A	224	2.488,84	1.889,24	1.737,66	2.225,92	2.765,63	75,91	4.307,57	2.218,22	214	10
0963-A	11	3.786,97	3.550,97	1.748,29	2.833,92	3.593,82	93,77	6.362,11	2.795,94	10	1
0971-A	7.009	934,38	497,12	659,05	890,25	1.014,17	53,20	1.546,83	863,94	6.620	389
0972-A	1.200	1.287,90	970,12	870,41	998,89	1.332,15	75,33	2.024,77	1.028,49	1.070	130
0973-A	96	3.391,38	5.808,16	1.032,93	1.621,86	3.202,44	171,26	6.456,70	1.923,66	86	10
0981-A	11.544	1.422,29	627,29	1.022,10	1.274,91	1.708,36	44,10	2.737,75	1.360,19	11.190	354
0982-A	1.850	1.948,65	1.570,66	1.126,34	1.611,43	2.276,52	80,60	4.001,79	1.689,81	1.760	90
0983-A	140	4.777,14	5.824,24	1.444,91	3.092,80	5.120,58	121,92	10.634,07	3.081,91	124	16
0984-A	31	16.787,79	13.552,41	6.892,11	11.521,90	26.141,48	80,73	55.015,54	16.787,79	31	0
1101-A	369	1.842,44	1.637,56	968,15	1.491,03	2.302,79	88,88	4.304,75	1.638,06	358	11

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
1102-A	725	2.612,15	2.513,09	1.269,28	2.047,30	2.975,16	96,21	5.533,99	2.082,92	671	54
1103-A	563	5.165,92	5.060,68	2.128,69	3.446,53	6.790,54	97,96	13.783,32	4.336,50	535	28
1104-A	133	13.880,57	11.025,41	6.701,07	10.476,55	18.010,20	79,43	34.973,89	12.199,31	126	7
1111-A	1.794	1.760,54	1.119,37	963,29	1.538,97	2.283,32	63,58	4.263,38	1.637,45	1.736	58
1112-A	1.696	2.993,88	2.204,69	1.672,25	2.561,64	3.755,47	73,64	6.880,30	2.703,19	1.631	65
1113-A	351	4.928,19	3.211,73	2.802,61	4.007,43	6.247,10	65,17	11.413,84	4.464,90	335	16
1114-A	25	9.413,16	7.327,48	5.109,80	7.260,00	11.779,37	77,84	21.783,73	7.241,44	22	3
1121-A	564	1.029,91	649,94	578,11	924,35	1.284,78	63,11	2.344,78	947,70	542	22
1122-A	330	1.602,74	1.214,16	774,51	1.283,48	1.995,77	75,76	3.827,66	1.394,91	313	17
1123-A	130	3.233,40	2.874,81	1.595,67	2.607,36	4.012,29	88,91	7.637,21	2.717,38	123	7
1124-A	21	8.154,29	6.500,45	3.436,26	5.379,87	15.151,72	79,72	32.724,90	8.154,29	21	0
1131-A	6.162	1.215,32	760,47	755,81	1.080,16	1.526,64	62,57	2.682,88	1.131,96	5.956	206
1132-A	4.811	1.756,64	1.382,83	975,55	1.434,67	2.095,06	78,72	3.774,32	1.518,29	4.542	269
1133-A	839	3.093,97	3.010,83	1.424,24	2.220,22	3.661,62	97,31	7.017,68	2.475,46	776	63
1134-A	121	7.103,78	6.067,88	2.726,71	5.574,77	9.292,49	85,42	19.141,16	6.142,28	115	6
1141-A	1.587	1.173,78	905,67	674,22	986,37	1.443,57	77,16	2.597,60	1.048,23	1.525	62
1142-A	879	1.964,54	1.915,40	939,49	1.485,86	2.263,83	97,50	4.250,35	1.559,94	819	60
1143-A	284	4.174,99	3.988,11	1.659,76	2.805,39	5.159,47	95,52	10.409,02	3.281,08	263	21
1144-A	70	8.027,36	6.197,72	3.187,58	6.570,33	10.833,69	77,21	22.302,84	7.548,50	68	2
1151-A	2.083	1.092,57	867,10	548,47	833,97	1.362,44	79,36	2.583,39	974,83	1.995	88
1152-A	3.046	1.014,68	1.253,48	547,50	607,13	965,73	123,53	1.593,08	649,15	2.586	460
1153-A	273	3.573,80	4.927,25	1.206,54	2.294,94	4.260,54	137,87	8.841,52	2.681,93	256	17
1154-A	55	9.401,12	9.933,72	3.212,95	6.418,91	12.215,42	105,67	25.719,14	7.345,75	51	4
1201-A	273	6.346,27	2.452,76	5.454,05	6.451,19	7.532,69	38,65	10.650,64	6.106,25	263	10
1202-A	671	8.010,21	2.682,40	6.586,50	7.680,51	9.033,84	33,49	12.704,85	7.603,71	638	33
1203-A	407	10.707,76	5.238,64	7.775,61	9.307,50	12.174,20	48,92	18.772,07	9.733,55	382	25
1204-A	248	19.155,92	15.311,38	10.214,23	13.950,67	22.303,79	79,93	40.438,14	15.565,40	228	20
1211-A	984	3.135,94	2.393,22	1.263,57	2.372,50	4.358,60	76,32	9.001,15	2.898,78	957	27
1212-A	1.626	5.369,10	4.186,60	2.563,07	4.636,08	6.805,72	77,98	13.169,69	4.774,99	1.555	71
1213-A	912	9.319,91	5.693,61	5.547,35	8.149,81	12.166,82	61,09	22.096,02	8.775,59	887	25
1214-A	479	18.534,79	12.658,54	10.605,78	15.468,79	22.278,94	68,30	39.788,69	16.202,89	450	29
1221-A	158	2.401,20	2.837,85	1.161,48	1.646,20	2.679,41	118,18	4.956,31	1.826,26	145	13
1222-A	172	5.784,51	4.917,22	2.524,59	4.745,44	7.400,49	85,01	14.714,35	5.013,44	164	8
1223-A	129	9.820,26	8.305,15	5.183,72	7.211,52	11.624,41	84,57	21.285,45	7.850,63	119	10
1224-A	112	21.161,13	18.404,68	9.782,57	16.243,67	25.317,99	86,97	48.621,13	16.957,40	104	8
1302-A	42	7.253,15	4.342,08	3.847,81	5.897,50	10.488,78	59,86	20.450,22	6.879,50	41	1
1303-A	223	12.038,33	6.870,28	7.278,79	10.511,03	14.994,64	57,07	26.568,40	11.079,36	213	10
1304-A	1.394	17.365,15	11.421,67	9.807,01	14.695,80	21.650,45	65,77	39.415,61	15.524,85	1.323	71
1311-A	73	3.502,65	2.581,67	1.742,57	2.597,39	4.471,30	73,71	8.564,39	3.044,54	68	5
1312-A	171	4.993,39	3.740,82	2.079,69	4.166,57	7.419,81	74,92	15.429,99	4.768,64	169	2
1313-A	335	5.396,49	3.370,44	2.195,28	5.121,62	7.659,51	62,46	15.855,85	5.294,53	332	3
1314-A	90	9.689,95	6.464,27	5.335,09	8.328,33	11.140,88	66,71	19.849,57	8.260,25	83	7
1321-A	18	2.960,94	1.557,98	1.877,21	3.247,48	3.826,21	52,62	6.749,71	2.960,94	18	0
1322-A	27	2.416,36	1.835,61	851,02	1.860,28	3.409,06	75,97	7.246,13	2.416,36	27	0
1323-A	43	4.237,30	4.060,40	2.206,98	2.988,26	5.010,86	95,83	9.216,68	3.359,49	40	3
1331-A	418	3.501,42	2.188,68	2.000,68	3.153,22	4.515,66	62,51	8.288,13	3.265,29	404	14
1332-A	1.099	2.889,46	3.387,51	662,26	1.979,15	4.028,30	117,24	9.077,36	2.437,00	1.059	40
1333-A	1.740	5.536,65	4.175,87	2.672,76	4.695,72	7.264,60	75,42	14.152,34	5.001,37	1.671	69
1334-A	737	9.643,10	7.868,21	4.483,31	8.061,23	12.278,91	81,59	23.972,30	8.359,37	699	38
1341-A	401	3.250,74	1.393,76	2.283,64	3.231,43	4.076,55	42,88	6.765,93	3.191,97	396	5
1342-A	1.810	4.475,28	2.344,11	3.076,40	4.100,15	5.411,45	52,38	8.914,03	4.162,79	1.739	71
1343-A	1.462	6.102,83	3.606,11	3.855,58	5.374,15	7.452,07	59,09	12.846,80	5.538,95	1.385	77
1344-A	435	9.018,86	6.806,03	4.627,04	7.658,36	11.736,88	75,46	22.401,64	7.965,18	414	21
1351-A	449	1.569,76	1.647,92	752,80	1.167,72	1.829,80	104,98	3.445,30	1.295,37	424	25
1352-A	652	3.393,93	2.812,70	1.582,81	2.651,49	4.319,11	82,87	8.423,55	2.913,61	617	35
1353-A	345	6.459,16	4.419,38	3.250,05	5.427,88	8.018,24	68,42	15.170,53	5.686,46	325	20
1354-A	67	11.738,96	9.906,24	5.498,29	9.145,94	13.111,07	84,39	24.530,23	8.471,56	58	9
1361-A	638	2.163,55	1.851,73	1.091,38	1.700,86	2.599,95	85,59	4.862,80	1.817,44	601	37
1362-A	3.842	3.132,34	2.804,80	1.533,97	2.360,03	3.735,11	89,54	7.036,82	2.560,69	3.579	263
1363-A	3.892	5.135,76	4.131,60	2.236,87	4.050,11	6.751,04	80,45	13.522,28	4.527,93	3.716	176
1364-A	544	9.914,58	7.821,44	4.552,11	8.292,61	12.710,75	78,89	24.948,73	8.603,21	516	28
1371-A	617	3.404,48	3.256,72	1.637,19	2.491,74	3.855,40	95,66	7.182,71	2.600,51	560	57

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
1372-A	1.706	4.996,56	3.343,41	2.870,64	4.281,19	6.122,36	66,91	10.999,95	4.462,00	1.623	83
1373-A	2.430	6.890,12	4.412,75	4.003,40	5.994,76	8.723,27	64,04	15.803,08	6.348,03	2.340	90
1374-A	1.729	10.092,35	7.179,40	5.237,07	8.398,32	13.223,23	71,14	25.202,46	9.126,43	1.659	70
1381-A	255	2.076,40	1.018,16	1.471,90	1.867,03	2.513,42	49,04	4.075,72	1.934,25	245	10
1382-A	205	2.611,06	1.337,98	1.740,59	2.286,77	3.073,38	51,24	5.072,57	2.445,98	197	8
1383-A	70	3.102,07	1.732,41	1.874,98	2.616,86	3.534,60	55,85	6.024,04	2.714,20	64	6
1384-A	25	4.359,07	3.390,66	2.151,87	3.360,85	5.211,46	77,78	9.800,85	3.668,82	23	2
1391-A	8.839	2.046,12	1.301,66	1.396,73	1.857,80	2.423,32	63,62	3.963,19	1.881,93	8.427	412
1392-A	10.666	3.624,77	2.424,79	2.129,78	3.130,29	4.432,26	66,89	7.885,97	3.270,37	10.174	492
1393-A	8.383	5.547,41	3.612,94	3.243,45	4.780,13	6.908,24	65,13	12.405,43	5.023,09	8.003	380
1394-A	3.428	8.544,96	6.814,34	4.196,23	6.908,00	11.053,30	79,75	21.338,90	7.594,08	3.285	143
1401-A	3.371	2.662,48	1.704,56	1.561,30	2.479,63	3.456,63	64,02	6.299,63	2.487,18	3.270	101
1402-A	9.312	3.912,65	2.388,82	2.494,58	3.529,89	4.831,75	61,05	8.337,50	3.590,89	8.919	393
1403-A	8.766	5.406,43	3.617,02	3.269,25	4.665,41	6.583,96	66,90	11.556,02	4.842,30	8.332	434
1404-A	2.678	9.498,76	7.249,46	4.979,42	7.670,67	11.953,99	76,32	22.415,85	8.315,09	2.537	141
1411-A	7.724	1.634,11	931,99	1.013,31	1.472,09	2.053,00	57,03	3.612,52	1.534,04	7.475	249
1412-A	4.771	2.475,90	1.528,52	1.488,61	2.177,94	3.084,74	61,74	5.478,93	2.265,69	4.570	201
1413-A	1.546	3.341,26	2.785,39	1.840,77	2.765,25	3.952,20	83,36	7.119,35	2.876,60	1.455	91
1414-A	195	6.283,73	5.887,19	2.514,15	4.735,31	7.952,41	93,69	16.109,80	4.989,84	181	14
1421-A	183	2.250,09	1.487,40	1.250,70	1.898,08	2.757,51	66,10	5.017,72	1.999,21	173	10
1422-A	577	3.629,77	2.914,49	1.731,60	2.916,10	4.540,07	80,29	8.752,79	3.197,58	552	25
1423-A	459	5.364,09	3.538,49	2.672,95	4.768,23	7.305,71	65,97	14.254,85	5.074,31	448	11
1424-A	126	10.498,39	8.717,94	5.305,45	8.393,42	12.984,14	83,04	24.502,17	9.116,01	120	6
1431-A	829	2.093,42	1.202,09	1.393,72	1.930,36	2.566,58	57,42	4.325,86	1.926,80	792	37
1432-A	1.261	3.119,22	2.183,93	1.741,18	2.663,03	3.921,37	70,02	7.191,64	2.774,09	1.201	60
1433-A	720	5.383,92	3.818,49	2.834,68	4.696,11	7.001,00	70,92	13.250,47	4.895,43	693	27
1434-A	177	8.264,18	5.420,89	4.239,07	7.064,55	11.213,24	65,60	21.674,49	7.752,47	172	5
1441-A	9.019	1.284,47	1.131,04	549,78	959,09	1.626,42	88,05	3.241,38	1.119,24	8.618	401
1442-A	9.351	2.561,11	2.137,77	1.175,94	2.045,18	3.251,42	83,47	6.364,64	2.214,91	8.869	482
1443-A	4.466	4.680,16	3.483,02	2.416,09	3.965,19	5.935,53	74,42	11.214,70	4.199,01	4.286	180
1444-A	884	8.704,52	6.980,89	4.495,89	7.090,51	11.169,76	80,20	21.180,57	7.656,82	843	41
1603-A	30	14.746,10	4.734,99	12.658,97	14.379,70	17.442,67	32,11	24.618,22	14.347,89	29	1
1604-A	98	22.721,83	16.268,05	13.453,00	17.369,70	25.341,27	71,60	43.173,68	19.280,90	91	7
1611-A	162	8.741,94	9.210,55	1.987,82	3.095,73	20.087,94	105,36	47.238,12	8.741,94	162	0
1612-A	356	10.943,41	10.104,67	2.550,81	5.978,63	21.387,69	92,34	49.643,00	10.943,41	356	0
1613-A	296	14.579,10	12.542,64	3.802,08	10.497,31	23.671,50	86,03	53.475,64	14.365,34	295	1
1614-A	82	30.826,98	20.389,19	16.111,90	23.995,70	44.103,47	66,14	86.090,84	29.284,51	80	2
1621-A	27	16.419,70	2.654,45	14.465,56	16.014,43	18.887,24	16,17	25.519,77	16.419,70	27	0
1622-A	110	19.324,32	3.959,23	16.506,74	18.569,64	20.844,63	20,49	27.351,45	18.980,81	107	3
1623-A	379	21.924,66	6.135,23	17.552,57	20.800,80	25.014,67	27,98	36.207,81	21.344,85	367	12
1624-A	386	34.501,16	16.857,90	23.726,41	29.613,04	40.501,64	48,86	65.664,48	31.615,02	366	20
1631-A	183	14.789,56	3.002,35	12.986,49	14.265,55	15.658,78	20,30	19.667,23	14.300,47	173	10
1632-A	426	16.088,39	3.127,56	14.470,92	15.589,45	17.365,88	19,44	21.708,31	15.653,19	406	20
1633-A	1.191	17.816,89	4.396,96	15.069,88	16.752,43	19.463,19	24,68	26.053,15	17.068,00	1.123	68
1634-A	893	24.993,72	12.712,36	17.073,67	20.891,63	28.965,14	50,86	46.802,35	22.414,57	834	59
1651-A	22	14.161,03	2.700,74	12.793,85	14.221,34	15.100,21	19,07	18.559,75	13.708,55	21	1
1652-A	495	14.246,58	2.791,94	12.319,84	13.975,38	15.772,36	19,60	20.951,15	14.055,02	484	11
1653-A	1.273	16.554,61	4.967,84	13.361,67	15.747,66	18.486,76	30,01	26.174,40	16.025,44	1.234	39
1654-A	678	25.076,23	13.380,42	16.410,57	20.432,04	29.082,40	53,36	48.090,16	22.613,32	639	39
1661-A	95	10.437,64	1.523,19	9.684,56	10.262,00	11.053,68	14,59	13.107,37	10.339,23	93	2
1662-A	1.555	11.687,18	2.154,69	10.357,88	11.405,73	12.598,31	18,44	15.958,95	11.465,63	1.511	44
1663-A	1.649	12.969,57	3.079,96	11.072,83	12.312,38	13.993,25	23,75	18.373,88	12.457,81	1.560	89
1664-A	718	20.217,52	12.148,97	12.918,61	16.088,63	22.022,95	60,09	35.679,46	17.037,11	654	64
1671-A	310	8.609,31	2.765,33	7.886,16	9.097,75	9.956,65	32,12	13.062,39	8.302,76	295	15
1672-A	202	10.197,70	3.597,36	8.975,44	9.889,62	11.517,07	35,28	15.329,52	9.715,39	193	9
1673-A	165	13.069,88	5.833,66	9.661,98	12.300,97	15.247,73	44,63	23.626,35	12.259,28	157	8
1674-A	112	22.314,96	11.620,84	14.064,06	17.838,29	27.048,58	52,08	46.525,37	20.481,72	106	6
1681-A	506	6.245,87	3.856,32	3.860,27	5.558,42	8.166,25	61,74	14.625,22	6.013,89	499	7
1682-A	1.379	7.825,81	3.925,66	5.224,76	7.256,45	9.779,09	50,16	16.610,59	7.493,99	1.348	31
1683-A	825	11.188,26	7.190,18	7.183,36	10.043,81	13.347,95	64,27	22.594,82	10.141,40	788	37
1684-A	673	20.958,60	19.841,81	10.287,11	15.903,89	25.190,35	94,67	47.545,20	17.551,42	634	39
1691-A	68	6.936,97	2.890,86	4.995,75	7.162,03	8.227,15	41,67	13.074,24	6.810,76	67	1

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
1692-A	226	8.907,01	2.773,59	7.202,18	8.340,93	9.897,57	31,14	13.940,65	8.382,34	211	15
1693-A	195	10.744,26	4.888,65	7.521,58	9.889,87	13.074,09	45,50	21.402,86	10.100,19	187	8
1694-A	210	20.240,91	20.956,91	9.957,69	15.155,05	25.227,29	103,54	48.131,68	17.710,73	203	7
1701-A	34	8.322,01	2.901,25	7.822,02	9.135,63	9.679,65	34,86	12.466,10	7.982,47	32	2
1702-A	161	10.420,09	4.126,56	8.461,20	10.089,58	12.094,89	39,60	17.545,43	10.017,80	156	5
1703-A	145	13.731,88	5.718,41	10.694,51	12.973,14	16.337,21	41,64	24.801,25	12.982,01	139	6
1704-A	50	17.370,77	7.170,39	13.139,03	16.006,32	20.272,82	41,28	30.973,49	16.529,61	48	2
1711-A	1.654	7.413,33	2.147,69	6.857,12	7.667,51	8.367,68	28,97	10.633,53	7.214,96	1.591	63
1712-A	2.966	8.548,70	2.812,31	7.378,13	8.317,68	9.754,00	32,90	13.317,82	8.212,67	2.841	125
1713-A	1.177	11.143,98	4.619,84	8.621,13	10.429,53	12.988,58	41,46	19.539,75	10.503,17	1.125	52
1714-A	246	17.305,54	11.770,86	11.616,16	14.757,76	20.161,49	68,02	32.979,49	15.618,28	236	10
1721-A	43	10.024,58	7.271,85	4.521,60	7.395,73	13.083,40	72,54	25.926,11	8.665,52	40	3
1722-A	194	10.389,71	9.903,73	5.257,70	8.568,62	12.527,95	95,32	23.433,32	8.673,95	184	10
1723-A	345	18.424,03	13.412,95	9.141,65	15.676,80	23.063,74	72,80	43.946,88	16.536,91	331	14
1724-A	187	23.903,11	16.328,02	12.931,05	20.251,13	29.908,77	68,31	55.375,37	20.799,53	175	12
1731-A	5.358	3.879,08	2.045,86	2.625,49	3.401,82	4.474,01	52,74	7.246,79	3.501,93	5.032	326
1732-A	6.863	5.007,54	3.146,24	3.070,26	4.178,15	6.014,08	62,83	10.429,82	4.475,88	6.491	372
1733-A	2.985	9.343,02	6.876,62	4.888,22	7.567,30	11.644,64	73,60	21.779,28	8.281,84	2.840	145
1734-A	677	19.045,49	13.404,37	10.873,41	15.883,66	23.559,53	70,38	42.588,70	16.772,24	642	35
1741-A	1.337	6.671,19	1.888,93	5.362,98	6.540,04	7.947,06	28,31	11.823,18	6.612,50	1.324	13
1742-A	2.363	7.668,59	2.424,82	6.088,44	7.610,53	8.960,25	31,62	13.267,96	7.512,52	2.319	44
1743-A	637	9.606,83	4.178,84	7.238,36	9.017,39	11.271,58	43,50	17.321,40	9.086,75	616	21
1744-A	418	14.965,07	8.530,10	9.343,90	12.887,15	17.901,38	57,00	30.737,61	13.605,65	397	21
1751-A	10.592	4.320,20	1.819,39	2.850,82	4.481,20	5.478,65	42,11	9.420,39	4.263,60	10.519	73
1752-A	8.724	5.534,56	1.943,60	4.533,68	5.461,06	6.442,07	35,12	9.304,66	5.336,17	8.432	292
1753-A	2.212	7.275,88	3.624,33	5.028,14	6.665,06	8.894,70	49,81	14.694,55	6.850,98	2.135	77
1754-A	440	13.656,51	7.947,17	8.284,29	11.678,33	17.056,01	58,19	30.213,57	12.521,24	420	20
1761-A	957	5.238,66	2.981,98	4.662,98	5.668,48	6.208,67	56,92	8.527,20	4.843,43	920	37
1762-A	877	5.735,39	3.095,91	4.952,44	5.838,09	6.564,27	53,98	8.982,02	5.182,92	818	59
1763-A	220	7.736,06	4.453,44	5.082,72	7.043,05	9.633,98	57,57	16.460,88	7.041,42	208	12
1764-A	41	14.410,79	8.066,92	8.753,94	12.889,96	17.760,05	55,98	31.269,21	12.866,41	38	3
1771-A	288	3.706,70	2.694,71	1.521,87	2.774,09	5.704,26	72,70	11.977,84	3.596,89	286	2
1772-A	312	4.465,04	3.406,16	1.846,71	4.147,37	5.961,51	76,28	12.133,71	4.089,67	304	8
1773-A	109	6.025,07	4.064,64	2.911,21	5.022,35	8.816,85	67,46	17.675,32	5.917,19	108	1
1774-A	22	13.162,73	9.233,70	7.045,67	10.642,27	15.134,50	70,15	27.267,76	10.147,75	19	3
1781-A	67	2.360,55	1.935,97	1.039,56	1.791,86	2.970,35	82,01	5.866,53	2.009,19	63	4
1782-A	322	4.155,81	3.690,42	1.481,27	2.965,04	5.601,08	88,80	11.780,78	3.692,95	310	12
1783-A	222	8.380,61	6.637,82	3.631,46	6.851,02	11.121,60	79,20	22.356,80	7.446,34	213	9
1784-A	41	17.845,79	10.745,87	10.015,69	16.526,33	23.930,58	60,22	44.802,91	16.812,64	40	1
1791-A	6.626	1.099,57	493,09	879,56	992,28	1.219,44	44,84	1.729,26	1.021,27	6.263	363
1792-A	618	1.676,15	2.522,09	948,55	1.168,14	1.566,70	150,47	2.493,92	1.183,26	549	69
1793-A	40	7.157,75	7.740,47	2.191,06	5.303,63	8.073,72	108,14	16.897,72	5.030,00	36	4
1794-A	14	17.450,84	18.751,57	5.567,79	7.931,05	29.958,29	107,45	66.544,03	17.450,84	14	0
1801-A	173	3.969,23	5.176,35	1.538,69	2.321,02	3.858,93	130,41	7.339,28	2.453,57	152	21
1802-A	370	4.408,93	3.757,31	1.774,58	3.232,79	5.915,30	85,22	12.126,39	3.823,59	352	18
1803-A	280	9.542,59	8.486,76	4.435,93	7.598,45	12.743,99	88,94	25.206,07	8.228,52	268	12
1804-A	136	20.429,23	15.110,73	9.757,98	16.334,64	27.277,75	73,97	53.557,40	18.167,57	130	6
1901-A	1.532	2.891,24	1.903,79	1.522,15	2.455,83	3.925,47	65,85	7.530,45	2.730,87	1.493	39
1902-A	4.567	3.651,35	2.633,55	1.931,80	3.084,88	4.849,02	72,13	9.224,86	3.426,92	4.464	103
1903-A	2.016	5.584,19	3.835,81	3.025,68	4.955,31	7.266,07	68,69	13.626,66	5.187,75	1.958	58
1904-A	1.485	7.937,63	7.373,44	2.957,94	6.225,85	10.159,69	92,89	20.962,32	6.660,83	1.405	80
1911-A	3.255	2.700,68	1.035,26	2.168,89	2.476,04	2.957,15	38,33	4.139,54	2.494,64	3.041	214
1912-A	2.791	3.313,44	1.932,05	2.280,71	2.706,06	3.787,27	58,31	6.047,12	2.913,87	2.586	205
1913-A	2.035	5.785,73	3.292,89	3.366,78	5.190,95	7.289,28	56,91	13.173,02	5.446,19	1.974	61
1914-A	267	12.571,69	7.991,64	7.075,89	10.713,75	16.475,07	63,57	30.573,84	11.589,59	257	10
1921-A	10.328	2.389,97	872,64	1.960,56	2.259,74	2.511,33	36,51	3.337,49	2.198,31	9.534	794
1922-A	10.049	2.830,69	1.340,36	2.162,06	2.452,69	3.007,59	47,35	4.275,89	2.470,55	8.998	1.051
1923-A	860	4.402,34	2.656,66	2.491,87	3.591,25	5.595,37	60,35	10.250,61	4.039,07	825	35
1924-A	65	10.013,90	6.409,48	5.592,88	8.248,76	12.464,48	64,01	22.771,88	8.437,68	59	6
1932-A	50	8.075,88	5.068,63	3.145,85	7.651,20	11.451,90	62,76	23.910,98	8.075,88	50	0
1933-A	76	11.179,35	6.435,55	5.438,13	10.888,02	15.967,43	57,57	31.761,38	11.179,35	76	0
1934-A	74	15.051,16	9.050,03	7.165,97	13.873,56	19.676,52	60,13	38.442,36	14.729,44	73	1

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
1941-A	1.028	2.855,24	1.894,08	1.633,74	2.630,29	3.572,79	66,34	6.481,37	2.601,77	985	43
1942-A	7.199	3.943,37	2.675,58	2.340,64	3.386,07	4.815,06	67,85	8.526,70	3.525,80	6.843	356
1943-A	8.095	5.750,90	4.005,43	3.234,37	4.809,91	7.090,85	69,65	12.875,58	5.087,61	7.667	428
1944-A	2.045	10.039,50	8.112,62	4.955,75	8.004,24	12.870,56	80,81	24.742,78	8.774,74	1.946	99
1951-A	213	2.404,62	1.187,34	1.634,64	2.252,34	3.190,96	49,38	5.525,44	2.343,54	210	3
1952-A	284	4.149,48	2.809,59	2.472,27	3.353,98	5.085,69	67,71	9.005,80	3.621,40	267	17
1953-A	305	5.241,77	4.153,29	3.153,97	4.246,06	6.438,21	79,23	11.364,56	4.731,65	295	10
1954-A	69	8.942,34	5.690,17	4.899,58	7.113,52	12.452,07	63,63	23.780,80	8.448,91	67	2
1961-A	220	567,38	497,68	330,78	368,44	563,73	87,72	913,15	418,06	194	26
1962-A	234	1.034,01	1.067,20	506,40	693,90	962,14	103,21	1.645,75	645,86	195	39
1963-A	300	1.912,84	2.230,56	576,71	1.020,88	2.359,43	116,61	5.033,51	1.350,21	273	27
1964-A	310	6.658,31	7.253,61	2.177,37	4.563,40	8.372,93	108,94	17.666,27	5.202,28	289	21
1971-A	1.771	2.081,25	2.082,35	1.052,44	1.463,72	2.353,11	100,05	4.304,12	1.615,54	1.631	140
1972-A	3.336	2.818,62	2.698,91	1.235,55	1.963,77	3.386,11	95,75	6.611,93	2.268,33	3.101	235
1973-A	1.853	4.719,03	4.328,96	1.745,54	3.432,70	6.067,52	91,73	12.550,51	3.927,30	1.745	108
1974-A	304	9.312,14	7.087,11	4.070,42	7.513,08	13.616,66	76,11	27.936,02	8.778,82	297	7
1981-A	1.397	1.623,75	1.440,96	631,93	1.158,61	2.140,72	88,74	4.403,91	1.345,16	1.310	87
1982-A	2.642	2.425,67	1.879,80	1.104,95	2.048,41	3.118,34	77,50	6.138,43	2.149,10	2.512	130
1983-A	745	4.043,93	3.413,63	1.934,84	3.351,01	5.585,18	84,41	11.060,70	3.704,72	724	21
1984-A	120	10.053,85	10.579,76	3.647,92	6.565,62	12.906,88	105,23	26.795,32	7.907,68	112	8
1991-A	962	1.818,79	1.155,55	980,81	1.630,40	2.354,08	63,53	4.413,98	1.707,59	936	26
1992-A	1.896	2.917,76	1.953,54	1.725,76	2.559,31	3.716,30	66,95	6.702,10	2.668,74	1.826	70
1993-A	523	4.181,25	2.440,40	2.476,61	3.762,83	5.190,44	58,37	9.261,19	3.849,29	500	23
1994-A	35	9.757,26	8.672,94	4.368,90	7.373,15	11.200,81	88,89	21.448,67	7.491,35	32	3
2001-A	182	1.645,38	1.504,39	752,30	1.222,30	2.291,05	91,43	4.599,16	1.464,09	177	5
2002-A	626	2.799,35	2.136,38	1.252,85	2.362,44	3.721,20	76,32	7.423,74	2.498,04	600	26
2003-A	368	4.951,06	4.195,47	2.376,61	4.026,24	6.027,27	84,74	11.503,25	4.212,30	348	20
2004-A	84	8.669,89	6.370,07	4.289,37	6.730,23	11.586,12	73,47	22.531,24	7.762,58	80	4
2011-A	4.967	1.325,61	991,46	716,99	1.027,29	1.612,62	74,79	2.956,06	1.148,80	4.678	289
2012-A	8.637	2.338,61	1.854,58	1.123,07	1.894,81	2.983,28	79,30	5.773,60	2.064,34	8.248	389
2013-A	3.599	4.162,49	3.303,99	2.150,91	3.460,87	5.176,43	79,38	9.714,72	3.620,18	3.411	188
2014-A	698	8.903,60	7.639,51	4.041,50	6.681,94	11.359,86	85,80	22.337,38	7.472,96	655	43
2021-A	1.700	1.553,38	1.125,20	732,26	1.251,52	2.109,99	72,44	4.176,59	1.423,52	1.647	53
2022-A	2.498	2.263,39	1.615,88	1.154,19	1.947,33	2.897,01	71,39	5.511,25	2.065,51	2.402	96
2023-A	656	4.093,70	3.493,27	2.067,45	3.271,48	5.063,46	85,33	9.557,47	3.450,57	617	39
2024-A	84	8.599,44	11.821,67	3.122,29	6.223,25	10.376,10	137,47	21.256,81	6.584,57	80	4
2031-A	2.474	1.200,22	840,99	666,11	923,79	1.453,77	70,07	2.635,27	1.049,21	2.331	143
2032-A	2.388	1.880,65	1.264,32	949,25	1.572,68	2.430,35	67,23	4.652,00	1.722,17	2.299	89
2033-A	309	3.381,34	2.433,09	1.771,34	2.910,76	4.415,76	71,96	8.382,37	3.068,50	298	11
2034-A	21	8.545,05	8.197,21	4.544,82	5.739,25	9.798,42	95,93	17.678,81	6.288,73	19	2
2041-A	2.700	1.291,76	1.041,82	677,19	987,56	1.589,60	80,65	2.958,21	1.118,99	2.551	149
2042-A	3.472	2.438,43	2.091,58	1.135,17	1.970,80	3.077,10	85,78	5.990,00	2.130,56	3.317	155
2043-A	1.030	4.437,93	3.358,72	2.337,04	3.613,84	5.662,27	75,68	10.650,10	3.999,53	989	41
2044-A	92	9.329,12	8.086,84	3.716,00	7.099,08	11.467,73	86,68	23.095,32	7.528,72	85	7
2051-A	84	1.950,12	1.711,62	848,59	1.783,84	2.259,39	87,77	4.375,59	1.613,92	78	6
2052-A	213	2.938,85	1.933,33	1.536,84	2.433,23	3.846,66	65,79	7.311,40	2.723,96	205	8
2053-A	155	4.491,12	3.036,18	2.500,87	3.771,61	5.573,38	67,60	10.182,14	3.949,81	147	8
2054-A	51	9.438,68	5.880,49	5.204,17	8.521,60	12.084,99	62,30	22.406,23	8.655,71	49	2
2061-A	137	2.486,39	2.874,81	1.042,78	1.488,41	2.153,94	115,62	3.820,68	1.511,04	117	20
2062-A	499	3.139,51	2.939,54	1.295,14	2.179,13	4.160,34	93,63	8.458,14	2.708,11	479	20
2063-A	346	5.038,74	4.447,99	2.015,94	3.728,24	6.646,08	88,28	13.591,28	4.242,81	326	20
2064-A	231	9.907,26	9.532,52	3.685,19	7.015,61	12.378,12	96,22	25.417,52	8.065,27	217	14
2071-A	2.565	1.865,70	1.547,34	897,48	1.500,32	2.337,51	82,94	4.497,55	1.619,22	2.441	124
2072-A	1.919	2.932,68	2.429,48	1.404,41	2.323,58	3.673,11	82,84	7.076,16	2.520,67	1.816	103
2073-A	776	4.693,24	3.430,02	2.591,88	4.004,67	5.883,10	73,08	10.819,93	4.168,96	740	36
2074-A	262	9.071,57	7.645,72	4.169,07	7.328,70	11.443,56	84,28	22.355,30	7.632,64	245	17
2201-A	2.058	2.627,56	1.123,26	2.019,83	2.378,82	2.908,12	42,75	4.240,56	2.413,47	1.930	128
2202-A	894	5.394,92	3.252,22	3.323,17	4.690,31	6.889,25	60,28	12.238,36	5.049,14	868	26
2203-A	1.193	10.010,11	5.662,14	6.135,43	9.009,08	12.446,63	56,56	21.913,41	9.297,48	1.149	44
2204-A	759	23.135,82	17.050,23	12.236,50	18.186,15	28.418,21	73,70	52.690,76	20.101,22	716	43
2211-A	1.967	5.320,51	2.070,58	4.065,84	5.141,83	6.180,19	38,92	9.351,72	5.084,59	1.900	67
2212-A	4.448	6.890,17	2.913,53	5.151,13	6.314,18	7.897,14	42,29	12.016,14	6.434,16	4.224	224

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
2213-A	4.907	9.826,89	5.331,95	6.590,07	8.445,44	11.512,13	54,26	18.895,22	8.955,13	4.653	254
2214-A	2.237	19.373,10	14.902,50	10.307,60	15.609,09	23.862,03	76,92	44.193,67	16.884,34	2.119	118
2221-A	286	2.136,90	937,05	1.545,52	1.956,33	2.466,24	43,85	3.847,32	1.966,38	268	18
2222-A	178	3.033,12	2.175,34	1.636,66	2.298,82	3.784,88	71,72	7.007,21	2.605,91	166	12
2223-A	86	6.937,05	6.766,05	3.341,78	5.518,58	7.831,00	97,53	14.564,84	5.734,15	81	5
2224-A	37	20.002,17	13.500,28	11.561,06	14.335,71	25.667,95	67,49	46.828,30	17.745,33	35	2
2231-A	593	3.118,89	1.504,69	2.145,97	2.879,94	3.868,43	48,24	6.452,12	2.952,35	572	21
2232-A	596	4.338,41	2.519,09	2.704,91	3.753,12	5.418,69	58,06	9.489,36	4.034,95	576	20
2233-A	327	7.412,77	4.296,29	4.742,98	6.296,24	8.830,18	57,96	14.960,98	6.596,43	307	20
2234-A	97	18.381,72	16.986,08	9.147,39	15.328,80	20.698,08	92,41	38.024,10	14.646,62	90	7
2241-A	987	2.414,00	1.490,65	1.348,97	2.035,06	3.098,41	61,75	5.722,58	2.231,01	949	38
2242-A	559	4.206,61	2.506,07	2.583,32	3.737,34	5.099,05	59,57	8.872,64	3.778,50	530	29
2243-A	363	7.559,11	4.749,10	4.424,30	6.528,45	9.559,67	62,83	17.262,71	6.958,03	349	14
2244-A	155	14.157,48	8.448,14	8.991,83	12.048,85	17.336,30	59,67	29.852,99	12.776,92	147	8
2251-A	7.992	1.681,44	1.029,68	1.302,26	1.566,85	1.904,69	61,24	2.808,33	1.595,08	7.670	322
2252-A	4.433	2.532,19	1.357,33	1.645,88	2.200,22	3.029,57	53,60	5.105,10	2.329,54	4.231	202
2253-A	340	4.758,56	3.183,54	2.751,13	3.958,28	6.004,43	66,90	10.884,39	4.236,47	323	17
2254-A	95	9.501,73	7.502,62	4.756,85	7.557,43	12.343,02	78,96	23.722,28	8.174,66	90	5
2261-A	7.988	1.278,53	714,26	884,79	1.133,83	1.505,10	55,87	2.435,57	1.165,88	7.597	391
2262-A	1.398	2.228,62	2.210,21	1.038,42	1.603,49	2.683,55	99,17	5.151,25	1.818,18	1.304	94
2263-A	265	5.526,14	5.284,22	2.512,49	4.178,50	7.072,17	95,62	13.911,70	4.811,80	253	12
2264-A	51	12.993,81	9.254,47	6.639,07	9.999,96	16.342,63	71,22	30.897,95	10.593,90	46	5
2271-A	5.698	1.701,71	892,06	1.072,51	1.462,00	2.077,71	52,42	3.585,51	1.593,61	5.500	198
2272-A	2.500	2.638,59	1.709,80	1.584,91	2.272,91	3.177,90	64,80	5.567,37	2.366,92	2.382	118
2273-A	413	4.895,85	4.600,82	2.489,44	3.736,05	5.907,92	93,97	11.035,64	4.153,71	395	18
2274-A	73	14.215,54	10.827,04	6.636,03	9.495,62	18.466,37	76,16	36.211,87	12.151,52	68	5
2281-A	14.525	1.361,36	496,93	1.036,55	1.284,07	1.576,88	36,50	2.387,37	1.310,85	14.111	414
2282-A	3.457	1.849,90	1.302,05	1.222,31	1.583,86	2.106,81	70,39	3.433,55	1.643,15	3.264	193
2283-A	376	3.928,63	3.754,57	1.731,76	2.753,50	4.397,42	95,57	8.395,93	2.940,22	342	34
2284-A	61	11.015,76	7.954,73	5.355,11	7.989,13	15.175,23	72,21	29.905,40	10.452,96	60	1
2291-A	644	2.587,59	2.122,75	1.226,96	1.932,59	3.307,49	82,04	6.428,29	2.271,66	616	28
2292-A	638	4.558,84	3.569,57	2.208,80	3.816,17	5.686,64	78,30	10.903,40	3.901,89	600	38
2293-A	406	8.722,32	5.961,48	4.626,73	7.378,41	10.849,08	68,35	20.182,60	7.775,05	384	22
2294-A	276	18.187,23	16.140,61	7.492,07	13.918,25	24.158,54	88,75	49.158,25	15.487,46	262	14
2401-A	846	2.089,14	1.702,38	1.164,78	1.750,06	2.507,31	81,49	4.521,11	1.797,18	800	46
2402-A	2.967	3.054,01	2.517,81	1.492,48	2.418,20	3.716,83	82,44	7.053,35	2.575,95	2.784	183
2403-A	2.283	5.171,15	4.443,31	2.382,31	3.957,62	6.581,16	85,92	12.879,43	4.429,74	2.164	119
2404-A	499	10.441,44	9.132,54	4.461,48	8.171,86	13.400,88	87,46	26.809,98	8.851,49	471	28
2411-A	2.090	1.665,51	1.068,81	952,42	1.402,89	2.067,89	64,17	3.741,10	1.514,04	1.999	91
2412-A	4.282	2.751,44	1.769,55	1.535,53	2.371,05	3.483,71	64,31	6.405,99	2.530,30	4.127	155
2413-A	2.110	4.813,99	3.136,33	2.792,19	4.124,95	5.953,76	65,15	10.696,11	4.327,42	2.007	103
2414-A	661	8.680,03	6.659,90	4.394,36	7.151,16	11.198,93	76,73	21.405,78	7.733,95	633	28
2421-A	168	1.413,77	1.051,22	729,67	1.110,87	1.651,59	74,36	3.034,47	1.199,66	157	11
2422-A	346	2.737,60	1.968,15	1.479,14	2.181,87	3.366,16	71,89	6.196,70	2.375,90	326	20
2423-A	205	4.809,63	3.212,54	2.764,31	4.174,76	6.224,07	66,79	11.413,71	4.394,74	197	8
2424-A	94	9.030,55	6.599,61	5.288,45	7.345,77	10.690,26	73,08	18.792,98	7.462,12	86	8
2431-A	3.990	1.196,65	899,07	653,59	938,07	1.421,48	75,13	2.573,31	1.020,38	3.729	261
2432-A	4.204	2.261,96	1.709,94	1.121,32	1.791,80	2.878,41	75,60	5.514,03	1.992,44	4.000	204
2433-A	1.249	4.108,70	2.912,73	2.171,45	3.430,05	5.069,79	70,89	9.417,30	3.603,43	1.178	71
2434-A	468	7.958,31	7.140,54	3.399,78	6.017,97	10.108,26	89,72	20.170,96	6.708,68	442	26
2441-A	2.951	2.129,90	1.230,16	1.241,64	1.991,66	2.737,90	57,76	4.982,28	2.040,22	2.892	59
2442-A	3.418	2.903,02	1.724,59	1.740,90	2.622,79	3.604,51	59,41	6.399,93	2.680,42	3.281	137
2443-A	1.247	4.567,82	2.825,25	2.879,72	3.882,42	5.491,99	61,85	9.410,39	4.076,15	1.175	72
2444-A	444	7.475,54	6.891,22	3.942,37	5.600,74	8.513,63	92,18	15.370,52	6.006,51	409	35
2451-A	1.000	2.370,54	1.639,51	1.144,63	2.016,23	3.141,21	69,16	6.136,09	2.198,68	971	29
2452-A	1.082	3.383,49	2.050,50	1.891,04	3.057,74	4.406,30	60,60	8.179,18	3.198,43	1.053	29
2453-A	368	5.132,54	3.062,44	3.112,04	4.579,69	6.327,43	59,67	11.150,52	4.785,59	356	12
2454-A	314	7.871,54	5.392,99	4.221,31	6.383,93	9.686,24	68,51	17.883,63	6.943,69	297	17
2461-A	193	2.682,90	1.635,97	1.369,77	2.401,54	3.546,24	60,98	6.810,95	2.517,39	187	6
2462-A	520	3.740,37	2.258,50	2.131,72	3.340,21	4.781,43	60,38	8.755,99	3.489,91	503	17
2463-A	352	5.363,14	3.708,42	2.803,97	4.704,66	7.124,82	69,15	13.606,11	5.044,67	343	9
2464-A	208	9.481,31	10.039,31	3.712,83	7.105,70	12.391,06	105,89	25.408,40	7.979,23	198	10

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
2471-A	2.286	1.618,89	1.157,77	866,09	1.344,33	2.048,32	71,52	3.821,66	1.461,89	2.196	90
2472-A	2.883	2.682,50	1.966,94	1.427,46	2.240,56	3.352,58	73,32	6.240,27	2.383,56	2.748	135
2473-A	1.324	4.345,53	2.928,48	2.323,43	3.721,87	5.584,15	67,39	10.475,22	4.006,30	1.279	45
2474-A	748	7.487,79	6.023,90	3.414,60	5.729,72	9.344,64	80,45	18.239,72	6.268,98	697	51
2481-A	186	2.912,15	1.630,27	1.770,25	2.686,54	3.559,23	55,98	6.242,70	2.677,30	178	8
2482-A	195	4.233,67	2.806,36	2.268,08	3.760,44	5.518,15	66,29	10.393,26	3.923,84	189	6
2483-A	167	5.097,60	3.415,82	2.820,58	4.382,39	6.363,46	67,01	11.677,78	4.788,51	163	4
2484-A	113	10.368,43	7.924,57	4.772,17	8.174,53	13.411,26	76,43	26.369,89	9.264,16	108	5
2491-A	13.583	1.237,54	740,32	759,67	1.089,98	1.512,24	59,82	2.641,10	1.130,21	12.983	600
2492-A	8.939	1.904,73	1.598,94	1.070,00	1.530,79	2.304,55	83,95	4.156,38	1.652,85	8.422	517
2493-A	2.331	3.143,20	2.825,60	1.445,58	2.262,09	3.906,18	89,90	7.597,07	2.610,71	2.189	142
2494-A	826	4.689,59	6.331,85	1.461,76	2.528,71	5.508,59	135,02	11.578,85	3.216,61	752	74
2501-A	11.507	1.430,49	1.089,85	784,33	1.131,88	1.700,53	76,19	3.074,84	1.218,58	10.755	752
2502-A	9.710	2.412,42	2.082,56	1.168,97	1.874,99	3.010,44	86,33	5.772,65	2.075,20	9.190	520
2503-A	3.185	4.343,82	3.374,42	2.080,08	3.515,60	5.541,44	77,68	10.733,48	3.794,59	3.021	164
2504-A	1.634	7.437,54	6.411,96	3.029,51	5.597,53	9.997,83	86,21	20.450,32	6.543,82	1.566	68
2601-A	223	4.690,55	2.458,09	2.758,22	4.197,60	6.325,40	52,41	11.676,16	4.589,38	220	3
2602-A	517	6.594,41	5.015,70	4.067,57	6.062,62	8.029,03	76,06	13.971,23	6.026,00	498	19
2603-A	351	10.114,16	6.121,61	6.467,71	8.854,41	12.001,49	60,53	20.302,15	9.022,43	331	20
2604-A	585	22.815,00	22.018,10	10.698,06	15.473,38	24.785,09	96,51	45.915,63	16.608,20	522	63
2611-A	92	3.857,51	2.053,79	2.315,63	3.149,85	5.086,00	53,24	9.241,56	3.768,28	91	1
2612-A	241	6.052,30	3.609,79	3.418,16	5.427,88	7.489,45	59,64	13.596,38	5.567,92	231	10
2613-A	172	9.301,37	6.866,76	5.272,48	8.016,10	11.675,77	73,83	21.280,70	8.511,69	166	6
2614-A	211	16.548,23	11.466,30	8.861,59	13.238,07	20.751,74	69,29	38.586,97	14.533,69	199	12
2621-A	227	3.442,16	1.485,47	2.397,43	3.129,94	4.020,04	43,16	6.453,96	3.231,64	217	10
2622-A	363	4.776,23	2.410,78	3.240,35	4.200,42	5.756,66	50,47	9.531,12	4.425,36	347	16
2623-A	159	7.908,19	4.822,25	5.018,94	6.523,03	9.746,66	60,98	16.838,25	7.353,28	154	5
2624-A	143	15.271,52	10.280,30	7.889,49	11.750,54	19.786,12	67,32	37.631,06	13.732,08	136	7
2631-A	9.864	2.100,48	784,39	1.634,79	1.903,99	2.275,44	37,34	3.236,41	1.954,98	9.259	605
2632-A	5.587	2.935,29	1.746,26	1.903,59	2.400,07	3.352,44	59,49	5.525,71	2.589,46	5.215	372
2633-A	957	5.842,02	4.252,90	3.183,68	4.887,31	7.150,63	72,80	13.101,04	5.176,63	911	46
2634-A	232	12.917,86	10.008,43	5.956,67	10.676,69	16.092,54	77,48	31.296,34	11.165,19	219	13
2641-A	225	2.828,86	2.640,30	1.285,57	1.982,73	3.460,84	93,33	6.723,75	2.298,09	211	14
2642-A	260	3.786,11	3.151,85	1.743,25	3.064,59	5.044,17	83,25	9.995,54	3.443,06	253	7
2643-A	272	6.850,18	4.937,51	3.950,18	5.838,03	8.273,07	72,08	14.757,41	5.901,27	255	17
2644-A	235	16.098,81	13.573,57	6.865,48	11.549,21	20.391,43	84,31	40.680,36	13.494,58	221	14
2801-A	219	2.177,94	1.968,57	968,32	1.615,12	2.703,94	90,39	5.307,38	1.839,18	208	11
2802-A	1.257	3.260,55	2.364,26	1.573,80	2.812,05	4.250,06	72,51	8.264,46	2.955,97	1.209	48
2803-A	1.683	5.777,66	3.992,21	3.283,88	4.905,19	7.126,84	69,10	12.891,28	5.148,35	1.599	84
2804-A	682	12.605,44	10.940,16	5.664,09	9.718,99	15.616,67	86,79	30.545,54	10.472,93	640	42
2811-A	383	2.326,49	2.056,80	1.080,16	1.650,06	2.800,81	88,41	5.381,79	1.866,51	356	27
2812-A	1.813	3.422,63	2.688,20	1.559,95	2.680,13	4.438,14	78,54	8.755,43	2.997,69	1.720	93
2813-A	1.787	5.305,28	9.277,71	2.385,69	4.008,70	6.817,89	174,88	13.466,18	4.566,66	1.713	74
2814-A	369	8.711,83	6.500,99	4.096,87	7.505,68	11.498,87	74,62	22.601,87	8.048,23	359	10
2821-A	1.364	2.691,92	1.588,46	1.649,76	2.407,11	3.336,66	59,01	5.867,01	2.489,86	1.313	51
2822-A	2.321	3.474,29	2.030,17	2.091,33	3.063,15	4.331,28	58,43	7.691,20	3.214,39	2.226	95
2823-A	823	5.453,29	3.502,58	3.065,73	4.711,92	6.772,75	64,23	12.333,28	4.904,47	782	41
2824-A	664	10.822,13	9.218,87	5.176,91	8.252,91	13.450,50	85,19	25.860,88	8.915,04	621	43
2831-A	980	1.467,44	1.381,79	662,01	973,91	1.762,90	94,16	3.414,23	1.165,12	909	71
2832-A	1.304	3.024,31	2.409,33	1.306,19	2.373,71	3.922,42	79,67	7.846,76	2.643,97	1.239	65
2833-A	903	5.137,95	3.842,79	2.479,63	4.171,67	6.899,09	74,79	13.528,28	4.709,83	875	28
2834-A	364	11.303,21	9.400,81	4.803,17	8.913,13	14.958,63	83,17	30.191,81	9.898,39	348	16
2841-A	2.267	2.101,16	1.301,57	1.211,74	1.792,82	2.685,57	61,95	4.896,32	1.936,69	2.178	89
2842-A	3.488	3.416,00	2.097,25	1.963,14	3.023,02	4.363,17	61,39	7.963,21	3.170,60	3.364	124
2843-A	1.519	5.408,26	3.227,22	3.296,53	4.765,95	6.672,62	59,67	11.736,76	4.926,10	1.448	71
2844-A	690	9.099,66	6.642,50	4.641,60	7.063,62	11.791,25	73,00	22.515,72	8.087,73	658	32
3001-A	55	10.859,93	6.447,89	7.437,02	9.056,06	13.024,21	59,37	21.405,01	9.900,12	53	2
3002-A	80	14.789,44	10.438,25	8.724,14	10.968,30	16.421,52	70,58	27.967,60	11.531,13	70	10
3003-A	124	19.775,39	12.914,49	10.574,93	16.267,79	24.149,61	65,31	44.511,61	18.440,86	120	4
3004-A	20	35.472,20	16.362,74	21.426,83	33.875,38	47.926,22	46,13	87.675,31	35.472,20	20	0
3011-A	701	7.090,14	2.257,84	5.792,11	6.696,16	7.898,01	31,84	11.056,85	6.809,99	675	26
3012-A	1.926	7.936,23	2.899,15	6.153,36	7.282,43	8.911,99	36,53	13.049,93	7.446,20	1.824	102

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
3013-A	1.992	10.806,19	5.628,33	7.274,24	9.211,63	12.633,86	52,08	20.673,29	9.796,51	1.877	115
3014-A	354	17.993,64	11.103,03	10.604,59	15.472,33	23.051,42	61,71	41.721,67	16.792,64	343	11
3021-A	14.373	6.743,39	1.717,05	5.781,11	6.551,12	7.449,71	25,46	9.952,60	6.567,35	13.913	460
3022-A	12.498	7.672,55	2.771,92	6.304,74	7.226,50	8.393,07	36,13	11.525,58	7.273,01	11.901	597
3023-A	2.773	10.571,62	7.153,24	7.238,95	8.921,31	11.446,82	67,66	17.758,62	9.108,60	2.564	209
3024-A	254	20.243,74	12.826,59	11.016,58	17.211,15	26.169,31	63,36	48.898,42	18.818,29	246	8
3031-A	96	11.664,53	4.735,01	9.366,11	11.450,99	14.121,19	40,59	21.253,80	11.255,16	94	2
3032-A	102	13.151,24	5.250,29	10.322,99	12.815,70	15.859,38	39,92	24.163,97	12.490,96	98	4
3033-A	48	20.215,51	8.983,66	13.195,85	18.530,02	24.528,07	44,44	41.526,40	19.131,69	46	2
3041-A	3.885	6.748,30	2.343,17	5.125,29	6.753,02	8.021,74	34,72	12.366,42	6.597,37	3.814	71
3042-A	1.426	8.532,21	3.353,84	6.480,33	7.979,48	10.137,98	39,31	15.624,46	8.172,33	1.380	46
3043-A	467	11.716,74	5.752,41	7.990,73	10.584,85	13.599,63	49,10	22.012,98	10.680,07	440	27
3044-A	49	25.949,83	17.432,32	14.243,06	19.404,05	34.876,16	67,18	65.825,82	24.568,03	48	1
3051-A	26	4.703,75	2.868,06	2.653,47	4.305,42	6.391,96	60,97	11.999,69	4.371,58	25	1
3052-A	67	11.615,48	10.676,16	4.924,70	7.434,18	13.774,74	91,91	27.049,81	8.898,20	61	6
3053-A	84	21.034,93	18.066,71	8.625,97	15.568,18	25.919,26	85,89	51.859,19	17.539,06	79	5
3054-A	31	33.019,75	20.755,59	16.921,34	27.521,89	41.117,65	62,86	77.412,13	31.251,30	30	1
3061-A	942	4.233,00	2.172,43	3.131,71	4.051,73	5.038,99	51,32	7.899,92	3.924,35	900	42
3062-A	550	6.281,11	4.642,04	4.022,48	5.359,91	7.034,94	73,90	11.553,63	5.417,82	514	36
3063-A	99	10.857,41	8.495,17	5.292,78	7.976,42	13.261,87	78,24	25.215,52	9.286,24	93	6
3064-A	24	18.372,73	8.132,90	10.334,24	17.920,60	23.591,54	44,27	43.477,48	18.372,73	24	0
3071-A	248	3.107,45	1.741,49	1.849,16	2.813,97	3.745,08	56,04	6.588,96	2.852,53	236	12
3072-A	64	6.153,98	4.003,07	3.578,17	5.460,51	7.847,00	65,05	14.250,26	5.603,22	62	2
3073-A	34	15.151,85	16.304,76	5.960,86	8.387,27	14.864,34	107,61	28.219,58	9.360,95	29	5
3081-A	2.145	5.374,43	2.533,73	3.811,25	4.915,16	6.252,49	47,14	9.914,34	4.989,88	2.046	99
3082-A	3.211	6.811,59	4.037,45	4.569,35	5.892,32	7.698,87	59,27	12.393,15	5.972,97	2.986	225
3083-A	2.048	10.528,82	7.240,75	5.933,75	8.272,43	12.867,71	68,77	23.268,64	9.197,47	1.924	124
3084-A	547	17.440,78	11.427,44	9.347,01	14.728,80	22.268,74	65,52	41.651,33	15.902,57	525	22
3091-A	936	3.065,92	2.528,11	1.557,96	2.324,42	3.904,52	82,46	7.424,36	2.696,89	897	39
3092-A	647	7.216,39	6.015,70	3.982,87	5.790,42	8.789,02	83,36	15.998,25	6.075,99	607	40
3093-A	346	14.161,07	10.654,70	7.292,02	11.366,81	17.360,17	75,24	32.462,39	12.171,23	325	21
3094-A	67	27.703,67	24.288,04	14.127,77	21.001,44	29.159,57	87,67	51.707,27	20.100,94	58	9
3101-A	13.508	3.027,49	1.415,35	2.115,65	2.716,86	3.588,55	46,75	5.797,91	2.830,19	12.950	558
3102-A	4.995	4.445,94	2.716,00	2.836,44	3.845,76	5.102,43	61,09	8.501,42	3.887,33	4.639	356
3103-A	596	9.754,43	8.062,80	4.877,50	7.525,16	11.858,46	82,66	22.329,91	8.239,80	559	37
3104-A	84	18.059,61	11.136,02	10.112,96	14.452,62	24.490,86	61,66	46.057,72	17.188,88	82	2
3111-A	66	1.723,77	1.736,03	862,63	1.245,94	1.855,57	100,71	3.344,99	1.344,91	62	4
3112-A	23	7.455,02	10.220,37	2.125,41	2.852,79	10.736,72	137,09	23.653,68	5.716,77	22	1
3121-A	259	2.891,94	3.474,04	1.140,29	1.613,99	3.118,33	120,13	6.085,40	1.972,48	234	25
3122-A	299	7.462,98	6.599,10	2.967,17	5.992,51	10.058,67	88,42	20.695,91	6.521,17	286	13
3123-A	147	16.014,26	11.294,01	8.987,17	13.772,55	20.387,03	70,52	37.486,81	14.234,88	140	7
3124-A	42	34.838,29	18.389,82	21.954,99	29.837,05	42.110,03	52,79	72.342,58	32.477,89	40	2
3131-A	17.328	1.772,26	1.195,32	1.062,96	1.463,34	2.102,63	67,45	3.662,14	1.578,78	16.440	888
3132-A	3.870	3.397,83	3.225,78	1.394,16	2.593,46	4.174,52	94,94	8.345,06	2.826,10	3.662	208
3133-A	588	7.862,89	7.121,44	3.543,22	5.900,26	9.441,67	90,57	18.289,35	6.460,54	551	37
3134-A	82	17.167,52	10.001,05	10.057,08	14.784,36	23.412,68	58,26	43.446,07	16.776,45	81	1
3141-A	8.561	1.548,89	795,54	1.105,37	1.450,49	1.798,13	51,36	2.837,26	1.457,45	8.284	277
3142-A	1.784	2.286,30	2.031,45	1.313,57	1.763,13	2.518,13	88,85	4.324,97	1.844,23	1.646	138
3143-A	229	7.066,93	9.426,01	2.180,53	4.584,93	8.027,07	133,38	16.796,89	5.094,67	210	19
3144-A	26	17.830,10	10.778,56	8.360,26	16.651,30	25.871,78	60,45	52.139,05	17.830,10	26	0
3151-A	19.194	1.412,62	775,86	1.044,15	1.254,67	1.575,24	54,92	2.371,89	1.284,78	18.132	1.062
3152-A	6.239	2.754,39	2.400,34	1.417,42	2.071,06	3.150,21	87,15	5.749,39	2.241,43	5.796	443
3153-A	593	7.764,29	6.817,25	3.421,58	5.737,73	9.723,05	87,80	19.175,24	6.489,34	556	37
3154-A	121	17.797,20	12.741,41	8.805,22	14.198,61	24.329,42	71,59	47.615,72	15.928,80	115	6
3161-A	5.013	1.156,46	585,90	838,50	1.050,51	1.327,09	50,66	2.059,96	1.068,82	4.779	234
3162-A	779	1.782,93	1.995,39	975,83	1.269,55	1.776,17	111,92	2.976,68	1.303,20	699	80
3163-A	62	7.079,36	7.665,09	1.909,51	3.687,35	9.793,09	108,27	21.618,47	4.942,05	56	6
3171-A	6.403	1.332,54	984,15	913,51	1.094,88	1.455,57	73,86	2.268,66	1.137,46	5.913	490
3172-A	914	2.744,25	3.393,08	1.113,03	1.686,33	3.024,28	123,64	5.891,16	1.974,66	841	73
3173-A	131	7.808,47	8.529,47	1.964,72	4.783,49	10.216,81	109,23	22.594,93	6.131,86	123	8
3174-A	26	21.347,59	19.541,36	5.114,63	14.280,83	30.716,03	91,54	69.118,14	19.251,99	25	1
3181-A	3.501	1.256,88	1.036,43	851,16	1.001,36	1.345,42	82,46	2.086,81	1.047,01	3.216	285

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
3182-A	753	2.815,75	3.842,37	950,96	1.420,35	2.797,29	136,46	5.566,79	1.711,06	669	84
3183-A	77	7.108,42	7.694,39	1.809,70	4.080,36	9.868,80	108,24	21.957,45	5.816,15	73	4
3184-A	15	19.811,68	16.748,30	9.810,80	14.842,58	29.275,17	84,54	58.471,71	16.381,62	14	1
3191-A	2.581	1.350,04	1.148,40	913,45	1.098,67	1.442,33	85,06	2.235,66	1.129,60	2.391	190
3192-A	496	2.855,73	3.286,28	1.083,11	1.668,12	3.076,94	115,08	6.067,68	1.937,08	447	49
3193-A	75	9.419,44	8.610,55	3.815,84	7.207,15	11.632,14	91,41	23.356,59	7.668,78	70	5
3194-A	11	15.605,37	5.989,59	10.240,81	16.039,63	20.683,11	38,38	36.346,56	15.605,37	11	0
3201-A	3.394	1.953,24	2.009,69	1.012,76	1.268,04	1.988,50	102,89	3.452,11	1.378,77	3.011	383
3202-A	1.060	5.594,65	4.817,53	2.128,71	4.017,95	7.758,55	86,11	16.203,30	5.117,39	1.030	30
3203-A	252	10.576,62	7.728,96	5.428,95	8.945,49	13.350,72	73,08	25.233,39	9.264,70	238	14
3204-A	73	26.030,26	21.255,11	11.845,65	19.169,78	32.690,93	81,66	63.958,87	22.378,24	69	4
3401-A	335	2.876,04	3.421,98	1.037,86	1.841,25	3.630,20	118,98	7.518,72	2.317,19	319	16
3402-A	506	4.212,42	3.631,60	1.502,75	3.266,75	5.965,57	86,21	12.659,81	3.852,41	492	14
3403-A	196	6.358,21	5.323,44	1.954,87	5.001,99	9.336,70	83,73	20.409,45	6.245,18	195	1
3404-A	67	10.095,07	8.635,09	2.952,26	7.870,10	15.876,27	85,54	35.262,28	9.694,40	66	1
3411-A	742	2.844,50	2.598,39	1.283,61	2.226,33	3.512,28	91,35	6.855,28	2.391,54	699	43
3412-A	1.312	5.009,90	4.689,18	2.200,84	3.870,40	6.527,47	93,60	13.017,41	4.332,80	1.254	58
3413-A	876	8.244,27	5.548,79	4.249,12	7.113,70	10.982,99	67,30	21.083,79	7.630,03	848	28
3414-A	115	13.990,30	7.865,07	8.368,51	12.747,73	17.854,47	56,22	32.083,40	13.137,79	111	4
3421-A	6.329	1.116,28	1.076,86	665,10	867,52	1.138,84	96,47	1.849,44	871,91	5.735	594
3422-A	1.973	3.121,52	3.340,63	1.048,79	1.998,11	3.730,02	107,02	7.751,87	2.270,48	1.799	174
3423-A	656	7.599,66	5.993,45	3.480,67	6.010,97	10.071,26	78,86	19.957,13	6.715,49	623	33
3424-A	112	12.214,12	8.292,09	5.913,76	10.532,10	16.306,56	67,89	31.895,75	11.309,68	108	4
3431-A	956	3.059,97	2.384,19	1.501,24	2.420,30	3.798,32	77,92	7.243,96	2.634,30	898	58
3432-A	2.675	4.908,71	3.662,50	2.406,73	4.047,71	6.366,03	74,61	12.304,99	4.416,58	2.568	107
3433-A	1.969	7.601,11	4.972,58	4.183,24	6.563,66	9.795,06	65,42	18.212,80	6.997,72	1.897	72
3434-A	301	12.985,73	9.113,27	7.029,27	10.724,64	16.401,30	70,18	30.459,36	11.749,29	288	13
3441-A	71	3.704,61	2.907,66	1.626,59	2.951,29	4.563,78	78,49	8.969,57	3.110,11	66	5
3442-A	256	5.247,26	3.635,72	2.728,64	4.571,46	6.971,47	69,29	13.335,72	4.828,29	248	8
3443-A	93	9.977,70	5.810,98	5.726,87	8.600,71	13.031,14	58,24	23.987,54	9.779,36	92	1
3444-A	29	16.396,48	11.755,54	6.879,32	14.855,88	21.249,03	71,70	42.803,61	14.166,41	27	2
3451-A	70	3.166,89	3.202,60	1.459,78	2.235,10	3.268,54	101,13	5.981,68	2.254,28	62	8
3452-A	185	4.512,93	3.491,05	2.288,31	3.884,48	5.502,07	77,36	10.322,73	3.738,38	171	14
3453-A	67	8.935,04	5.587,37	5.666,51	7.519,92	11.072,40	62,53	19.181,24	7.905,34	63	4
3454-A	23	14.018,40	9.383,76	8.501,41	12.162,28	20.184,08	66,94	37.708,08	12.875,80	22	1
3461-A	1.086	2.697,39	2.122,01	1.405,75	2.200,27	3.411,67	78,67	6.420,56	2.364,79	1.032	54
3462-A	1.132	3.786,93	3.081,21	1.813,27	2.942,68	4.973,33	81,36	9.713,43	3.372,27	1.086	46
3463-A	462	6.076,71	5.047,65	2.898,08	4.806,19	7.534,67	83,07	14.489,56	5.212,00	437	25
3464-A	137	13.791,91	13.911,87	4.910,88	10.663,50	18.840,09	100,87	39.733,90	11.869,26	132	5
3471-A	11.294	1.830,39	1.567,27	887,84	1.422,06	2.272,57	85,63	4.349,67	1.562,68	10.681	613
3472-A	5.799	3.470,90	2.924,57	1.655,56	2.791,89	4.375,38	84,26	8.455,12	3.006,86	5.505	294
3473-A	1.295	7.290,36	5.286,33	3.938,72	6.106,55	9.108,04	72,51	16.862,02	6.401,70	1.229	66
3474-A	218	12.956,50	9.226,86	6.612,70	11.448,02	16.805,16	71,21	32.093,84	11.593,78	208	10
3481-A	1.274	1.892,79	1.502,50	835,28	1.471,43	2.451,39	79,38	4.875,54	1.687,93	1.223	51
3482-A	1.783	3.357,70	2.558,24	1.521,23	2.814,59	4.508,17	76,19	8.988,58	3.032,03	1.713	70
3483-A	660	6.101,67	5.133,03	3.213,78	4.869,75	7.358,55	84,12	13.575,72	5.188,29	622	38
3484-A	93	12.395,60	9.028,63	6.795,94	9.917,47	15.010,32	72,84	27.331,90	10.366,49	85	8
3491-A	956	1.641,74	1.391,46	887,62	1.262,02	1.778,76	84,76	3.115,46	1.288,24	866	90
3492-A	790	2.950,37	3.000,05	1.157,25	2.026,32	3.596,06	101,68	7.254,27	2.318,02	733	57
3493-A	214	6.238,15	4.986,05	2.798,32	4.905,55	8.702,54	79,93	17.558,88	5.610,98	206	8
3494-A	39	12.581,29	9.409,80	6.005,97	10.155,34	16.338,76	74,79	31.837,94	10.766,71	36	3
3501-A	1.600	1.643,68	1.527,36	744,91	1.239,57	2.107,53	92,92	4.151,46	1.425,95	1.526	74
3502-A	1.375	3.287,86	3.063,31	1.441,58	2.637,95	4.024,42	93,17	7.898,68	2.748,35	1.297	78
3503-A	421	6.411,57	5.234,84	3.093,65	5.211,83	8.599,05	81,65	16.857,15	5.747,14	405	16
3504-A	47	10.641,13	8.587,80	3.631,17	9.192,41	16.427,25	80,70	35.621,37	10.039,62	46	1
3511-A	1.823	1.623,41	1.673,92	753,51	1.156,84	1.914,17	103,11	3.655,18	1.296,49	1.694	129
3511-C	80	7.847,56	4.999,46	4.781,51	6.786,22	10.889,86	63,71	20.052,38	7.455,02	78	2
3512-A	1.194	3.127,68	2.744,16	1.340,34	2.266,66	3.968,26	87,74	7.910,14	2.619,30	1.120	74
3512-C	242	8.674,99	5.609,54	4.939,68	7.615,30	11.016,97	64,66	20.132,91	7.890,93	232	10
3513-A	461	6.420,82	4.845,99	3.358,86	5.408,76	8.496,99	75,47	16.204,19	5.816,08	445	16
3513-C	161	10.087,22	5.625,48	6.511,08	8.935,30	12.633,65	55,77	21.817,50	9.413,25	154	7
3514-A	116	11.102,93	7.265,06	6.016,31	9.381,32	15.516,62	65,43	29.767,08	10.651,35	114	2

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
3514-C	19	15.941,69	12.646,50	7.398,38	13.563,50	19.646,78	79,33	38.019,37	13.562,71	18	1
3601-A	177	3.351,86	4.544,79	1.210,90	1.988,54	3.540,85	135,59	7.035,78	2.249,92	157	20
3602-A	390	7.158,70	7.567,56	2.333,47	5.111,90	8.809,03	105,71	18.522,36	5.534,21	364	26
3603-A	264	15.490,33	12.372,01	8.012,04	12.155,04	19.095,24	79,87	35.720,06	13.012,27	246	18
3604-A	96	25.904,44	18.553,61	14.640,91	19.266,18	31.855,92	71,62	57.678,43	21.289,77	88	8
3611-A	2.265	1.969,25	1.706,46	1.066,72	1.464,19	2.253,08	86,66	4.032,62	1.571,45	2.069	196
3612-A	832	3.894,52	4.249,25	1.475,60	2.444,80	4.813,93	109,11	9.821,44	3.023,43	777	55
3613-A	153	10.028,11	8.692,20	3.331,57	7.960,85	14.048,42	86,68	30.123,69	9.006,02	148	5
3614-A	34	21.753,30	16.896,46	10.805,86	16.237,01	25.019,44	77,67	46.339,81	17.599,03	31	3
3621-A	3.286	3.077,47	1.227,79	2.379,76	2.897,68	3.574,55	39,90	5.366,74	2.891,98	3.121	165
3622-A	2.641	3.829,10	1.957,55	2.818,90	3.442,75	4.271,59	51,12	6.450,63	3.483,51	2.477	164
3623-A	189	7.037,86	4.955,35	3.616,44	5.331,59	9.118,22	70,41	17.370,90	6.125,67	178	11
3624-A	16	15.036,15	12.516,46	6.605,45	10.585,71	18.335,74	83,24	35.931,17	12.581,31	15	1
3631-A	8.078	1.801,46	898,38	1.153,68	1.821,22	2.210,62	49,87	3.796,04	1.724,41	7.891	187
3632-A	3.861	2.551,81	1.162,05	1.806,07	2.430,57	3.076,97	45,54	4.983,32	2.436,35	3.745	116
3633-A	153	5.481,19	6.102,72	2.339,72	3.991,92	5.520,27	111,34	10.291,08	3.751,65	137	16
3641-A	5.772	1.543,74	1.057,76	929,11	1.268,08	1.901,85	68,52	3.360,98	1.398,06	5.546	226
3642-A	1.419	2.845,46	3.019,20	1.286,66	1.987,69	3.150,84	106,11	5.947,12	2.123,47	1.294	125
3643-A	289	9.141,37	7.991,57	3.578,77	7.456,55	11.830,31	87,42	24.207,63	7.661,56	272	17
3644-A	89	19.792,40	14.590,89	8.803,20	16.652,89	26.053,99	73,72	51.930,18	18.535,66	87	2
3801-A	109	3.839,23	3.182,80	1.621,58	2.906,81	4.993,31	82,90	10.050,92	3.304,62	103	6
3802-A	550	5.615,67	5.766,08	2.640,59	4.213,02	6.877,09	102,68	13.231,85	4.637,75	522	28
3803-A	584	8.492,43	6.460,53	4.449,69	7.092,76	10.878,68	76,07	20.522,17	7.457,20	557	27
3804-A	138	13.066,18	9.364,46	6.326,83	10.906,46	18.064,49	71,67	35.670,99	12.384,28	135	3
3811-A	471	2.629,84	2.068,56	1.551,39	2.166,90	2.985,86	78,66	5.137,56	2.147,85	428	43
3812-A	573	3.643,71	2.587,65	2.164,47	3.098,75	4.456,76	71,02	7.895,20	3.230,96	543	30
3813-A	247	6.606,04	5.798,70	3.316,33	5.310,43	7.685,37	87,78	14.238,92	5.499,51	232	15
3814-A	48	13.035,88	11.767,70	6.064,57	9.895,31	14.599,97	90,27	27.403,07	9.721,71	43	5
3821-A	133	1.563,17	1.224,92	942,60	1.325,95	1.722,05	78,36	2.891,24	1.314,36	124	9
3822-A	506	3.145,80	3.206,85	1.384,15	2.266,78	3.677,45	101,94	7.117,40	2.396,25	464	42
3823-A	435	5.242,59	5.799,38	2.162,37	3.751,57	6.274,92	110,62	12.443,74	4.135,02	403	32
3824-A	77	9.962,54	7.474,31	5.568,32	8.777,69	12.405,09	75,02	22.660,24	8.904,00	74	3
3831-A	4.173	1.850,31	1.337,20	1.058,10	1.564,80	2.262,26	72,27	4.068,51	1.639,57	3.959	214
3832-A	2.770	3.535,49	2.594,94	1.983,60	2.977,42	4.308,25	73,40	7.795,21	3.110,02	2.622	148
3833-A	1.066	6.062,78	4.154,66	3.415,75	5.027,39	7.379,29	68,53	13.324,59	5.321,31	1.005	61
3834-A	248	10.974,51	8.144,97	5.264,03	9.084,98	14.495,64	74,22	28.343,04	10.099,34	241	7
3841-A	3.677	1.076,75	1.035,32	502,58	792,72	1.240,99	96,15	2.348,60	860,02	3.407	270
3842-A	1.996	2.905,19	2.901,80	1.039,68	2.012,72	3.909,52	99,88	8.214,28	2.460,72	1.901	95
3843-A	843	6.077,66	7.442,18	2.912,34	4.720,14	7.708,74	122,45	14.903,33	5.210,66	806	37
3844-A	135	11.176,45	8.783,08	4.910,73	8.981,13	14.841,52	78,59	29.737,71	9.744,88	128	7
3851-A	1.688	1.354,76	1.138,82	635,42	996,55	1.732,15	84,06	3.377,24	1.162,87	1.605	83
3852-A	1.118	2.617,10	2.161,48	1.152,40	2.064,74	3.464,78	82,59	6.933,34	2.276,14	1.066	52
3853-A	334	5.292,54	3.745,89	2.505,57	4.537,92	7.133,37	70,78	14.075,06	4.907,44	325	9
3854-A	54	9.273,61	7.310,26	4.088,05	6.703,76	12.452,05	78,83	24.998,05	7.856,80	50	4
4001-A	65	6.880,78	4.974,49	2.895,26	6.060,26	8.616,19	72,30	17.197,59	6.341,24	63	2
4003-A	134	12.430,02	9.823,86	4.793,84	10.453,10	16.654,36	79,03	34.445,12	11.379,91	130	4
4004-A	39	30.387,88	20.477,98	14.663,31	25.418,88	41.798,53	67,39	82.501,37	28.870,80	38	1
4011-A	184	5.459,43	2.450,71	3.466,92	5.056,97	7.045,03	44,89	12.412,21	5.317,64	181	3
4012-A	149	7.585,20	4.113,10	5.829,63	7.158,06	8.661,26	54,23	12.908,69	7.056,51	143	6
4013-A	63	12.964,19	10.009,70	6.874,38	9.183,43	12.571,86	77,21	21.118,07	9.324,26	54	9
4014-A	15	19.518,68	13.206,17	11.598,59	15.429,98	26.834,62	67,66	49.688,67	16.773,79	14	1
4021-A	102	2.337,05	1.116,55	1.830,20	2.174,78	2.494,77	47,78	3.491,61	2.127,02	95	7
4022-A	69	5.431,78	7.746,02	1.940,35	2.519,17	5.339,00	142,61	10.436,98	3.215,84	61	8
4023-A	75	14.370,03	14.446,76	5.795,87	9.472,06	19.120,69	100,53	39.107,92	12.044,64	72	3
4024-A	16	25.342,23	18.105,90	14.337,36	18.914,63	35.826,59	71,45	68.060,44	25.342,23	16	0
4031-A	7.573	2.378,79	1.437,95	1.488,79	1.852,27	2.657,28	60,45	4.410,03	1.960,92	6.680	893
4032-A	2.385	4.254,94	2.098,26	2.564,84	4.169,30	5.354,89	49,31	9.539,98	4.114,98	2.344	41
4033-A	250	6.901,26	3.893,78	4.852,31	6.180,95	8.148,11	56,42	13.091,80	6.203,61	236	14
4034-A	86	18.781,25	12.851,05	9.833,16	14.062,73	23.797,00	68,42	44.742,75	16.166,91	80	6
4041-A	4.392	2.113,11	656,47	1.691,54	2.062,12	2.446,05	31,07	3.577,82	2.061,63	4.297	95
4042-A	1.718	2.771,55	1.320,90	2.080,37	2.534,04	3.105,07	47,66	4.642,11	2.565,18	1.633	85
4043-A	122	6.157,07	5.664,60	2.734,49	4.445,00	6.851,17	92,00	13.026,20	4.486,08	109	13

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
4044-A	22	15.423,67	10.851,17	9.038,37	13.562,24	17.892,47	70,35	31.173,61	13.455,24	21	1
4051-A	357	2.575,11	1.681,56	1.467,39	1.987,71	2.879,86	65,30	4.998,56	2.072,09	314	43
4052-A	224	5.308,83	3.617,97	2.394,05	5.165,80	6.690,42	68,15	13.134,99	4.774,76	214	10
4053-A	289	7.082,93	6.069,93	4.058,23	4.391,66	7.940,49	85,70	13.763,88	5.492,62	261	28
4054-A	99	19.545,24	15.073,89	8.535,85	17.193,86	25.642,75	77,12	51.303,09	17.081,34	94	5
4201-A	4.715	2.464,50	2.760,28	1.432,59	2.053,92	2.981,19	112,00	5.304,08	2.176,01	4.487	228
4202-A	3.447	3.288,67	2.567,94	1.780,41	2.652,10	4.112,01	78,08	7.609,41	2.887,57	3.279	168
4203-A	1.758	4.975,95	3.703,56	2.518,02	4.105,07	6.282,01	74,43	11.927,99	4.402,61	1.670	88
4204-A	397	9.889,21	7.455,85	4.907,86	8.275,33	12.801,93	75,39	24.643,02	8.612,47	375	22
4211-A	789	1.422,84	1.079,69	777,56	1.144,74	1.747,22	75,88	3.201,71	1.248,64	747	42
4212-A	2.356	2.156,52	1.941,23	971,20	1.539,57	2.554,92	90,02	4.930,51	1.708,32	2.163	193
4213-A	876	5.275,09	4.485,31	2.382,92	4.030,89	6.783,90	85,03	13.385,36	4.609,41	836	40
4214-A	173	9.435,55	6.595,05	4.584,27	7.980,53	12.254,68	69,90	23.760,29	8.332,84	163	10
4221-A	3.466	1.369,29	661,60	1.016,57	1.211,25	1.588,85	48,32	2.447,28	1.278,53	3.317	149
4222-A	3.966	2.617,88	2.314,40	1.205,76	1.901,10	3.209,93	88,41	6.216,18	2.168,31	3.702	264
4223-A	2.290	4.998,46	3.913,60	2.444,72	4.174,25	6.341,86	78,30	12.187,57	4.388,63	2.180	110
4224-A	1.139	7.554,55	6.742,15	2.705,15	5.904,70	10.225,65	89,25	21.506,39	6.656,76	1.096	43
4231-A	149	1.796,49	1.362,10	787,43	1.334,86	2.486,68	75,82	5.035,56	1.641,95	144	5
4232-A	186	2.950,43	2.651,84	1.348,05	2.269,96	3.490,99	89,88	6.705,39	2.388,38	174	12
4233-A	69	5.220,45	6.076,15	1.793,61	3.687,44	5.628,22	116,39	11.380,14	3.582,93	63	6
4234-A	17	11.852,22	16.272,07	3.996,59	6.832,80	10.325,65	137,29	19.819,23	6.271,34	15	2
4241-A	862	1.711,42	1.265,52	1.089,70	1.331,75	1.968,14	73,95	3.285,80	1.427,23	792	70
4242-A	1.382	3.121,07	2.552,68	1.509,37	2.325,53	3.888,10	81,79	7.456,20	2.669,84	1.305	77
4243-A	627	5.359,21	4.430,21	2.397,04	4.281,88	6.844,01	82,67	13.514,46	4.669,65	598	29
4244-A	86	11.985,85	13.298,73	5.947,75	8.787,60	14.780,22	110,95	28.028,92	10.455,28	84	2
4401-A	21	19.817,57	3.579,95	17.790,69	19.160,23	20.407,86	18,06	24.333,61	18.789,45	19	2
4402-A	147	21.571,52	4.857,88	19.064,84	20.501,34	22.965,27	22,52	28.815,92	20.603,84	137	10
4403-A	125	27.134,80	10.959,58	20.637,06	24.124,10	30.173,64	40,39	44.478,52	24.958,50	116	9
4404-A	48	41.992,22	18.565,42	29.447,89	40.551,64	48.344,24	44,21	76.688,76	39.303,95	46	2
4411-A	110	4.981,73	2.685,22	2.354,74	5.785,24	7.239,73	53,90	14.567,22	4.981,73	110	0
4412-A	252	7.418,38	4.017,23	4.632,35	7.205,37	9.539,69	54,15	16.900,70	7.145,52	248	4
4413-A	535	11.222,05	4.449,78	8.641,68	10.488,84	12.647,70	39,65	18.656,74	10.380,42	500	35
4414-A	124	22.398,47	14.929,54	13.559,63	17.986,22	28.013,12	66,65	49.693,35	20.680,44	120	4
4421-A	496	4.313,00	1.554,09	3.500,80	4.161,32	4.886,63	36,03	6.965,38	4.083,34	471	25
4422-A	649	5.357,17	2.363,61	3.991,78	4.843,45	6.077,01	44,12	9.204,84	4.961,70	614	35
4423-A	296	8.212,51	4.878,76	5.218,27	7.011,46	9.711,30	59,41	16.450,86	7.408,41	281	15
4424-A	169	14.439,16	11.909,88	7.191,34	10.894,85	18.385,96	82,48	35.177,89	12.866,59	164	5
4431-A	1.388	2.977,95	1.504,25	1.993,18	2.763,82	3.644,46	50,51	6.121,39	2.798,75	1.338	50
4432-A	991	4.310,74	2.739,84	2.606,58	3.789,51	5.307,38	63,56	9.358,56	3.868,74	941	50
4433-A	352	8.273,55	6.400,40	4.420,31	7.002,42	10.576,76	77,36	19.811,43	7.367,72	339	13
4434-A	182	18.152,03	15.142,34	8.344,99	13.574,80	22.644,62	83,42	44.094,07	15.481,40	172	10
4441-A	70	2.242,44	1.625,87	1.311,69	1.843,91	2.419,79	72,50	4.081,94	1.790,53	62	8
4442-A	230	2.794,44	2.363,56	1.543,04	2.097,71	3.245,77	84,58	5.799,86	2.319,31	215	15
4443-A	72	4.247,44	3.505,12	1.913,75	2.997,03	5.155,14	82,52	10.017,22	3.554,75	67	5
4444-A	13	12.956,93	5.549,35	9.640,99	13.826,54	15.525,80	42,83	24.353,00	12.956,93	13	0
4451-A	1.093	1.870,67	1.282,07	1.247,29	1.584,35	2.048,60	68,54	3.250,57	1.570,25	996	97
4452-A	446	2.930,33	2.788,97	1.397,72	2.123,50	3.488,73	95,18	6.625,24	2.363,53	415	31
4453-A	138	5.873,15	5.036,38	2.333,39	4.635,66	7.222,49	85,75	14.556,14	4.990,28	130	8
4454-A	46	13.166,32	10.846,02	6.580,73	10.046,98	16.612,38	82,38	31.659,85	10.577,22	42	4
4461-A	8.232	1.594,68	752,43	1.117,32	1.430,85	1.886,84	47,18	3.041,12	1.492,20	7.892	340
4462-A	4.993	2.154,89	1.599,33	1.333,04	1.769,57	2.496,40	74,22	4.241,44	1.870,34	4.687	306
4463-A	730	4.875,48	4.590,18	2.136,14	3.501,80	5.740,38	94,15	11.146,73	3.886,96	678	52
4464-A	137	11.375,99	9.315,33	5.495,21	8.596,56	15.256,52	81,89	29.898,49	10.237,34	133	4
4471-A	584	2.319,84	1.431,49	1.268,88	1.934,44	3.049,01	61,71	5.719,20	2.192,99	571	13
4472-A	1.136	3.135,37	2.806,09	1.411,85	2.367,73	3.677,93	89,50	7.077,06	2.529,74	1.055	81
4473-A	485	8.010,34	9.938,36	2.599,09	5.156,15	9.477,62	124,07	19.795,41	5.996,99	452	33
4474-A	134	23.462,14	20.508,86	10.608,86	17.500,40	28.790,90	87,41	56.063,95	19.277,31	126	8
4601-A	241	1.914,67	1.591,29	881,27	1.335,29	2.541,95	83,11	5.032,96	1.704,06	232	9
4602-A	1.563	3.563,87	2.774,13	1.746,74	3.004,74	4.562,20	77,84	8.785,40	3.186,08	1.500	63
4603-A	2.357	5.935,77	4.503,92	2.971,33	4.875,45	7.686,23	75,88	14.758,57	5.305,94	2.258	99
4604-A	693	11.734,64	13.188,29	5.194,87	9.124,17	14.839,42	112,39	29.306,25	10.118,36	660	33
4611-A	173	1.670,54	1.326,52	872,40	1.376,40	1.959,48	79,41	3.590,10	1.447,50	164	9

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
4612-A	549	3.063,00	2.675,27	1.283,98	2.181,73	3.985,57	87,34	8.037,96	2.595,58	520	29
4613-A	491	5.236,73	4.508,65	2.244,62	4.112,17	6.855,22	86,10	13.771,12	4.593,50	470	21
4614-A	83	8.456,53	6.496,88	3.457,56	6.648,54	12.279,68	76,83	25.512,87	8.111,95	82	1
4621-A	219	2.124,04	2.733,57	966,42	1.366,58	2.366,33	128,70	4.466,19	1.597,40	203	16
4622-A	276	2.497,25	2.096,93	1.091,43	1.720,11	3.051,84	83,97	5.992,45	2.021,35	254	22
4623-A	165	5.898,65	5.287,66	2.536,07	4.600,85	7.544,62	89,64	15.057,44	4.870,46	155	10
4624-A	33	12.402,66	10.578,60	5.780,06	8.584,39	14.674,30	85,29	28.015,66	9.811,64	30	3
4631-A	5.058	1.869,14	878,64	1.245,00	1.804,43	2.357,37	47,01	4.025,91	1.812,53	4.963	95
4632-A	5.513	2.964,64	2.000,95	1.713,00	2.527,59	3.616,77	67,49	6.472,42	2.634,19	5.215	298
4633-A	2.608	5.196,18	4.040,68	2.882,05	4.238,04	6.263,25	77,76	11.335,04	4.481,08	2.457	151
4634-A	750	8.740,08	6.857,85	4.183,95	6.698,32	11.317,11	78,46	22.016,86	7.603,25	710	40
4641-A	1.101	1.775,71	873,78	1.157,45	1.580,76	2.178,40	49,21	3.709,82	1.691,89	1.072	29
4642-A	714	2.144,52	1.376,81	1.384,90	1.852,97	2.581,95	64,20	4.377,53	1.946,75	677	37
4643-A	36	3.926,77	3.957,39	1.885,92	2.311,69	4.434,96	100,78	8.258,51	2.897,77	33	3
4644-A	13	9.843,22	7.790,10	6.303,62	7.007,91	10.006,86	79,14	15.561,72	7.252,25	11	2
4651-A	6.067	1.190,45	632,46	762,79	1.053,38	1.446,20	53,13	2.471,31	1.106,68	5.820	247
4652-A	3.404	1.502,78	958,68	918,66	1.278,37	1.817,76	63,79	3.166,41	1.352,13	3.236	168
4653-A	377	2.854,75	2.673,01	1.380,34	2.126,88	3.306,17	93,63	6.194,92	2.261,21	346	31
4654-A	51	7.595,21	6.810,30	2.684,69	4.695,00	10.223,38	89,67	21.531,43	6.244,14	47	4
4661-A	213	1.234,01	937,13	699,93	959,15	1.512,93	75,94	2.732,42	1.071,67	203	10
4662-A	728	2.147,09	2.183,54	960,53	1.486,09	2.467,88	101,70	4.728,90	1.639,09	669	59
4663-A	462	4.002,02	3.937,47	1.398,95	2.786,46	5.107,75	98,39	10.670,95	3.208,24	431	31
4664-A	78	10.024,41	8.926,58	3.787,89	6.867,05	14.331,52	89,05	30.146,97	8.572,84	74	4
4671-A	887	1.103,27	685,70	652,20	942,17	1.332,95	62,15	2.354,09	982,92	837	50
4672-A	906	2.053,17	2.116,73	939,35	1.525,71	2.448,27	103,10	4.711,65	1.681,14	851	55
4673-A	265	4.390,12	3.478,20	2.090,02	3.557,82	5.670,75	79,23	11.041,83	3.739,76	248	17
4674-A	32	8.494,92	5.663,11	4.178,15	7.373,64	10.702,80	66,66	20.489,76	8.037,26	31	1
4681-A	1.423	1.313,04	1.046,35	681,97	979,77	1.568,99	79,69	2.899,52	1.080,05	1.315	108
4682-A	2.353	2.217,91	1.973,52	953,49	1.697,23	2.857,50	88,98	5.713,50	1.928,86	2.245	108
4683-A	962	4.069,84	3.279,82	1.735,04	3.067,10	5.532,91	80,59	11.229,72	3.625,99	922	40
4684-A	83	11.619,19	9.593,40	5.470,89	9.257,72	16.487,04	82,57	33.011,28	10.303,95	80	3
4801-A	2.749	4.593,00	1.334,11	3.798,85	4.493,75	5.155,11	29,05	7.189,50	4.437,73	2.653	96
4802-A	1.472	5.456,51	2.006,15	4.319,07	5.106,00	5.955,37	36,77	8.409,82	5.115,02	1.392	80
4803-A	183	8.120,96	5.377,03	5.549,84	6.897,03	8.678,04	66,21	13.370,33	6.927,52	170	13
4804-A	53	16.962,35	14.746,94	9.669,79	13.070,74	17.290,05	86,94	28.720,43	13.378,49	49	4
4811-A	1.052	2.091,06	1.364,16	1.211,90	1.741,05	2.564,45	65,24	4.593,28	1.868,20	998	54
4812-A	167	3.239,54	2.036,44	1.644,27	2.709,12	4.515,96	62,86	8.823,49	3.117,98	165	2
4813-A	46	8.521,99	9.546,00	3.972,77	5.539,54	9.097,75	112,02	16.785,22	5.964,44	42	4
4821-A	5.356	2.296,24	840,63	1.878,16	2.110,87	2.514,57	36,61	3.469,18	2.148,64	5.024	332
4822-A	3.361	3.053,75	1.777,16	2.082,08	2.502,10	3.423,22	58,20	5.434,92	2.684,21	3.122	239
4823-A	667	6.226,58	4.806,91	2.962,41	4.645,38	8.064,75	77,20	15.718,26	5.502,83	637	30
4824-A	119	12.770,75	9.478,32	6.390,11	11.383,82	16.364,47	74,22	31.326,00	11.557,05	115	4
4831-A	3.170	1.160,52	497,94	911,84	1.051,66	1.309,60	42,91	1.906,23	1.072,55	2.978	192
4832-A	575	1.843,87	1.816,15	1.021,54	1.330,20	1.905,74	98,50	3.232,03	1.386,37	515	60
4833-A	61	5.871,48	7.328,90	1.415,55	3.194,02	6.751,01	124,82	14.754,21	3.813,18	55	6
4841-A	1.106	1.422,13	1.296,52	560,53	861,11	1.581,15	91,17	3.112,07	990,02	950	156
4842-A	1.167	6.471,34	3.662,62	3.341,32	7.625,29	9.568,08	56,60	18.908,21	6.415,17	1.165	2
4843-A	295	6.119,97	3.829,98	2.830,12	5.241,72	9.584,08	62,58	19.715,02	5.993,74	293	2
4844-A	26	14.632,14	11.988,48	7.644,91	12.225,28	16.973,42	81,93	30.966,19	11.961,52	24	2
5001-A	199	1.565,78	1.540,46	658,56	1.042,37	1.852,93	98,38	3.644,49	1.213,09	185	14
5002-A	522	2.686,10	2.328,13	1.153,27	2.121,99	3.239,86	86,67	6.369,76	2.239,05	489	33
5003-A	302	5.326,18	4.940,46	2.236,92	4.172,15	6.674,48	92,76	13.330,82	4.417,51	284	18
5004-A	60	10.131,46	9.984,55	4.226,07	7.696,27	11.417,15	98,55	22.203,77	7.323,66	53	7
5011-A	1.481	1.325,26	950,24	726,83	1.142,42	1.748,40	71,70	3.280,76	1.232,35	1.440	41
5012-A	1.168	2.258,03	1.710,66	1.195,47	1.853,42	2.813,82	75,76	5.241,35	2.016,37	1.120	48
5013-A	334	4.340,16	3.686,52	2.046,88	3.309,01	5.332,73	84,94	10.261,50	3.671,70	315	19
5014-A	67	8.746,46	8.210,75	2.953,29	6.019,29	11.726,93	93,88	24.887,39	7.268,70	63	4
5101-A	911	3.827,33	1.354,25	2.837,30	3.555,89	4.624,38	35,38	7.305,02	3.740,54	894	17
5102-A	776	5.260,48	2.424,70	3.607,90	4.833,62	6.096,44	46,09	9.829,24	4.891,09	741	35
5103-A	162	9.048,71	7.202,13	5.784,59	7.542,45	10.059,76	79,59	16.472,52	7.730,54	150	12
5104-A	164	12.860,40	8.815,55	7.213,66	9.585,72	15.624,46	68,55	28.240,65	11.109,09	154	10
5111-A	133	3.227,24	1.392,96	2.155,91	3.178,71	3.976,89	43,16	6.708,36	3.156,35	131	2

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
5112-A	226	5.353,18	3.718,01	3.349,65	4.773,31	6.685,68	69,45	11.689,72	4.740,13	215	11
5113-A	91	9.513,92	5.548,31	5.901,23	7.807,49	12.122,24	58,32	21.453,74	8.788,93	87	4
5114-A	26	19.960,87	11.822,81	9.538,72	20.037,48	23.764,53	59,23	45.103,25	18.736,95	25	1
5121-A	438	3.240,46	1.147,15	2.589,69	3.056,18	3.767,22	35,40	5.533,50	3.091,46	419	19
5122-A	279	3.944,96	1.876,66	2.836,16	3.590,21	4.615,25	47,57	7.283,87	3.643,30	264	15
5123-A	47	8.335,01	6.292,07	3.984,28	6.683,76	9.771,01	75,49	18.451,10	7.091,17	44	3
5124-A	11	16.903,60	12.581,69	6.667,43	14.666,80	20.813,23	74,43	42.031,92	14.183,07	10	1
5131-A	16.991	2.196,36	864,39	1.527,00	2.158,50	2.730,87	39,36	4.536,66	2.161,34	16.810	181
5132-A	4.781	2.817,08	1.308,41	2.033,38	2.700,68	3.359,62	46,45	5.348,97	2.644,90	4.588	193
5133-A	336	5.373,33	4.050,27	2.932,77	4.417,61	6.482,82	75,38	11.807,88	4.786,03	324	12
5134-A	54	15.106,96	11.773,46	6.685,25	11.069,89	19.400,79	77,93	38.474,09	13.675,55	52	2
5141-A	7.226	1.905,90	744,52	1.511,79	1.634,50	2.162,07	39,06	3.137,49	1.776,95	6.776	450
5142-A	1.447	2.412,66	1.169,70	1.578,79	2.118,72	2.920,85	48,48	4.933,94	2.269,82	1.397	50
5143-A	144	4.554,28	3.539,57	2.487,28	3.288,92	5.741,19	77,72	10.622,06	3.774,12	133	11
5151-A	1.408	1.233,18	909,17	707,18	935,71	1.386,38	73,73	2.405,19	1.018,90	1.294	114
5152-A	373	2.243,49	2.044,09	924,15	1.466,16	2.977,76	91,11	6.058,17	1.900,50	355	18
5153-A	74	6.045,08	6.468,43	1.829,43	3.968,45	7.679,19	107,00	16.453,82	4.633,11	69	5
5161-A	1.502	1.086,90	560,61	777,96	947,60	1.181,99	51,58	1.788,04	958,51	1.384	118
5162-A	396	1.985,23	1.434,51	970,78	1.525,30	2.607,66	72,26	5.062,99	1.760,03	378	18
5163-A	66	5.974,47	11.116,21	2.015,70	3.577,48	6.130,13	186,06	12.301,78	3.892,71	61	5
5171-A	1.393	932,74	510,89	627,33	847,67	1.041,93	54,77	1.663,84	849,69	1.324	69
5172-A	513	1.551,97	1.652,69	808,91	1.031,91	1.572,69	106,49	2.718,37	1.101,32	457	56
5173-A	67	6.624,12	6.916,28	1.529,42	4.158,36	10.841,23	104,41	24.808,96	5.567,08	64	3
5181-A	470	2.223,75	1.405,76	1.284,36	2.009,45	2.882,25	63,22	5.279,08	2.107,05	461	9
5182-A	306	3.620,39	2.631,44	2.020,59	3.060,32	4.217,95	72,68	7.513,99	3.048,46	282	24
5183-A	79	8.492,23	6.292,91	4.519,97	7.331,19	10.052,26	74,10	18.350,70	7.427,40	75	4
5184-A	17	22.103,04	13.468,02	14.706,12	18.274,30	29.261,50	60,93	51.094,55	19.842,32	16	1
5301-A	126	1.908,06	1.595,70	910,13	1.437,48	2.309,41	83,63	4.408,32	1.577,44	118	8
5302-A	401	2.939,33	2.883,01	1.301,18	2.257,35	3.414,61	98,08	6.584,75	2.326,48	373	28
5303-A	466	5.024,20	4.663,51	2.241,69	3.584,66	6.215,10	92,82	12.175,22	4.061,70	434	32
5304-A	126	11.146,89	8.256,33	5.551,41	8.755,04	14.827,66	74,07	28.742,04	10.236,20	122	4
5311-A	538	1.745,20	1.186,31	1.044,65	1.613,11	2.147,18	67,98	3.800,98	1.599,21	519	19
5312-A	269	2.443,31	1.599,51	1.288,63	2.048,97	3.053,56	65,46	5.700,94	2.197,33	255	14
5313-A	53	4.200,23	3.329,92	2.208,87	2.888,77	4.882,39	79,28	8.892,68	3.284,92	48	5
5314-A	11	5.999,08	4.730,16	2.003,09	5.895,89	6.900,40	78,85	14.246,37	4.814,35	10	1
5321-A	1.293	1.121,25	967,18	582,06	910,24	1.342,08	86,26	2.482,11	971,40	1.230	63
5322-A	478	1.738,90	1.493,77	760,79	1.287,96	2.115,30	85,90	4.147,07	1.445,56	448	30
5323-A	113	4.263,19	6.035,26	1.771,26	2.830,89	4.371,80	141,57	8.272,61	2.999,13	105	8
5401-A	9.426	3.084,08	936,30	2.715,73	3.016,39	3.332,23	30,36	4.256,98	3.005,73	9.160	266
5402-A	8.327	3.548,75	1.964,18	2.891,93	3.239,24	3.678,40	55,35	4.858,10	3.232,12	7.783	544
5403-A	3.078	5.087,87	4.020,48	3.254,23	3.886,20	5.265,44	79,02	8.282,25	4.090,64	2.790	288
5404-A	146	8.743,87	6.471,80	5.174,73	6.887,70	10.120,10	74,02	17.538,15	7.292,37	134	12
5411-A	173	2.492,13	606,46	2.228,26	2.495,58	2.758,64	24,34	3.554,20	2.424,48	166	7
5412-A	236	2.663,82	1.166,10	2.178,75	2.583,71	2.983,86	43,78	4.191,52	2.517,07	228	8
5413-A	89	3.906,34	2.668,72	2.603,79	2.975,48	4.573,55	68,32	7.528,19	3.231,64	81	8
5421-A	183	1.946,03	429,22	1.739,69	1.952,50	2.140,23	22,06	2.741,03	1.896,48	176	7
5422-A	279	2.353,46	1.593,07	1.959,10	2.175,08	2.375,74	67,69	3.000,70	2.113,32	257	22
5423-A	74	4.892,95	4.988,96	2.255,77	2.915,32	5.386,44	101,96	10.082,46	3.574,46	67	7
5424-A	13	12.433,66	8.512,56	7.784,64	9.108,19	13.721,85	68,46	22.627,67	10.521,88	12	1
5431-A	190	1.017,23	882,17	619,43	782,77	1.101,94	86,72	1.825,69	815,01	175	15
5432-A	135	1.686,84	1.277,42	819,97	1.261,04	1.945,19	75,73	3.633,02	1.347,67	122	13
5433-A	47	4.610,24	5.281,19	928,82	2.980,11	5.657,40	114,55	12.750,27	3.360,16	43	4
5441-A	1.772	813,23	434,16	561,08	702,14	925,56	53,39	1.472,26	748,65	1.692	80
5442-A	490	1.182,31	1.042,52	663,00	922,63	1.297,25	88,18	2.248,63	982,38	455	35
5443-A	55	2.548,30	2.693,81	1.023,75	1.556,35	3.006,40	105,71	5.980,38	2.103,81	53	2
5601-A	49.511	2.023,66	463,51	1.801,79	2.038,92	2.259,14	22,90	2.945,17	1.995,08	48.602	909
5602-A	32.049	2.266,33	1.138,22	1.905,54	2.152,85	2.428,93	50,22	3.214,02	2.132,60	30.487	1.562
5603-A	6.100	2.881,25	2.178,84	2.110,41	2.425,97	2.902,18	75,62	4.089,84	2.426,97	5.535	565
5604-A	57	5.953,12	6.628,43	2.941,98	4.050,85	5.552,15	111,34	9.467,41	4.047,05	50	7
5611-A	553	1.490,91	741,49	961,90	1.449,80	1.966,72	49,73	3.473,95	1.453,13	546	7
5612-A	397	1.768,12	1.183,45	1.119,12	1.604,59	2.123,87	66,93	3.631,00	1.599,60	380	17
5613-A	78	2.831,07	2.066,46	1.493,52	2.292,38	3.364,92	72,99	6.172,02	2.420,28	73	5

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
5614-A	13	6.039,78	3.565,41	3.327,64	5.371,31	7.160,51	59,03	12.909,81	5.317,13	12	1
5621-A	1.034	1.506,63	515,66	1.185,54	1.450,55	1.770,75	34,23	2.648,58	1.458,67	1.003	31
5622-A	306	1.891,20	733,03	1.422,82	1.768,65	2.254,21	38,76	3.501,29	1.813,80	296	10
5623-A	75	3.176,31	1.673,93	2.209,10	2.924,68	3.673,92	52,70	5.871,15	2.884,09	71	4
5631-A	5.208	1.819,57	2.114,26	615,44	1.182,42	2.195,84	116,20	4.566,42	1.381,79	4.851	357
5632-A	1.375	2.961,09	3.810,17	993,74	1.931,17	3.249,00	128,67	6.631,89	2.083,10	1.266	109
5633-A	450	3.706,50	3.889,40	1.567,33	2.471,77	4.284,51	104,93	8.360,27	2.774,63	414	36
5641-A	773	915,26	797,86	511,39	777,65	1.099,50	87,17	1.981,65	822,86	742	31
5642-A	242	1.425,64	961,30	794,27	1.214,42	1.736,36	67,43	3.149,49	1.249,87	228	14
5643-A	38	3.094,90	2.771,40	1.516,35	2.289,07	3.430,68	89,55	6.302,16	2.177,66	33	5
5651-A	738	616,27	849,96	342,25	374,64	500,68	137,92	738,31	395,01	630	108
5652-A	75	1.494,01	2.529,61	356,62	400,97	857,24	169,32	1.608,16	468,33	59	16
5661-A	3.995	1.188,17	1.102,73	496,78	901,61	1.450,89	92,81	2.882,05	1.003,20	3.782	213
5662-A	3.774	1.616,00	1.749,08	753,97	1.150,33	1.902,39	108,24	3.625,02	1.284,31	3.525	249
5663-A	839	2.510,06	2.816,45	953,58	1.707,97	2.821,29	112,21	5.622,85	1.840,93	774	65
5664-A	14	4.641,78	3.771,03	2.054,05	3.556,10	5.771,17	81,24	11.346,84	3.759,57	13	1
5801-A	116	1.429,89	977,80	681,50	1.130,22	1.892,66	68,38	3.709,40	1.310,75	112	4
5802-A	97	2.127,69	1.083,48	1.309,84	1.926,88	2.799,23	50,92	5.033,31	2.058,40	95	2
5803-A	43	2.341,25	1.025,68	1.707,63	2.317,29	3.054,48	43,81	5.074,76	2.341,25	43	0
5804-A	13	3.086,68	1.398,24	2.046,17	2.972,71	4.297,66	45,30	7.674,89	3.086,68	13	0
5812-A	19	1.937,16	913,02	919,10	2.124,90	2.834,78	47,13	5.708,29	1.937,16	19	0
5904-A	13	58.453,67	23.258,58	40.863,40	63.357,55	78.848,57	39,79	135.826,33	58.453,67	13	0
591--A	44	22.431,82	21.995,95	3.028,86	15.428,83	35.935,14	98,06	85.294,57	22.431,82	44	0
5924-A	18	58.496,22	24.133,78	35.822,27	57.675,57	81.285,08	41,26	149.479,30	58.496,22	18	0
5933-A	19	20.975,84	10.288,58	12.199,56	20.994,21	28.947,33	49,05	54.069,00	20.975,84	19	0
5934-A	82	35.997,61	16.541,94	26.010,78	38.630,68	48.337,55	45,95	81.827,71	35.997,61	82	0
6004-A	33	50.159,94	20.607,78	37.937,83	47.512,95	65.321,41	41,08	106.396,77	50.159,94	33	0
6013-A	26	20.599,97	9.227,64	13.979,80	23.346,07	26.993,62	44,79	46.514,34	20.599,97	26	0
6014-A	31	26.122,35	14.170,99	13.775,96	29.493,81	38.820,88	54,25	76.388,26	26.122,35	31	0
6022-A	17	14.386,24	4.593,34	10.736,41	14.128,91	15.338,29	31,93	22.241,11	13.133,34	15	2
6023-A	46	22.278,85	8.897,80	17.804,08	21.042,66	28.277,04	39,94	43.986,47	22.278,85	46	0
6024-A	61	26.420,05	14.134,68	17.101,87	27.862,54	34.382,36	53,50	60.303,09	25.839,78	60	1
6031-A	18	11.582,38	3.681,50	8.224,23	11.580,66	15.156,56	31,79	25.555,06	11.582,38	18	0
6032-A	56	14.033,21	6.617,49	9.186,96	12.972,31	17.434,11	47,16	29.804,84	13.556,47	55	1
6033-A	41	19.551,98	8.917,94	12.179,93	17.684,97	26.295,28	45,61	47.468,31	19.551,98	41	0
6034-A	21	18.891,49	8.912,31	13.269,14	16.844,11	27.639,17	47,18	49.194,20	18.891,49	21	0
610--A	20	36.476,92	38.410,74	14.694,66	31.846,60	43.757,09	105,30	87.350,75	28.550,36	19	1
6111-A	16	7.181,01	2.893,30	5.014,64	7.946,83	9.206,36	40,29	15.493,95	7.181,01	16	0
6112-A	29	11.204,47	5.585,24	7.401,61	11.039,47	13.607,70	49,85	22.916,83	10.601,13	28	1
6113-A	29	11.523,89	5.112,43	7.959,30	11.624,96	14.261,93	44,36	23.715,87	11.523,89	29	0
6114-A	19	22.709,38	15.830,47	9.048,57	20.008,13	36.838,10	69,71	78.522,40	22.709,38	19	0
6121-A	22	10.028,57	4.063,10	7.063,58	9.775,88	12.343,42	40,52	20.263,19	10.028,57	22	0
6122-A	36	10.953,43	5.270,17	6.412,40	10.591,09	14.204,94	48,11	25.893,74	10.953,43	36	0
6123-A	51	13.011,22	6.254,82	7.672,05	11.598,89	18.086,93	48,07	33.709,24	13.011,22	51	0
6124-A	44	19.938,33	8.628,66	13.277,80	17.841,04	25.820,96	43,28	44.635,69	19.938,33	44	0
6131-A	15	10.884,61	4.304,82	7.853,13	10.666,68	15.230,66	39,55	26.296,97	10.884,61	15	0
6132-A	20	13.098,38	5.316,37	8.840,41	12.894,18	17.590,12	40,59	30.714,68	13.098,38	20	0
6133-A	29	13.961,53	6.510,07	9.239,77	12.932,05	20.213,09	46,63	36.673,06	13.961,53	29	0
6141-A	148	7.178,84	3.918,57	4.751,96	6.776,20	9.336,08	54,58	16.212,26	6.819,60	144	4
6142-A	105	9.649,86	4.375,66	7.224,77	9.133,28	12.239,16	45,34	19.760,74	9.315,51	102	3
6143-A	48	11.060,33	4.812,48	7.340,35	10.121,76	14.808,85	43,51	26.011,61	11.060,33	48	0
6144-A	12	13.351,54	6.196,68	8.752,38	11.881,55	17.757,79	46,41	31.265,91	13.351,54	12	0
620--A	30	25.210,59	14.490,91	13.284,80	20.586,59	32.836,09	57,48	62.163,03	25.210,59	30	0
6212-A	33	8.088,58	4.411,62	5.287,32	7.430,45	10.731,84	54,54	18.898,63	8.088,58	33	0
6213-A	34	11.831,26	11.594,81	5.271,27	8.308,87	12.334,34	98,00	22.928,95	8.470,96	30	4
6214-A	22	17.179,84	9.311,29	12.175,21	15.898,14	19.919,41	54,20	31.535,70	15.065,98	20	2
6221-A	17	6.768,96	1.961,76	5.549,95	6.433,42	7.722,26	28,98	10.980,71	6.493,37	16	1
6222-A	36	10.094,78	4.684,23	6.425,24	9.708,62	13.117,54	46,40	23.156,01	10.094,78	36	0
6223-A	38	11.853,90	5.020,94	7.484,16	11.136,59	16.269,14	42,36	29.446,60	11.853,90	38	0
6224-A	24	12.087,84	7.632,54	7.261,60	10.383,42	11.952,18	63,14	18.988,05	9.049,98	20	4
6231-A	11	7.113,05	2.235,49	5.852,57	6.322,73	8.769,35	31,43	13.144,53	7.113,05	11	0
6232-A	22	7.356,13	3.961,61	4.627,98	6.756,90	7.938,54	53,85	12.904,40	6.416,69	20	2

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
6233-A	23	11.103,22	5.895,53	6.824,53	12.132,79	15.681,02	53,10	28.965,75	11.103,22	23	0
6241-A	126	2.435,75	2.820,66	705,34	1.395,91	3.396,07	115,80	7.432,15	2.111,37	122	4
6242-A	100	3.076,21	2.766,84	867,87	2.239,72	4.274,98	89,94	9.385,63	2.754,86	96	4
6243-A	28	6.147,73	4.142,64	3.836,71	4.968,23	7.447,04	67,38	12.862,54	5.242,40	26	2
6251-A	38	7.372,18	3.323,74	5.147,36	6.798,26	8.938,49	45,08	14.625,18	7.129,04	37	1
6252-A	37	7.699,12	3.821,61	4.511,37	7.928,19	10.162,17	49,64	18.638,37	7.699,12	37	0
6253-A	25	12.103,03	7.201,77	7.312,84	9.766,64	14.286,20	59,50	24.746,23	10.017,48	22	3
6261-A	26	5.257,81	2.262,49	3.473,15	5.334,31	7.324,70	43,03	13.102,02	5.257,81	26	0
6262-A	50	5.070,66	2.656,99	3.164,82	4.565,53	6.255,57	52,40	10.891,69	4.770,62	48	2
6263-A	49	5.810,60	3.180,25	3.601,67	5.123,33	7.591,17	54,73	13.575,44	5.810,60	49	0
6303-A	21	16.939,30	5.814,17	12.227,86	17.013,74	21.401,13	34,32	35.161,04	16.939,30	21	0
6304-A	65	30.192,15	15.822,06	19.872,94	26.721,81	37.420,88	52,40	63.742,78	27.537,41	61	4
6312-A	22	11.351,21	7.402,00	5.251,98	9.242,21	17.328,07	65,21	35.442,21	11.351,21	22	0
6313-A	34	13.307,50	4.911,25	9.923,29	13.226,31	18.090,55	36,91	30.341,45	13.307,50	34	0
6314-A	28	32.056,45	19.622,14	18.686,82	25.373,10	40.043,68	61,21	72.078,97	28.496,99	26	2
6321-A	106	2.494,87	1.144,57	1.540,80	2.405,87	3.167,88	45,88	5.608,50	2.387,59	103	3
6322-A	26	4.927,19	5.512,45	1.958,85	2.743,42	5.797,18	111,88	11.554,68	3.643,08	24	2
6323-A	28	15.095,85	12.900,01	7.198,11	9.555,88	18.090,98	85,45	34.430,28	11.513,27	25	3
6331-A	73	2.960,61	2.930,11	1.337,13	2.002,97	3.528,36	98,97	6.815,22	2.255,65	67	6
6332-A	154	4.656,16	4.001,54	2.272,93	3.891,80	5.397,01	85,94	10.083,13	3.870,39	145	9
6333-A	124	7.399,09	5.006,48	3.956,22	5.933,34	9.396,14	67,66	17.556,01	6.727,84	119	5
6334-A	71	14.656,22	12.281,97	7.526,58	10.902,11	18.035,73	83,80	33.799,44	11.927,53	66	5
6341-A	34	3.393,58	2.049,65	1.590,58	3.089,82	4.295,31	60,40	8.352,41	3.071,32	32	2
6342-A	68	5.503,61	3.276,67	3.324,67	4.692,41	6.956,08	59,54	12.403,19	5.068,04	65	3
6343-A	55	7.393,15	3.381,68	5.105,18	6.492,37	9.494,42	45,74	16.078,26	7.191,44	54	1
6344-A	43	12.302,24	9.760,58	7.811,22	10.503,40	14.234,95	79,34	23.870,54	10.596,54	41	2
6351-A	13	3.575,33	1.492,27	2.858,19	3.505,12	4.223,23	41,74	6.270,79	3.575,33	13	0
6353-A	32	7.862,35	5.420,82	4.891,11	6.430,10	10.008,74	68,95	17.685,17	6.767,79	30	2
6361-A	77	3.127,70	4.529,23	1.433,68	2.479,64	3.641,24	144,81	6.952,57	2.560,67	75	2
6362-A	140	3.915,29	2.489,80	2.355,75	3.271,27	4.886,94	63,59	8.683,72	3.538,86	134	6
6363-A	41	6.692,80	3.609,18	4.277,89	5.877,01	8.827,59	53,93	15.652,15	6.430,76	40	1
6364-A	13	8.451,78	3.601,30	5.906,85	7.729,04	11.271,07	42,61	19.317,41	8.451,78	13	0
6371-A	769	1.714,36	1.103,39	882,51	1.458,78	2.261,17	64,36	4.329,15	1.591,57	743	26
6372-A	460	2.388,47	1.700,22	1.363,93	2.134,43	2.954,24	71,18	5.339,71	2.172,44	444	16
6373-A	185	3.862,61	2.416,08	2.400,39	3.085,78	4.569,03	62,55	7.821,99	3.378,45	172	13
6374-A	26	7.562,60	4.469,53	4.645,86	6.333,99	8.232,81	59,10	13.613,24	6.029,39	22	4
6381-A	1.439	1.124,64	1.079,14	567,35	807,26	1.315,64	95,95	2.438,08	925,16	1.350	89
6382-A	383	1.869,19	1.963,40	852,66	1.414,16	2.212,40	105,04	4.252,01	1.550,43	365	18
6383-A	49	3.944,04	3.580,63	1.507,50	2.700,41	4.400,63	90,79	8.740,34	2.978,23	44	5
6391-A	45	3.858,96	2.552,70	1.828,69	3.122,13	5.402,55	66,15	10.763,34	3.699,25	44	1
6392-A	49	5.017,68	4.722,00	1.855,97	3.456,62	6.270,68	94,11	12.892,74	3.915,94	45	4
6393-A	52	5.069,64	3.573,51	2.200,56	4.349,76	6.834,69	70,49	13.785,88	5.069,64	52	0
6394-A	13	6.802,68	4.041,38	4.319,63	7.027,00	8.044,67	59,41	13.632,22	5.473,41	11	2
6401-A	31	2.679,21	2.514,98	1.314,84	2.248,12	2.866,87	93,87	5.194,93	2.003,48	28	3
6402-A	61	2.374,50	1.559,34	1.165,10	1.837,55	3.255,90	65,67	6.392,11	2.292,19	60	1
6403-A	70	3.791,04	2.829,58	1.871,00	2.851,71	5.191,31	74,64	10.171,78	3.547,99	68	2
6501-A	95	4.679,01	2.183,24	3.180,32	4.150,40	5.590,24	46,66	9.205,10	4.431,67	92	3
6502-A	79	6.523,95	4.866,75	3.693,18	5.222,83	7.150,70	74,60	12.336,99	5.266,66	72	7
6503-A	50	9.106,41	6.419,37	5.064,19	7.129,97	9.594,79	70,49	16.390,68	7.174,27	44	6
6504-A	29	25.478,69	21.732,66	10.307,53	16.598,37	38.482,47	85,30	80.744,87	23.279,38	28	1
6511-A	518	2.113,54	1.727,89	1.156,90	1.608,71	2.316,69	81,75	4.056,39	1.703,21	472	46
6512-A	126	4.353,64	3.802,11	1.831,75	3.082,73	5.834,17	87,33	11.837,81	3.881,08	121	5
6513-A	73	8.719,91	9.514,80	3.719,08	5.643,11	9.806,21	109,12	18.936,91	6.272,31	66	7
6514-A	34	23.696,47	26.972,34	9.035,51	16.557,01	24.553,02	113,82	47.829,30	15.524,99	30	4
6601-A	155	2.441,88	1.436,67	1.324,53	2.291,53	3.187,08	58,83	5.980,90	2.311,30	151	4
6602-A	771	3.732,67	2.568,72	2.079,82	3.143,97	4.546,80	68,82	8.247,26	3.239,13	722	49
6603-A	806	5.488,84	4.122,62	3.105,42	4.491,64	6.843,60	75,11	12.450,87	4.868,58	771	35
6604-A	208	12.272,50	10.296,95	5.778,93	9.578,96	15.633,47	83,90	30.415,28	10.799,35	200	8
6611-A	709	2.153,82	2.159,30	936,57	1.467,99	2.468,80	100,25	4.767,16	1.611,58	648	61
6612-A	417	5.343,73	17.010,73	1.519,21	2.518,77	4.937,15	318,33	10.064,06	2.997,13	380	37
6613-A	338	7.135,48	29.162,60	1.937,61	3.478,34	5.986,05	408,70	12.058,71	3.901,68	317	21
6614-A	57	9.623,72	7.946,80	4.607,24	7.539,12	11.486,39	82,58	21.805,12	7.564,43	52	5

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
6621-A	97	2.186,65	1.600,45	1.121,27	1.790,61	2.754,93	73,19	5.205,41	1.883,39	91	6
6622-A	106	2.941,70	1.795,05	1.633,86	2.619,56	3.822,32	61,02	7.105,02	2.804,90	104	2
6623-A	74	5.068,18	3.522,45	2.624,96	3.906,79	6.632,27	69,50	12.643,22	4.484,16	70	4
6631-A	1.119	1.730,62	1.312,95	911,25	1.331,40	2.108,44	75,87	3.904,24	1.480,76	1.049	70
6632-A	3.194	2.735,31	2.304,28	1.258,83	2.130,35	3.505,27	84,24	6.874,93	2.421,96	3.062	132
6633-A	3.524	4.307,69	3.779,46	1.887,78	3.375,46	5.475,74	87,74	10.857,67	3.695,23	3.351	173
6634-A	599	10.494,44	10.299,25	4.764,79	7.963,94	13.166,85	98,14	25.769,93	8.696,62	563	36
6641-A	855	2.006,55	1.489,48	1.159,33	1.706,61	2.409,22	74,23	4.284,05	1.763,70	812	43
6642-A	364	2.864,27	2.262,77	1.286,18	2.239,46	3.618,40	79,00	7.116,73	2.458,02	342	22
6643-A	272	5.183,53	8.296,92	1.724,69	3.870,27	6.676,78	160,06	14.104,92	4.386,97	265	7
6644-A	71	16.227,22	17.186,17	4.404,55	10.331,95	22.329,52	105,91	49.216,97	12.600,76	66	5
6801-A	174	3.528,93	3.177,64	1.482,14	2.305,19	4.547,16	90,05	9.144,70	2.824,24	161	13
6802-A	107	7.744,50	5.511,15	4.404,72	6.348,60	9.956,21	71,16	18.283,44	6.999,14	103	4
6803-A	52	14.115,03	9.806,45	7.289,40	12.200,60	17.394,83	69,48	32.552,98	11.988,25	48	4
6804-A	104	26.842,10	21.464,73	11.580,44	20.454,64	39.862,19	79,97	82.284,81	25.205,64	102	2
6811-A	355	2.987,60	2.667,89	1.445,01	2.033,93	3.412,13	89,30	6.362,81	2.335,29	325	30
6812-A	284	5.904,07	7.364,24	2.130,72	4.018,53	7.219,73	124,73	14.853,23	4.710,42	269	15
6813-A	238	11.691,63	10.130,03	5.816,94	9.718,85	13.936,02	86,64	26.114,64	9.637,17	222	16
6814-A	160	28.794,22	23.881,72	13.386,24	23.528,35	35.602,81	82,94	68.927,66	24.399,53	151	9
6821-A	513	2.965,30	1.508,53	1.997,79	2.691,67	3.472,84	50,87	5.685,42	2.667,67	478	35
6822-A	362	4.270,60	2.912,09	2.416,91	3.532,11	5.414,15	68,19	9.910,02	3.884,88	348	14
6823-A	116	8.457,48	4.677,90	5.266,19	7.405,47	11.489,36	55,31	20.824,10	8.199,00	114	2
6824-A	112	17.160,55	13.621,94	8.813,80	13.453,18	20.353,58	79,38	37.663,25	14.683,81	106	6
6831-A	411	2.652,70	2.005,98	1.424,07	2.100,76	3.288,29	75,62	6.084,62	2.261,01	387	24
6832-A	284	4.110,28	3.786,67	1.724,39	2.758,70	4.966,58	92,13	9.829,87	3.283,91	263	21
6833-A	125	8.256,69	5.876,73	3.922,23	6.838,70	10.954,73	71,18	21.503,47	7.497,38	120	5
6834-A	69	21.832,25	14.044,03	8.607,47	18.229,40	33.267,82	64,33	70.258,34	21.832,25	69	0
6901-A	346	2.926,40	4.502,03	883,31	1.563,19	3.024,21	153,84	6.235,56	1.899,96	318	28
6902-A	225	6.162,67	7.569,90	1.575,25	3.539,96	6.402,77	122,83	13.644,06	3.764,92	197	28
6903-A	271	11.038,77	11.589,34	3.740,28	6.723,40	15.807,52	104,99	33.908,36	9.800,39	263	8
6904-A	460	25.585,76	17.848,84	12.772,01	23.832,33	34.893,21	69,76	68.075,00	23.895,55	448	12
6911-A	779	2.975,39	2.750,23	1.222,20	2.287,46	3.582,84	92,43	7.123,79	2.425,02	730	49
6912-A	1.248	4.293,97	3.520,03	2.071,61	3.344,78	5.398,70	81,98	10.389,33	3.687,50	1.179	69
6913-A	967	6.982,66	5.494,26	3.307,83	5.543,43	8.951,79	78,68	17.417,73	6.195,33	926	41
6914-A	516	15.488,91	13.142,80	6.356,75	12.275,89	20.840,23	84,85	42.565,45	14.033,44	501	15
6921-A	332	2.887,39	3.157,19	1.086,22	2.060,69	3.118,13	109,34	6.165,99	2.121,65	302	30
6922-A	283	3.945,11	3.792,53	1.411,48	2.578,57	5.384,46	96,13	11.343,93	3.315,58	268	15
6923-A	108	7.224,16	5.099,38	3.255,97	5.909,60	9.835,19	70,59	19.704,02	6.758,04	105	3
6924-A	82	9.273,41	8.611,72	2.257,84	6.400,87	14.307,84	92,86	32.382,83	8.646,39	80	2
6931-A	14.870	2.087,29	1.287,68	1.268,06	1.796,05	2.554,14	61,69	4.483,27	1.908,98	14.208	662
6932-A	9.621	2.370,06	1.649,07	1.361,55	1.994,92	2.893,26	69,58	5.190,82	2.133,45	9.183	438
6933-A	2.266	3.362,01	3.794,56	1.534,05	2.402,82	3.714,76	112,87	6.985,82	2.541,23	2.102	164
6934-A	866	11.417,25	12.967,08	2.588,13	6.018,29	16.597,75	113,57	37.612,19	9.587,56	831	35
6941-A	295	2.506,45	5.319,53	970,76	1.512,29	2.584,59	212,23	5.005,32	1.728,95	277	18
6942-A	644	3.491,05	4.585,03	1.397,08	2.502,42	3.915,78	131,34	7.693,83	2.600,18	593	51
6943-A	569	4.654,29	4.595,07	1.778,72	3.376,76	5.823,69	98,73	11.891,15	3.734,67	532	37
6944-A	230	10.219,97	9.440,17	4.333,66	7.625,64	12.535,12	92,37	24.837,32	8.228,06	214	16
7101-A	91	2.997,97	3.046,83	1.472,31	2.246,42	3.215,27	101,63	5.829,72	2.191,45	82	9
7102-A	117	5.874,26	4.221,17	2.975,50	4.861,41	7.041,83	71,86	13.141,31	5.243,82	112	5
7103-A	200	12.278,64	10.155,25	6.687,29	9.804,75	14.881,15	82,71	27.171,93	10.608,96	191	9
7104-A	294	25.116,36	20.381,43	11.217,78	19.923,00	31.633,56	81,15	62.257,22	21.630,26	278	16
7111-A	281	2.799,91	2.632,88	1.357,50	2.175,76	3.310,05	94,03	6.238,88	2.317,62	265	16
7112-A	562	5.458,14	4.905,85	2.326,83	4.038,01	6.738,04	89,88	13.354,86	4.502,73	528	34
7113-A	264	9.469,85	6.467,61	4.808,65	8.065,83	12.449,49	68,30	23.910,75	8.953,48	258	6
7114-A	135	21.270,92	16.868,85	10.902,24	16.575,52	25.515,68	79,30	47.435,84	17.486,58	125	10
7201-A	336	2.341,91	1.264,01	1.564,37	2.162,65	2.956,65	53,97	5.045,08	2.230,30	328	8
7202-A	1.486	4.254,55	3.058,37	2.511,50	3.527,11	5.193,60	71,88	9.216,75	3.786,02	1.416	70
7203-A	1.807	6.077,38	4.578,86	3.243,21	5.163,34	7.639,13	75,34	14.233,01	5.401,01	1.724	83
7204-A	1.373	10.843,64	10.175,18	4.254,76	7.915,55	14.110,00	93,84	28.892,85	8.997,76	1.293	80
7211-A	1.017	2.311,08	2.000,99	1.119,25	1.817,19	2.877,03	86,58	5.513,70	2.002,87	967	50
7212-A	851	3.613,54	2.957,08	1.691,30	2.846,95	4.496,12	81,83	8.703,36	3.044,30	797	54
7213-A	361	5.802,79	4.754,46	2.738,76	4.566,81	7.343,13	81,93	14.249,68	4.926,62	339	22

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
7214-A	94	9.576,18	8.993,82	4.302,62	6.897,46	11.045,14	93,92	21.158,93	7.337,11	86	8
7221-A	731	1.395,25	1.028,84	749,13	1.172,58	1.722,38	73,74	3.182,24	1.226,08	695	36
7222-A	704	2.716,43	2.123,99	1.328,07	2.111,92	3.430,13	78,19	6.583,22	2.331,68	664	40
7223-A	300	3.886,74	2.915,46	1.939,28	3.296,25	5.028,70	75,01	9.662,82	3.494,48	289	11
7224-A	53	7.851,46	6.592,98	3.265,99	5.610,11	9.328,65	83,97	18.422,65	6.229,76	48	5
7231-A	2.614	1.221,63	753,48	781,09	1.066,60	1.486,43	61,68	2.544,43	1.110,13	2.490	124
7232-A	1.992	1.793,39	1.325,79	988,03	1.454,49	2.165,83	73,93	3.932,53	1.557,18	1.871	121
7233-A	600	3.352,87	2.821,62	1.558,96	2.619,76	4.135,11	84,16	7.999,34	2.816,15	563	37
7234-A	69	13.987,79	19.836,00	3.712,77	7.956,97	15.259,54	141,81	32.579,69	8.535,07	62	7
7241-A	714	1.819,81	1.271,68	1.015,90	1.594,40	2.196,96	69,88	3.968,56	1.606,93	678	36
7242-A	717	3.067,87	2.932,26	1.576,90	2.380,35	3.461,80	95,58	6.289,15	2.494,29	664	53
7243-A	466	5.716,12	4.496,74	2.794,58	4.442,55	7.448,18	78,67	14.428,58	4.961,95	442	24
7244-A	206	14.756,12	13.304,94	5.693,09	11.077,41	18.909,89	90,17	38.735,10	12.095,91	192	14
7401-A	142	4.193,26	3.987,11	1.704,89	3.443,13	4.922,19	95,08	9.748,13	3.477,61	133	9
7402-A	211	7.945,30	5.806,42	4.409,30	6.433,51	9.596,93	73,08	17.378,38	6.809,76	198	13
7403-A	165	13.780,94	8.628,67	8.943,81	11.256,58	16.843,66	62,61	28.693,43	12.283,53	156	9
7404-A	44	18.865,85	11.159,08	11.022,41	17.140,53	23.979,05	59,15	43.414,01	17.778,08	43	1
7501-A	228	1.479,40	1.998,16	381,52	520,08	1.984,01	135,07	4.387,75	1.072,58	213	15
7502-A	128	3.670,26	3.436,53	1.124,51	3.086,37	4.760,69	93,63	10.214,97	3.141,70	123	5
7503-A	36	6.730,87	4.500,24	3.590,91	6.021,42	8.967,07	66,86	17.031,32	6.073,54	34	2
7511-A	1.816	2.542,05	2.276,02	821,70	1.976,04	3.548,20	89,54	7.637,95	2.249,65	1.748	68
7512-A	2.255	4.261,43	3.270,55	2.204,75	3.505,90	5.428,53	76,75	10.264,22	3.742,28	2.146	109
7513-A	466	7.490,08	5.034,48	4.089,95	6.354,22	9.643,97	67,22	17.975,00	6.763,88	446	20
7514-A	80	11.953,03	9.583,17	6.182,53	8.975,20	15.611,99	80,17	29.756,19	10.401,94	76	4
7521-A	294	1.920,37	2.477,18	464,42	1.217,01	2.351,30	128,99	5.181,63	1.480,70	281	13
7522-A	314	2.958,58	2.856,51	1.239,08	2.257,10	3.897,88	96,55	7.886,09	2.451,28	298	16
7523-A	83	7.924,33	7.053,86	3.784,43	5.537,61	9.358,29	89,02	17.719,07	6.260,46	76	7
7531-A	360	2.840,40	3.040,87	612,37	1.755,31	4.288,83	107,06	9.803,52	2.511,99	349	11
7532-A	259	4.828,80	3.804,24	2.016,18	4.199,63	6.676,34	78,78	13.666,56	4.518,47	254	5
7533-A	63	7.791,45	4.696,16	4.499,31	6.854,20	9.985,28	60,27	18.214,24	7.225,77	61	2
7541-A	1.334	1.862,59	1.925,89	490,29	1.284,49	2.524,60	103,40	5.576,06	1.604,68	1.284	50
7542-A	3.260	3.236,86	2.457,14	1.557,75	2.794,07	4.275,39	75,91	8.351,85	2.922,44	3.137	123
7543-A	459	5.923,37	3.930,07	3.335,02	4.868,90	7.227,67	66,35	13.066,63	5.176,44	430	29
7544-A	36	11.121,69	6.427,82	6.148,43	9.713,17	14.773,82	57,80	27.711,90	11.121,69	36	0
7551-A	695	2.194,36	2.506,41	809,12	1.605,74	2.848,59	114,22	5.907,80	1.842,10	668	27
7552-A	532	3.081,67	2.390,08	1.617,21	2.640,90	3.861,92	77,56	7.228,99	2.739,97	510	22
7553-A	107	4.978,35	3.843,89	2.449,27	3.846,46	6.425,59	77,21	12.390,06	4.363,39	102	5
7561-A	1.426	1.549,54	1.613,16	482,03	995,75	1.989,96	104,11	4.251,87	1.263,04	1.348	78
7562-A	905	2.411,47	2.295,71	866,79	1.855,05	3.119,31	95,20	6.498,08	2.040,85	862	43
7563-A	123	5.316,34	3.790,27	2.402,91	4.378,86	7.383,70	71,29	14.854,88	5.012,89	120	3
7564-A	13	13.474,60	12.798,66	6.538,49	7.953,72	19.640,38	94,98	39.293,21	10.548,11	12	1
7571-A	1.220	4.340,82	4.443,07	1.728,22	3.311,00	5.464,39	102,36	11.068,63	3.617,13	1.164	56
7571-C	91	10.596,44	8.581,13	4.782,15	8.523,65	13.203,51	80,98	25.835,56	8.995,90	85	6
7572-A	2.670	5.685,76	4.423,09	2.815,48	4.655,76	7.251,34	77,79	13.905,15	5.098,69	2.561	109
7572-C	127	11.203,37	7.922,29	5.251,98	9.237,74	15.519,96	70,71	30.921,94	10.397,86	123	4
7573-A	1.540	7.780,73	5.659,32	4.191,08	6.383,52	9.936,69	72,74	18.555,12	7.004,96	1.477	63
7573-C	80	10.676,81	8.821,97	4.737,93	7.838,23	12.995,07	82,63	25.380,77	8.126,21	71	9
7574-A	296	12.223,10	7.854,49	6.325,31	10.589,16	16.585,70	64,26	31.976,28	11.720,16	291	5
7574-C	18	11.370,33	9.936,02	3.058,83	8.481,17	19.950,79	87,39	45.288,73	11.370,33	18	0
7581-A	458	1.549,53	2.501,29	565,32	996,76	1.849,60	161,42	3.776,01	1.154,23	433	25
7582-A	333	2.509,27	2.773,88	954,84	1.775,66	3.134,51	110,55	6.404,02	2.045,00	316	17
7583-A	88	5.996,52	7.738,16	1.448,44	2.866,13	7.533,85	129,04	16.661,97	3.853,82	80	8
7591-A	113	3.051,79	4.843,00	1.006,82	1.875,19	3.594,10	158,69	7.475,02	2.222,75	105	8
7592-A	118	4.058,19	3.218,07	1.569,99	3.071,34	5.389,84	79,30	11.119,63	3.547,05	112	6
7593-A	61	7.288,77	5.186,56	3.496,61	5.991,64	10.990,85	71,16	22.232,20	7.039,40	60	1
7594-A	13	9.297,21	5.912,76	6.443,99	8.300,92	11.117,55	63,60	18.127,90	8.004,25	12	1
7601-A	3.775	756,67	530,38	558,47	567,89	782,42	70,09	1.118,34	621,93	3.277	498
7602-A	1.375	1.438,89	1.918,57	562,93	874,87	1.273,02	133,34	2.338,15	863,92	1.201	174
7603-A	172	4.534,29	5.276,93	1.069,36	3.354,74	6.645,15	116,38	15.008,84	4.085,27	169	3
7604-A	17	15.000,91	8.968,87	6.973,14	13.933,50	21.279,22	59,79	42.738,33	15.000,91	17	0
7701-A	502	870,92	686,56	422,41	630,30	1.039,48	78,83	1.965,10	709,71	461	41
7702-A	315	1.568,65	1.439,08	600,44	1.174,56	2.025,51	91,74	4.163,13	1.345,80	301	14

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
7703-A	67	2.875,12	2.130,67	1.409,16	2.430,64	3.450,69	74,11	6.512,98	2.532,85	64	3
7711-A	237	2.250,85	1.486,99	1.349,32	1.930,88	2.904,89	66,06	5.238,24	2.060,29	228	9
7712-A	640	3.377,85	2.354,37	2.041,87	2.837,53	4.019,09	69,70	6.984,91	2.941,09	601	39
7713-A	131	6.406,55	6.438,67	3.017,26	4.589,45	7.325,43	100,50	13.787,68	5.136,77	123	8
7721-A	46	2.543,05	1.951,97	1.285,09	2.025,12	3.408,82	76,76	6.594,40	2.244,07	44	2
7722-A	124	4.004,39	2.798,53	2.147,85	3.369,99	5.240,75	69,89	9.880,11	3.671,85	120	4
7723-A	30	6.467,01	4.406,29	3.181,02	5.144,16	8.293,45	68,13	15.962,10	5.603,78	28	2
7731-A	109	1.213,10	1.424,54	423,09	865,13	1.320,67	117,43	2.667,02	907,46	102	7
7732-A	200	2.244,07	2.045,56	580,19	1.761,53	3.209,39	91,15	7.153,18	2.049,93	195	5
7733-A	62	3.755,03	2.415,54	2.193,62	3.032,84	5.055,81	64,33	9.349,09	3.325,23	58	4
7741-A	56	854,29	630,01	466,24	583,78	1.070,28	73,75	1.976,33	771,63	54	2
7742-A	65	1.912,41	2.064,61	557,60	1.206,46	2.391,90	107,96	5.143,36	1.380,79	59	6
7751-A	3.473	904,58	1.064,17	394,18	512,52	960,64	117,64	1.810,34	618,28	3.088	385
7752-A	3.613	2.546,12	2.260,98	900,00	2.089,81	3.459,02	88,80	7.297,55	2.288,16	3.503	110
7753-A	955	5.067,21	3.774,43	2.864,50	4.270,00	6.178,51	74,49	11.149,51	4.445,25	905	50
7754-A	147	10.937,14	7.966,85	5.258,56	8.845,43	13.888,83	72,84	26.834,24	9.472,71	138	9
7761-A	524	1.187,30	1.130,14	484,71	730,12	1.552,70	95,19	3.154,70	975,58	493	31
7762-A	548	3.403,90	3.112,68	1.659,84	2.846,26	4.436,03	91,44	8.600,31	3.047,36	528	20
7763-A	221	6.259,19	4.317,72	3.405,65	5.428,95	7.437,38	68,98	13.484,98	5.314,06	204	17
7764-A	21	11.967,58	7.982,45	4.593,24	11.144,53	16.515,25	66,70	34.398,26	11.967,58	21	0
7901-A	617	2.251,37	2.866,94	920,42	1.302,76	2.528,31	127,34	4.940,15	1.599,00	566	51
7902-A	349	5.631,90	6.045,84	1.879,97	3.784,93	7.090,42	107,35	14.906,09	4.444,92	327	22
7903-A	115	12.932,53	9.944,44	6.299,45	11.600,86	15.599,09	76,89	29.548,56	11.364,51	110	5
7904-A	38	28.765,91	20.853,70	14.156,11	23.201,05	38.943,52	72,49	76.124,62	25.237,39	36	2
7911-A	1.642	1.888,40	1.612,60	956,85	1.414,79	2.154,32	85,39	3.950,53	1.500,87	1.502	140
7912-A	1.100	3.488,28	3.234,19	1.616,26	2.585,67	4.364,88	92,72	8.487,82	2.960,07	1.041	59
7913-A	324	6.062,75	4.642,35	2.728,67	4.994,42	7.910,15	76,57	15.682,38	5.471,30	313	11
7914-A	266	17.852,47	18.079,21	6.750,00	12.052,98	21.287,52	101,27	43.093,81	13.747,95	246	20
7921-A	780	1.532,66	1.353,83	783,91	1.129,93	1.768,24	88,33	3.244,72	1.262,52	728	52
7922-A	257	3.689,14	4.564,80	1.447,71	2.681,53	4.468,11	123,74	8.998,72	2.855,89	242	15
7923-A	91	7.666,60	5.147,87	3.942,61	6.745,98	10.060,06	67,15	19.236,22	6.962,65	87	4
7924-A	66	17.074,02	12.618,66	9.265,42	12.268,04	23.673,24	73,91	45.284,96	15.754,00	64	2
8101-A	707	1.133,35	1.330,68	482,47	764,67	1.270,61	117,41	2.452,83	867,99	659	48
8102-A	375	3.063,06	3.095,00	1.096,47	2.063,34	4.038,67	101,04	8.451,97	2.497,78	353	22
8103-A	152	5.518,39	3.964,36	2.505,43	4.605,51	7.735,85	71,84	15.581,48	5.318,00	150	2
8104-A	29	10.022,41	6.878,24	5.670,04	9.796,97	11.945,25	68,63	21.358,07	8.475,79	27	2
8111-A	509	802,80	622,04	469,14	637,82	918,76	77,48	1.593,18	694,67	481	28
8112-A	265	1.446,21	1.144,48	633,32	1.085,45	1.854,17	79,14	3.685,43	1.273,64	253	12
8113-A	62	3.335,59	3.048,29	1.281,23	2.603,61	3.646,97	91,39	7.195,58	2.486,69	56	6
8114-A	18	8.272,87	4.987,49	3.500,93	7.234,18	10.803,00	60,29	21.756,10	8.272,87	18	0
8121-A	5.455	806,18	685,79	447,45	552,78	904,53	85,07	1.590,14	638,79	4.973	482
8122-A	3.205	1.612,80	1.720,67	542,44	1.026,03	2.008,20	106,69	4.206,83	1.263,31	2.989	216
8123-A	1.050	3.719,78	3.141,70	1.679,94	2.916,29	4.698,00	84,46	9.225,10	3.131,30	987	63
8124-A	399	8.032,91	7.562,68	3.526,86	6.179,84	10.102,86	94,15	19.966,87	6.749,40	378	21
8131-A	1.521	1.372,39	1.200,12	650,18	1.043,37	1.664,77	87,45	3.186,64	1.131,51	1.422	99
8132-A	1.402	2.341,46	2.186,31	1.036,67	1.743,96	2.815,16	93,37	5.482,90	1.871,03	1.299	103
8133-A	732	4.614,97	5.899,17	1.846,64	2.988,69	5.429,88	127,83	10.804,73	3.440,06	678	54
8134-A	184	8.783,56	7.164,73	4.027,43	6.603,34	11.461,05	81,57	22.611,48	7.781,92	176	8
8141-A	70	2.039,17	2.733,50	418,29	1.038,63	2.239,74	134,05	4.971,92	1.237,62	63	7
8142-A	274	4.032,68	4.796,79	974,83	2.552,48	4.856,06	118,95	10.677,91	2.800,80	250	24
8143-A	48	10.009,58	8.267,62	5.315,90	6.812,29	12.493,29	82,60	23.259,37	8.747,56	46	2
8144-A	13	14.014,35	7.212,69	9.226,03	13.926,51	17.222,27	51,47	29.216,62	14.014,35	13	0
8151-A	860	1.037,71	1.280,04	436,25	668,71	1.084,36	123,35	2.056,51	723,95	777	83
8152-A	299	2.568,04	3.328,05	797,95	1.535,55	3.401,47	129,59	7.306,76	1.973,64	281	18
8153-A	152	4.511,73	4.920,43	1.495,69	3.242,76	5.987,44	109,06	12.725,05	3.900,87	147	5
8154-A	115	8.868,09	7.253,42	4.430,21	7.134,90	11.691,23	81,79	22.582,77	7.812,27	110	5
8301-A	13	1.703,56	2.668,58	429,23	589,72	956,07	156,65	1.746,33	655,57	11	2
8302-A	15	5.262,96	7.383,19	978,85	2.857,02	6.169,52	140,29	13.955,53	2.745,93	13	2
8303-A	25	41.097,39	38.544,99	8.324,92	27.715,75	68.276,03	93,79	158.202,69	41.097,39	25	0
831--A	16	66.172,59	40.710,13	35.683,04	62.416,76	87.961,41	61,52	166.378,96	66.172,59	16	0
8321-A	84	4.492,76	6.247,29	1.374,15	2.255,55	4.511,80	139,05	9.218,29	2.831,57	76	8
8322-A	151	8.804,69	10.584,71	1.531,54	4.323,85	13.222,00	120,22	30.757,68	7.518,59	146	5

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
8323-A	48	26.104,43	16.744,63	15.450,63	22.774,62	30.286,05	64,14	52.539,17	22.249,18	44	4
8324-A	28	54.536,85	34.636,65	25.886,24	44.789,78	72.401,71	63,51	142.174,90	54.536,85	28	0
8331-A	18	2.684,49	3.414,70	893,22	1.709,03	3.176,03	127,20	6.600,24	1.943,90	17	1
8332-A	29	8.818,98	18.786,28	1.098,76	2.582,49	7.867,28	213,02	18.020,06	4.388,08	27	2
8401-A	483	2.088,53	3.380,49	631,10	1.174,07	2.162,25	161,86	4.458,97	1.294,73	441	42
8402-A	158	6.715,15	7.173,45	1.517,01	2.998,98	9.951,31	106,82	22.602,77	5.700,73	150	8
8403-A	34	10.452,46	7.989,69	4.629,22	9.009,34	14.210,16	76,44	28.581,56	9.546,57	33	1
8501-A	1.641	2.709,42	2.799,55	1.167,42	1.901,94	2.863,76	103,33	5.408,29	1.932,44	1.456	185
8502-A	847	5.221,35	5.197,78	1.878,77	3.014,98	7.211,78	99,55	15.211,30	4.430,56	809	38
8503-A	272	12.014,60	8.842,65	5.395,44	10.515,14	15.803,35	73,60	31.415,22	11.086,57	264	8
8504-A	146	22.971,92	18.038,95	11.709,36	18.312,62	33.279,94	78,53	65.635,80	20.788,38	141	5
8601-A	1.020	5.646,83	5.201,62	2.237,97	4.159,19	7.087,29	92,12	14.361,28	4.603,08	956	64
8601-C	1.118	8.297,45	7.037,31	3.881,87	6.311,64	10.517,72	84,81	20.471,51	6.998,12	1.051	67
8602-A	3.125	7.689,23	6.605,77	3.553,19	6.096,98	9.871,84	85,91	19.349,82	6.593,55	2.969	156
8602-C	2.961	9.649,25	7.599,28	4.204,82	7.631,11	12.926,57	78,76	26.009,20	8.620,05	2.838	123
8603-A	2.878	11.070,76	8.309,01	5.544,26	9.031,78	14.105,94	75,05	26.948,44	9.796,08	2.742	136
8603-C	2.182	12.461,64	10.606,63	4.803,47	9.586,64	16.935,06	85,11	35.132,45	10.838,93	2.075	107
8604-A	630	15.984,81	12.507,00	7.253,30	12.824,41	21.706,46	78,24	43.386,19	14.341,03	605	25
8604-C	332	14.504,62	12.877,86	4.704,21	10.603,90	20.652,95	88,78	44.576,08	12.888,46	319	13
8611-A	1.349	1.298,14	1.293,02	548,47	891,51	1.599,94	99,61	3.177,16	1.063,92	1.262	87
8612-A	1.879	2.608,37	2.079,40	1.327,61	2.211,91	3.325,43	79,72	6.322,15	2.353,26	1.810	69
8613-A	832	4.588,71	3.437,15	2.436,48	3.651,27	5.752,70	74,90	10.727,03	4.025,88	789	43
8614-A	394	6.167,06	6.428,74	2.612,43	3.518,39	7.084,43	104,24	13.792,43	4.515,65	358	36
8621-A	18.456	867,86	908,22	561,18	574,99	741,91	104,65	1.012,99	584,67	15.238	3.218
8621-C	64	6.779,96	7.483,99	2.133,17	4.341,83	8.494,77	110,38	18.037,17	5.166,85	60	4
8622-A	8.613	1.677,16	2.083,04	561,18	797,76	2.074,00	124,20	4.343,23	1.221,73	7.961	652
8622-C	289	8.561,32	7.503,32	3.175,05	6.096,71	11.885,64	87,64	24.951,51	7.635,13	278	11
8623-A	2.208	3.295,03	3.484,63	1.321,71	2.276,22	3.703,31	105,75	7.275,70	2.428,82	2.010	198
8623-C	234	7.511,88	6.442,26	2.540,33	6.420,06	10.819,87	85,76	23.239,17	6.776,47	226	8
8624-A	276	8.424,79	8.348,99	2.575,55	5.454,42	11.204,77	99,10	24.148,60	6.925,92	260	16
8624-C	65	5.514,95	8.689,65	1.113,94	1.977,94	6.514,61	157,57	14.615,60	3.483,52	60	5
8722-A	21	8.249,79	6.279,08	4.121,04	6.500,17	11.248,36	76,11	21.939,35	7.358,99	20	1
8723-A	18	27.497,76	28.829,34	7.879,76	13.452,62	49.180,48	104,84	111.131,56	27.497,76	18	0
8731-A	13	3.711,41	4.707,07	877,17	1.425,79	3.017,14	126,83	6.227,09	1.851,38	11	2
8732-A	23	10.897,70	11.288,45	4.738,73	6.386,02	11.481,00	103,59	21.594,41	7.137,33	20	3
8903-A	20	10.754,38	7.166,15	5.187,85	9.026,22	15.538,54	66,63	31.064,57	9.681,99	19	1
8904-A	17	22.984,90	17.470,04	11.928,25	14.469,78	34.385,48	76,01	68.071,32	20.052,29	16	1
8912-A	91	6.503,83	4.483,68	3.261,57	5.305,84	9.106,00	68,94	17.872,64	6.333,63	90	1
8913-A	96	11.023,02	10.106,98	4.496,46	8.720,32	14.873,84	91,69	30.439,91	9.722,25	93	3
8914-A	18	28.494,82	16.681,51	16.511,57	25.541,60	39.025,44	58,54	72.796,25	28.494,82	18	0
8922-A	47	4.702,01	2.870,68	2.218,21	4.424,90	6.892,87	61,05	13.904,87	4.702,01	47	0
8923-A	47	6.656,53	5.074,29	3.592,87	5.079,74	8.348,97	76,23	15.483,12	5.573,59	44	3
8931-A	62	2.500,00	1.934,95	1.193,93	2.133,69	2.997,69	77,40	5.703,34	2.053,43	57	5
8932-A	162	4.452,31	4.092,19	2.065,77	3.528,37	5.478,70	91,91	10.598,10	3.672,27	153	9
8933-A	63	8.356,06	6.504,93	4.511,79	6.667,75	9.380,05	77,85	16.682,44	6.935,59	59	4
8941-A	55	2.098,71	1.521,74	1.001,71	1.695,39	2.710,75	72,51	5.274,30	1.969,85	54	1
8942-A	74	3.502,19	2.804,23	1.480,02	2.478,93	4.963,10	80,07	10.187,72	3.126,66	71	3
9101-A	31	7.995,09	4.003,82	5.490,11	7.301,12	9.281,70	50,08	14.969,09	7.249,80	29	2
9102-A	83	9.904,57	5.253,88	6.489,87	9.250,60	11.733,77	53,05	19.599,62	8.992,17	78	5
9103-A	154	13.425,90	8.226,40	8.010,87	11.528,89	15.804,95	61,27	27.496,07	11.671,24	142	12
9104-A	206	24.459,73	16.072,01	12.234,18	21.508,10	33.340,90	65,71	65.000,98	23.106,54	201	5
9112-A	133	7.902,22	4.384,22	5.087,87	7.044,38	9.360,19	55,48	15.768,67	6.991,60	123	10
9113-A	170	11.718,60	7.144,32	6.438,91	9.478,78	16.059,74	60,97	30.490,98	10.926,79	164	6
9114-A	177	20.758,40	15.805,76	10.014,15	16.099,88	30.554,76	76,14	61.365,68	19.633,44	174	3
9302-A	229	4.640,93	3.845,42	2.277,45	3.769,15	5.960,49	82,86	11.485,05	4.016,24	218	11
9303-A	179	6.576,99	4.349,71	3.546,04	6.243,85	8.326,03	66,14	15.496,02	6.115,91	173	6
9304-A	99	13.184,12	11.989,69	5.271,11	9.814,18	17.272,96	90,94	35.275,74	11.352,57	94	5
9312-A	80	4.759,12	3.277,19	2.695,70	4.190,22	5.622,44	68,86	10.012,55	4.120,25	75	5
9313-A	23	7.695,17	5.362,18	4.034,86	5.802,78	10.244,22	69,68	19.558,26	6.952,18	22	1
9501-A	1.197	3.183,27	4.849,13	1.434,29	2.151,72	3.386,11	152,33	6.313,83	2.291,16	1.078	119
9502-A	1.455	7.622,05	10.705,26	3.311,83	6.057,98	9.847,33	140,45	19.650,57	6.622,96	1.403	52
9503-A	1.471	13.452,61	8.335,53	7.671,46	11.875,70	17.470,75	61,96	32.169,69	12.540,64	1.423	48

DRG-SOI	N obs	Mean	Std	Q1	Q2	Q3	CV	Outlier	Mean_rt	Inliers	Outliers
9504-A	1.144	22.805,10	16.146,29	12.445,25	18.653,22	27.954,73	70,80	51.218,94	19.819,47	1.073	71
9511-A	98	3.449,99	2.934,38	1.802,47	2.317,79	4.043,93	85,05	7.406,11	2.670,84	89	9
9512-A	211	6.735,05	4.375,86	3.571,10	5.882,02	8.590,47	64,97	16.119,51	6.192,68	203	8
9513-A	202	11.519,87	6.217,78	7.261,81	10.286,57	14.090,97	53,97	24.334,72	10.990,35	197	5
9514-A	99	14.583,41	7.016,17	9.962,74	12.773,81	17.228,77	48,11	28.127,81	13.216,54	92	7
9521-A	1.041	2.335,39	2.436,70	1.067,46	1.584,12	2.704,85	104,34	5.160,94	1.806,79	961	80
9522-A	1.295	5.659,26	4.472,00	2.632,55	4.509,52	7.266,44	79,02	14.217,28	5.025,90	1.238	57
9523-A	943	9.583,34	6.403,84	5.393,21	7.938,13	12.105,89	66,82	22.174,91	8.601,61	897	46
9524-A	282	17.548,69	14.189,62	8.557,28	14.309,68	20.914,01	80,86	39.449,10	14.781,93	263	19
9550-A	158	2.914,46	3.808,13	592,11	1.328,85	3.329,02	130,66	7.434,39	1.825,08	141	17
9560-A	238	3.190,33	3.821,58	509,92	1.427,75	4.772,56	119,79	11.166,51	2.670,79	228	10
PAL--A	3.215	11.297,49	13.152,59	2.983,56	6.734,51	14.245,29	116,42	31.100,03	8.312,75	2.959	256
PAL--C	515	10.052,72	9.986,24	3.060,82	7.147,58	13.695,84	99,34	29.648,37	8.534,54	492	23
1644-A	1	22.577,84	-	-	18.142,82	-	-	43.317,42	19.640,48	1	0
5832-A	3	17.868,84	-	-	17.867,65	-	-	26.092,04	17.868,84	3	0
5834-A	2	81.508,97	-	-	81.508,97	-	-	202.060,32	81.508,97	2	0
8704-A	3	54.357,51	-	-	49.180,48	-	-	146.249,53	45.744,60	3	0
8712-A	2	9.633,11	-	-	7.448,69			22.156,04	7.817,55	2	0
8713-A	3	15.559,98	-	-	13.298,61	-	-	42.681,67	15.559,98	3	0
8714-A	4	54.357,51	-	-	49.180,48	-	-	146.249,53	45.744,60	3	1

APR-DRG-SOI with suffix 'A' = acute hospitals; suffix 'C' = chronic hospitals; 'PAL' = pseudo DRG for palliative care stays; Mean_rt = right sided trimming of the mean (calculated on inlier stays)

Table 3.30 Calculated supplemental 'per diem' prices for outliers

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0014-A	2.305.473	2.055	1.121,88	560,94	373,96	186,98
0023-A	68.973	67	1.029,45	514,72	343,15	171,57
0024-A	790.532	564	1.401,65	700,83	467,22	233,61
0032-A	87.655	123	712,64	356,32	237,55	118,77
0033-A	566.980	654	866,94	433,47	288,98	144,49
0034-A	2.144.322	1.666	1.287,11	643,55	429,04	214,52
0041-A	20.393	52	392,17	196,08	130,72	65,36
0042-A	157.447	279	564,33	282,16	188,11	94,05
0043-A	225.629	398	566,91	283,45	188,97	94,48
0044-A	8.810.624	12.376	711,91	355,96	237,30	118,65
0052-A	84.985	239	355,59	177,79	118,53	59,26
0053-A	351.176	951	369,27	184,64	123,09	61,55
0054-A	308.664	586	526,73	263,37	175,58	87,79
0201-A	47.144	116	406,41	203,21	135,47	67,74
0202-A	50.721	198	256,17	128,08	85,39	42,69
0203-A	179.963	545	330,21	165,10	110,07	55,03
0204-A	239.391	396	604,52	302,26	201,51	100,75
0211-A	675.107	1.122	601,70	300,85	200,57	100,28
0212-A	1.419.954	2.773	512,06	256,03	170,69	85,34
0213-A	758.668	1.614	470,05	235,03	156,68	78,34
0214-A	1.160.997	2.325	499,35	249,68	166,45	83,23
0221-A	71.834	220	326,52	163,26	108,84	54,42
0222-A	279.026	766	364,26	182,13	121,42	60,71
0223-A	162.916	458	355,71	177,86	118,57	59,29
0224-A	157.732	246	641,19	320,59	213,73	106,86
0231-A	185.021	308	600,72	300,36	200,24	100,12
0232-A	258.479	695	371,91	185,96	123,97	61,99
0233-A	128.319	400	320,80	160,40	106,93	53,47
0241-A	230.966	550	419,94	209,97	139,98	69,99
0242-A	1.056.664	2.939	359,53	179,77	119,84	59,92
0243-A	626.731	1.868	335,51	167,75	111,84	55,92
0244-A	178.371	603	295,81	147,90	98,60	49,30
0251-A	1.072.552	1.810	592,57	296,29	197,52	98,76
0252-A	274.820	349	787,45	393,72	262,48	131,24
0253-A	235.692	553	426,21	213,10	142,07	71,03
0261-A	137.195	285	481,39	240,69	160,46	80,23
0262-A	145.683	372	391,62	195,81	130,54	65,27
0263-A	322.820	1.056	305,70	152,85	101,90	50,95
0264-A	67.898	259	262,16	131,08	87,39	43,69
0401-A	39.919	131	304,72	152,36	101,57	50,79
0402-A	168.745	595	283,61	141,80	94,54	47,27
0403-A	74.843	241	310,55	155,28	103,52	51,76
0404-A	46.680	159	293,58	146,79	97,86	48,93
0411-A	126.320	238	530,76	265,38	176,92	88,46
0412-A	585.536	1.748	334,97	167,49	111,66	55,83
0413-A	681.097	1.996	341,23	170,62	113,74	56,87
0414-A	271.654	741	366,60	183,30	122,20	61,10
0421-A	1.186.336	4.754	249,54	124,77	83,18	41,59
0422-A	3.063.260	12.967	236,24	118,12	78,75	39,37
0423-A	1.990.225	8.578	232,02	116,01	77,34	38,67
0424-A	454.542	1.642	276,82	138,41	92,27	46,14

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0431-A	239.188	810	295,29	147,65	98,43	49,22
0432-A	272.426	943	288,89	144,45	96,30	48,15
0433-A	90.569	305	296,95	148,47	98,98	49,49
0434-A	22.376	88	254,27	127,14	84,76	42,38
0441-A	117.910	401	294,04	147,02	98,01	49,01
0442-A	292.261	1.059	275,98	137,99	91,99	46,00
0443-A	964.786	3.125	308,73	154,37	102,91	51,46
0444-A	264.642	854	309,89	154,94	103,30	51,65
0451-A	131.977	494	267,16	133,58	89,05	44,53
0452-A	3.098.419	12.389	250,09	125,05	83,36	41,68
0453-A	3.268.335	12.323	265,22	132,61	88,41	44,20
0454-A	2.018.593	6.954	290,28	145,14	96,76	48,38
0461-A	149.598	533	280,67	140,34	93,56	46,78
0462-A	796.118	3.181	250,27	125,14	83,42	41,71
0463-A	585.049	2.333	250,77	125,39	83,59	41,80
0464-A	453.729	1.487	305,13	152,57	101,71	50,86
0471-A	178.984	661	270,78	135,39	90,26	45,13
0472-A	1.422.339	5.752	247,28	123,64	82,43	41,21
0473-A	972.671	3.941	246,81	123,40	82,27	41,13
0474-A	67.110	231	290,52	145,26	96,84	48,42
0481-A	411.073	1.109	370,67	185,34	123,56	61,78
0482-A	796.773	2.959	269,27	134,64	89,76	44,88
0483-A	541.842	1.697	319,29	159,65	106,43	53,22
0484-A	159.885	440	363,38	181,69	121,13	60,56
0491-A	34.319	129	266,04	133,02	88,68	44,34
0492-A	209.313	514	407,22	203,61	135,74	67,87
0493-A	92.878	170	546,34	273,17	182,11	91,06
0494-A	196.491	520	377,87	188,93	125,96	62,98
0501-A	86.132	315	273,43	136,72	91,14	45,57
0502-A	144.636	496	291,61	145,80	97,20	48,60
0503-A	133.278	360	370,22	185,11	123,41	61,70
0504-A	33.220	38	874,22	437,11	291,41	145,70
0511-A	118.069	364	324,36	162,18	108,12	54,06
0512-A	58.001	178	325,85	162,92	108,62	54,31
0513-A	35.147	89	394,91	197,45	131,64	65,82
0514-A	42.900	111	386,48	193,24	128,83	64,41
0521-A	73.839	242	305,12	152,56	101,71	50,85
0522-A	211.964	715	296,45	148,23	98,82	49,41
0523-A	396.865	1.406	282,27	141,13	94,09	47,04
0524-A	402.159	907	443,39	221,70	147,80	73,90
0531-A	1.164.616	3.777	308,34	154,17	102,78	51,39
0532-A	1.545.898	5.074	304,67	152,34	101,56	50,78
0533-A	1.605.943	5.137	312,62	156,31	104,21	52,10
0534-A	942.308	2.185	431,26	215,63	143,75	71,88
0541-A	454.408	1.509	301,13	150,57	100,38	50,19
0542-A	331.450	1.175	282,09	141,04	94,03	47,01
0543-A	159.767	467	342,11	171,06	114,04	57,02
0551-A	142.362	473	300,98	150,49	100,33	50,16
0552-A	230.156	806	285,55	142,78	95,18	47,59
0553-A	214.802	504	426,19	213,10	142,06	71,03
0554-A	140.361	406	345,72	172,86	115,24	57,62
0561-A	229.110	700	327,30	163,65	109,10	54,55

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0562-A	79.322	286	277,35	138,67	92,45	46,22
0563-A	110.707	383	289,05	144,53	96,35	48,18
0564-A	30.830	89	346,41	173,20	115,47	57,73
0571-A	747.713	2.210	338,33	169,17	112,78	56,39
0572-A	382.377	1.319	289,90	144,95	96,63	48,32
0573-A	129.618	451	287,40	143,70	95,80	47,90
0574-A	61.867	220	281,22	140,61	93,74	46,87
0581-A	2.342.925	6.350	368,96	184,48	122,99	61,49
0582-A	5.124.779	14.529	352,73	176,36	117,58	58,79
0583-A	728.567	2.492	292,36	146,18	97,45	48,73
0584-A	288.118	949	303,60	151,80	101,20	50,60
0701-A	236.469	321	736,66	368,33	245,55	122,78
0702-A	72.344	147	492,14	246,07	164,05	82,02
0703-A	28.857	46	627,34	313,67	209,11	104,56
0711-A	292.869	753	388,94	194,47	129,65	64,82
0712-A	429.531	1.077	398,82	199,41	132,94	66,47
0713-A	196.864	411	478,99	239,49	159,66	79,83
0721-A	357.237	715	499,63	249,82	166,54	83,27
0722-A	127.405	368	346,21	173,10	115,40	57,70
0723-A	115.367	218	529,21	264,60	176,40	88,20
0731-A	340.074	809	420,36	210,18	140,12	70,06
0732-A	353.637	940	376,21	188,10	125,40	62,70
0733-A	181.527	491	369,71	184,85	123,24	61,62
0801-A	29.270	107	273,55	136,77	91,18	45,59
0802-A	61.687	189	326,39	163,19	108,80	54,40
0811-A	28.058	90	311,76	155,88	103,92	51,96
0812-A	62.925	224	280,91	140,46	93,64	46,82
0813-A	56.585	180	314,36	157,18	104,79	52,39
0821-A	160.391	573	279,91	139,96	93,30	46,65
0822-A	576.946	2.034	283,65	141,83	94,55	47,28
0823-A	387.147	1.380	280,54	140,27	93,51	46,76
0824-A	64.510	154	418,90	209,45	139,63	69,82
0901-A	10.673	29	368,03	184,01	122,68	61,34
0902-A	152.614	335	455,56	227,78	151,85	75,93
0903-A	29.933	90	332,59	166,29	110,86	55,43
0904-A	319.469	807	395,87	197,94	131,96	65,98
0912-A	507.763	103	4.929,74	2.464,87	1.643,25	821,62
0913-A	83.140	62	1.340,96	670,48	446,99	223,49
0914-A	162.821	336	484,59	242,29	161,53	80,76
0921-A	210.379	370	568,59	284,30	189,53	94,77
0922-A	104.111	253	411,50	205,75	137,17	68,58
0923-A	70.808	171	414,08	207,04	138,03	69,01
0931-A	250.097	615	406,66	203,33	135,55	67,78
0932-A	326.383	861	379,07	189,54	126,36	63,18
0933-A	21.986	48	458,04	229,02	152,68	76,34
0934-A	69.559	140	496,85	248,43	165,62	82,81
0941-A	261.223	711	367,40	183,70	122,47	61,23
0942-A	291.837	760	384,00	192,00	128,00	64,00
0943-A	100.934	219	460,89	230,44	153,63	76,81
0951-A	32.151	96	334,91	167,45	111,64	55,82
0952-A	4.847	14	346,20	173,10	115,40	57,70
0961-A	63.848	197	324,10	162,05	108,03	54,02

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0962-A	60.620	163	371,90	185,95	123,97	61,98
0963-A	10.901	23	473,97	236,99	157,99	79,00
0971-A	493.749	1.810	272,79	136,39	90,93	45,46
0972-A	311.289	966	322,25	161,12	107,42	53,71
0973-A	140.901	171	823,98	411,99	274,66	137,33
0981-A	716.875	1.798	398,71	199,35	132,90	66,45
0982-A	478.859	1.236	387,43	193,71	129,14	64,57
0983-A	237.332	464	511,49	255,75	170,50	85,25
1101-A	75.414	228	330,76	165,38	110,25	55,13
1102-A	383.689	1.116	343,81	171,90	114,60	57,30
1103-A	466.960	1.323	352,96	176,48	117,65	58,83
1104-A	223.608	551	405,82	202,91	135,27	67,64
1111-A	220.829	840	262,89	131,45	87,63	43,82
1112-A	493.012	1.908	258,39	129,20	86,13	43,07
1113-A	162.617	669	243,07	121,54	81,02	40,51
1114-A	54.293	219	247,91	123,96	82,64	41,32
1121-A	46.363	168	275,97	137,99	91,99	46,00
1122-A	68.582	215	318,98	159,49	106,33	53,16
1123-A	67.082	226	296,82	148,41	98,94	49,47
1131-A	513.665	1.895	271,06	135,53	90,35	45,18
1132-A	1.146.696	3.874	296,00	148,00	98,67	49,33
1133-A	518.929	1.535	338,06	169,03	112,69	56,34
1134-A	116.341	338	344,20	172,10	114,73	57,37
1141-A	199.257	638	312,31	156,16	104,10	52,05
1142-A	355.644	994	357,79	178,90	119,26	59,63
1143-A	253.873	626	405,55	202,77	135,18	67,59
1144-A	33.520	86	389,77	194,88	129,92	64,96
1151-A	245.249	745	329,19	164,60	109,73	54,87
1152-A	1.113.404	3.291	338,32	169,16	112,77	56,39
1153-A	243.482	545	446,76	223,38	148,92	74,46
1154-A	113.045	211	535,76	267,88	178,59	89,29
1201-A	65.527	211	310,55	155,28	103,52	51,76
1202-A	272.762	857	318,28	159,14	106,09	53,05
1203-A	396.507	1.135	349,35	174,67	116,45	58,22
1204-A	890.451	1.428	623,57	311,78	207,86	103,93
1211-A	233.362	606	385,09	192,54	128,36	64,18
1212-A	966.023	2.617	369,13	184,57	123,04	61,52
1213-A	496.414	1.462	339,54	169,77	113,18	56,59
1214-A	1.116.980	1.945	574,28	287,14	191,43	95,71
1221-A	90.841	240	378,50	189,25	126,17	63,08
1222-A	132.625	382	347,18	173,59	115,73	57,86
1223-A	254.081	748	339,68	169,84	113,23	56,61
1224-A	470.818	868	542,42	271,21	180,81	90,40
1302-A	15.693	32	490,42	245,21	163,47	81,74
1303-A	213.849	537	398,23	199,11	132,74	66,37
1304-A	2.565.384	4.572	561,11	280,55	187,04	93,52
1311-A	33.442	73	458,11	229,06	152,70	76,35
1312-A	38.432	97	396,21	198,10	132,07	66,03
1313-A	34.154	78	437,87	218,94	145,96	72,98
1314-A	128.673	249	516,76	258,38	172,25	86,13
1323-A	37.746	114	331,11	165,55	110,37	55,18
1331-A	98.701	352	280,40	140,20	93,47	46,73

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1332-A	497.263	1.463	339,89	169,95	113,30	56,65
1333-A	931.389	2.823	329,93	164,96	109,98	54,99
1334-A	946.109	2.241	422,18	211,09	140,73	70,36
1341-A	23.567	98	240,48	120,24	80,16	40,08
1342-A	565.611	2.088	270,89	135,44	90,30	45,15
1343-A	824.396	2.931	281,27	140,63	93,76	46,88
1344-A	458.352	1.449	316,32	158,16	105,44	52,72
1351-A	123.199	416	296,15	148,08	98,72	49,36
1352-A	313.170	1.218	257,12	128,56	85,71	42,85
1353-A	266.581	1.074	248,21	124,11	82,74	41,37
1354-A	218.916	777	281,75	140,87	93,92	46,96
1361-A	220.820	630	350,51	175,25	116,84	58,42
1362-A	2.196.255	6.853	320,48	160,24	106,83	53,41
1363-A	2.365.645	7.324	323,00	161,50	107,67	53,83
1364-A	713.389	1.952	365,47	182,73	121,82	60,91
1371-A	496.048	1.776	279,31	139,65	93,10	46,55
1372-A	911.949	3.341	272,96	136,48	90,99	45,49
1373-A	1.317.266	4.682	281,35	140,67	93,78	46,89
1374-A	1.670.076	4.595	363,46	181,73	121,15	60,58
1381-A	36.249	154	235,38	117,69	78,46	39,23
1382-A	33.843	148	228,67	114,33	76,22	38,11
1383-A	27.151	118	230,09	115,05	76,70	38,35
1384-A	17.256	30	575,21	287,60	191,74	95,87
1391-A	1.451.245	5.549	261,53	130,77	87,18	43,59
1392-A	3.780.016	13.783	274,25	137,13	91,42	45,71
1393-A	4.395.408	16.085	273,26	136,63	91,09	45,54
1394-A	3.259.617	9.074	359,23	179,61	119,74	59,87
1401-A	590.945	2.247	262,99	131,50	87,66	43,83
1402-A	2.996.217	11.830	253,27	126,64	84,42	42,21
1403-A	4.945.191	18.529	266,89	133,44	88,96	44,48
1404-A	3.169.876	9.564	331,44	165,72	110,48	55,24
1411-A	772.894	3.087	250,37	125,19	83,46	41,73
1412-A	1.002.949	3.705	270,70	135,35	90,23	45,12
1413-A	718.358	2.536	283,26	141,63	94,42	47,21
1414-A	252.309	689	366,20	183,10	122,07	61,03
1421-A	45.912	132	347,82	173,91	115,94	57,97
1422-A	249.374	727	343,02	171,51	114,34	57,17
1423-A	133.009	461	288,52	144,26	96,17	48,09
1424-A	174.180	570	305,58	152,79	101,86	50,93
1431-A	138.127	491	281,32	140,66	93,77	46,89
1432-A	435.217	1.423	305,84	152,92	101,95	50,97
1433-A	351.712	1.224	287,35	143,67	95,78	47,89
1434-A	90.572	337	268,76	134,38	89,59	44,79
1441-A	1.490.227	4.977	299,42	149,71	99,81	49,90
1442-A	3.237.276	11.600	279,08	139,54	93,03	46,51
1443-A	2.148.837	7.371	291,53	145,76	97,18	48,59
1444-A	926.164	2.946	314,38	157,19	104,79	52,40
1603-A	11.946	28	426,65	213,33	142,22	71,11
1604-A	337.212	322	1.047,24	523,62	349,08	174,54
1613-A	63.274	60	1.054,57	527,28	351,52	175,76
1614-A	126.482	152	832,12	416,06	277,37	138,69
1622-A	37.786	116	325,74	162,87	108,58	54,29

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1623-A	219.750	634	346,61	173,30	115,54	57,77
1624-A	1.114.052	1.819	612,45	306,23	204,15	102,08
1631-A	89.502	176	508,54	254,27	169,51	84,76
1632-A	185.397	458	404,80	202,40	134,93	67,47
1633-A	891.921	1.833	486,59	243,30	162,20	81,10
1634-A	2.303.174	3.368	683,84	341,92	227,95	113,97
1651-A	9.955	38	261,96	130,98	87,32	43,66
1652-A	94.821	289	328,10	164,05	109,37	54,68
1653-A	673.634	1.505	447,60	223,80	149,20	74,60
1654-A	1.669.849	2.581	646,98	323,49	215,66	107,83
1661-A	9.349	28	333,88	166,94	111,29	55,65
1662-A	344.508	976	352,98	176,49	117,66	58,83
1663-A	843.893	2.161	390,51	195,26	130,17	65,09
1664-A	2.283.534	3.452	661,51	330,76	220,50	110,25
1671-A	95.033	161	590,27	295,13	196,76	98,38
1672-A	97.427	128	761,15	380,57	253,72	126,86
1673-A	133.749	265	504,71	252,36	168,24	84,12
1674-A	205.323	306	670,99	335,49	223,66	111,83
1681-A	117.383	69	1.701,20	850,60	567,07	283,53
1682-A	457.577	828	552,63	276,31	184,21	92,10
1683-A	863.661	1.928	447,96	223,98	149,32	74,66
1684-A	2.293.030	3.084	743,52	371,76	247,84	123,92
1691-A	8.583	37	231,96	115,98	77,32	38,66
1692-A	118.576	264	449,15	224,58	149,72	74,86
1693-A	125.595	376	334,03	167,01	111,34	55,67
1694-A	531.339	663	801,42	400,71	267,14	133,57
1701-A	11.544	43	268,47	134,24	89,49	44,75
1702-A	64.769	116	558,36	279,18	186,12	93,06
1703-A	108.731	344	316,08	158,04	105,36	52,68
1704-A	42.058	94	447,42	223,71	149,14	74,57
1711-A	328.111	872	376,27	188,14	125,42	62,71
1712-A	996.666	2.796	356,46	178,23	118,82	59,41
1713-A	754.235	2.136	353,11	176,55	117,70	58,85
1714-A	415.066	876	473,82	236,91	157,94	78,97
1721-A	58.440	214	273,08	136,54	91,03	45,51
1722-A	332.857	910	365,78	182,89	121,93	60,96
1723-A	651.059	2.038	319,46	159,73	106,49	53,24
1724-A	580.371	1.638	354,32	177,16	118,11	59,05
1731-A	2.020.776	3.942	512,63	256,31	170,88	85,44
1732-A	3.648.833	8.727	418,11	209,05	139,37	69,68
1733-A	3.167.644	9.655	328,08	164,04	109,36	54,68
1734-A	1.538.985	3.431	448,55	224,28	149,52	74,76
1741-A	78.468	155	506,24	253,12	168,75	84,37
1742-A	368.804	910	405,28	202,64	135,09	67,55
1743-A	331.292	776	426,92	213,46	142,31	71,15
1744-A	568.236	1.054	539,12	269,56	179,71	89,85
1751-A	599.559	1.030	582,10	291,05	194,03	97,02
1752-A	1.730.681	3.481	497,18	248,59	165,73	82,86
1753-A	939.883	1.909	492,34	246,17	164,11	82,06
1754-A	499.518	1.051	475,28	237,64	158,43	79,21
1761-A	378.234	179	2.113,04	1.056,52	704,35	352,17
1762-A	484.519	512	946,33	473,16	315,44	157,72

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1763-A	152.820	238	642,10	321,05	214,03	107,02
1764-A	63.319	160	395,75	197,87	131,92	65,96
1771-A	31.625	19	1.664,50	832,25	554,83	277,42
1772-A	117.117	190	616,41	308,20	205,47	102,73
1773-A	11.759	20	587,96	293,98	195,99	97,99
1774-A	66.330	86	771,27	385,64	257,09	128,55
1781-A	23.541	80	294,27	147,13	98,09	49,04
1782-A	149.041	461	323,30	161,65	107,77	53,88
1783-A	207.406	688	301,46	150,73	100,49	50,24
1784-A	42.359	108	392,21	196,11	130,74	65,37
1791-A	518.801	1.883	275,52	137,76	91,84	45,92
1792-A	304.607	1.095	278,18	139,09	92,73	46,36
1793-A	85.110	302	281,82	140,91	93,94	46,97
1801-A	262.209	891	294,29	147,14	98,10	49,05
1802-A	216.574	743	291,49	145,74	97,16	48,58
1803-A	367.938	1.134	324,46	162,23	108,15	54,08
1804-A	307.586	752	409,02	204,51	136,34	68,17
1901-A	245.699	602	408,14	204,07	136,05	68,02
1902-A	1.025.001	3.137	326,75	163,37	108,92	54,46
1903-A	799.221	2.856	279,84	139,92	93,28	46,64
1904-A	1.896.041	4.737	400,26	200,13	133,42	66,71
1911-A	670.650	1.605	417,85	208,93	139,28	69,64
1912-A	1.115.193	2.912	382,96	191,48	127,65	63,83
1913-A	690.957	2.032	340,04	170,02	113,35	56,67
1914-A	262.221	513	511,15	255,58	170,38	85,19
1921-A	1.979.451	4.180	473,55	236,78	157,85	78,93
1922-A	3.619.086	9.141	395,92	197,96	131,97	65,99
1923-A	312.412	875	357,04	178,52	119,01	59,51
1924-A	102.454	249	411,46	205,73	137,15	68,58
1934-A	23.807	99	240,48	120,24	80,16	40,08
1941-A	260.567	1.078	241,71	120,86	80,57	40,29
1942-A	3.006.084	11.602	259,10	129,55	86,37	43,18
1943-A	5.369.367	20.388	263,36	131,68	87,79	43,89
1944-A	2.586.430	7.004	369,28	184,64	123,09	61,55
1951-A	13.011	54	240,94	120,47	80,31	40,16
1952-A	149.975	448	334,77	167,38	111,59	55,79
1953-A	155.586	401	387,99	194,00	129,33	64,67
1954-A	34.047	92	370,08	185,04	123,36	61,68
1961-A	32.850	50	657,01	328,50	219,00	109,50
1962-A	90.827	186	488,32	244,16	162,77	81,39
1963-A	168.790	398	424,10	212,05	141,37	70,68
1964-A	451.370	791	570,63	285,32	190,21	95,11
1971-A	824.767	2.545	324,07	162,04	108,02	54,01
1972-A	1.835.745	5.905	310,88	155,44	103,63	51,81
1973-A	1.467.067	4.700	312,14	156,07	104,05	52,02
1974-A	162.131	445	364,34	182,17	121,45	60,72
1981-A	389.195	621	626,72	313,36	208,91	104,45
1982-A	730.674	1.919	380,76	190,38	126,92	63,46
1983-A	252.706	922	274,08	137,04	91,36	45,68
1984-A	257.541	734	350,87	175,44	116,96	58,48
1991-A	106.976	383	279,31	139,66	93,10	46,55
1992-A	472.147	1.788	264,06	132,03	88,02	44,01

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1993-A	173.616	660	263,05	131,53	87,68	43,84
1994-A	79.307	201	394,56	197,28	131,52	65,76
2001-A	32.995	71	464,71	232,36	154,90	77,45
2002-A	188.623	558	338,03	169,02	112,68	56,34
2003-A	271.863	914	297,44	148,72	99,15	49,57
2004-A	76.214	226	337,23	168,62	112,41	56,21
2011-A	878.223	2.844	308,80	154,40	102,93	51,47
2012-A	2.368.937	8.303	285,31	142,66	95,10	47,55
2013-A	1.951.791	7.020	278,03	139,02	92,68	46,34
2014-A	998.585	2.726	366,32	183,16	122,11	61,05
2021-A	220.774	557	396,36	198,18	132,12	66,06
2022-A	494.319	1.589	311,09	155,54	103,70	51,85
2023-A	421.896	1.397	302,00	151,00	100,67	50,33
2024-A	169.249	432	391,78	195,89	130,59	65,30
2031-A	373.595	1.173	318,50	159,25	106,17	53,08
2032-A	378.441	1.257	301,07	150,53	100,36	50,18
2033-A	96.667	315	306,88	153,44	102,29	51,15
2034-A	47.383	81	584,97	292,49	194,99	97,50
2041-A	466.499	1.488	313,51	156,75	104,50	52,25
2042-A	1.068.922	3.845	278,00	139,00	92,67	46,33
2043-A	451.553	1.674	269,74	134,87	89,91	44,96
2044-A	165.637	557	297,37	148,69	99,12	49,56
2051-A	28.241	95	297,27	148,64	99,09	49,55
2052-A	45.772	176	260,07	130,04	86,69	43,35
2053-A	83.903	328	255,80	127,90	85,27	42,63
2054-A	39.931	83	481,10	240,55	160,37	80,18
2061-A	133.623	252	530,25	265,12	176,75	88,37
2062-A	215.266	481	447,54	223,77	149,18	74,59
2063-A	275.390	665	414,12	207,06	138,04	69,02
2064-A	425.499	810	525,31	262,65	175,10	87,55
2071-A	632.217	2.150	294,05	147,03	98,02	49,01
2072-A	790.651	2.643	299,15	149,57	99,72	49,86
2073-A	406.837	1.417	287,11	143,56	95,70	47,85
2074-A	376.999	1.117	337,51	168,75	112,50	56,25
2201-A	440.608	1.438	306,40	153,20	102,13	51,07
2202-A	309.130	824	375,16	187,58	125,05	62,53
2203-A	850.169	2.065	411,70	205,85	137,23	68,62
2204-A	2.303.257	3.792	607,40	303,70	202,47	101,23
2211-A	464.054	1.590	291,86	145,93	97,29	48,64
2212-A	2.028.340	7.211	281,28	140,64	93,76	46,88
2213-A	4.277.697	13.679	312,72	156,36	104,24	52,12
2214-A	5.567.356	10.479	531,29	265,64	177,10	88,55
2221-A	48.771	170	286,89	143,44	95,63	47,81
2222-A	76.043	193	394,01	197,00	131,34	65,67
2223-A	103.450	275	376,18	188,09	125,39	62,70
2224-A	83.503	241	346,49	173,24	115,50	57,75
2231-A	98.757	348	283,78	141,89	94,59	47,30
2232-A	180.861	584	309,69	154,85	103,23	51,62
2233-A	266.942	861	310,04	155,02	103,35	51,67
2234-A	362.305	662	547,29	273,64	182,43	91,21
2241-A	180.609	583	309,79	154,90	103,26	51,63
2242-A	239.312	801	298,77	149,38	99,59	49,79

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
2243-A	218.192	553	394,56	197,28	131,52	65,76
2244-A	213.986	595	359,64	179,82	119,88	59,94
2251-A	690.183	2.246	307,29	153,65	102,43	51,22
2252-A	898.330	2.870	313,01	156,50	104,34	52,17
2253-A	177.510	510	348,06	174,03	116,02	58,01
2254-A	126.072	273	461,80	230,90	153,93	76,97
2261-A	899.808	3.233	278,32	139,16	92,77	46,39
2262-A	573.792	1.692	339,12	169,56	113,04	56,52
2263-A	189.300	501	377,84	188,92	125,95	62,97
2264-A	122.396	313	391,04	195,52	130,35	65,17
2271-A	615.945	2.204	279,47	139,73	93,16	46,58
2272-A	679.192	2.255	301,19	150,60	100,40	50,20
2273-A	306.505	872	351,50	175,75	117,17	58,58
2274-A	150.673	389	387,34	193,67	129,11	64,56
2281-A	733.654	2.813	260,81	130,40	86,94	43,47
2282-A	714.724	2.459	290,66	145,33	96,89	48,44
2283-A	371.642	1.107	335,72	167,86	111,91	55,95
2284-A	34.331	67	512,40	256,20	170,80	85,40
2291-A	203.461	579	351,40	175,70	117,13	58,57
2292-A	419.133	1.071	391,35	195,67	130,45	65,22
2293-A	384.591	1.093	351,87	175,93	117,29	58,64
2294-A	745.137	1.645	452,97	226,49	150,99	75,50
2401-A	246.996	743	332,43	166,22	110,81	55,41
2402-A	1.418.402	4.490	315,90	157,95	105,30	52,65
2403-A	1.692.639	5.058	334,65	167,32	111,55	55,77
2404-A	793.386	2.055	386,08	193,04	128,69	64,35
2411-A	316.568	1.037	305,27	152,64	101,76	50,88
2412-A	946.937	3.299	287,04	143,52	95,68	47,84
2413-A	1.026.665	3.648	281,43	140,72	93,81	46,91
2414-A	625.358	1.615	387,22	193,61	129,07	64,54
2421-A	35.970	101	356,14	178,07	118,71	59,36
2422-A	125.147	361	346,67	173,33	115,56	57,78
2423-A	85.052	280	303,76	151,88	101,25	50,63
2424-A	147.432	320	460,72	230,36	153,57	76,79
2431-A	703.349	2.205	318,98	159,49	106,33	53,16
2432-A	1.133.054	3.747	302,39	151,19	100,80	50,40
2433-A	631.085	2.255	279,86	139,93	93,29	46,64
2434-A	584.825	1.495	391,19	195,59	130,40	65,20
2441-A	264.624	923	286,70	143,35	95,57	47,78
2442-A	760.839	2.733	278,39	139,19	92,80	46,40
2443-A	613.120	2.270	270,10	135,05	90,03	45,02
2444-A	652.249	1.821	358,18	179,09	119,39	59,70
2451-A	171.859	549	313,04	156,52	104,35	52,17
2452-A	200.235	701	285,64	142,82	95,21	47,61
2453-A	127.680	473	269,94	134,97	89,98	44,99
2454-A	291.343	888	328,09	164,04	109,36	54,68
2461-A	31.943	110	290,39	145,19	96,80	48,40
2462-A	130.243	457	284,99	142,50	95,00	47,50
2463-A	112.101	403	278,17	139,08	92,72	46,36
2464-A	312.433	753	414,92	207,46	138,31	69,15
2471-A	358.893	1.190	301,59	150,80	100,53	50,27
2472-A	861.862	3.055	282,12	141,06	94,04	47,02

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
2473-A	449.143	1.617	277,76	138,88	92,59	46,29
2474-A	911.673	2.695	338,28	169,14	112,76	56,38
2481-A	43.682	133	328,44	164,22	109,48	54,74
2482-A	60.416	199	303,60	151,80	101,20	50,60
2483-A	51.617	145	355,98	177,99	118,66	59,33
2484-A	124.783	273	457,08	228,54	152,36	76,18
2491-A	1.457.874	5.074	287,32	143,66	95,77	47,89
2492-A	2.251.547	7.897	285,11	142,56	95,04	47,52
2493-A	1.241.227	4.182	296,80	148,40	98,93	49,47
2494-A	1.216.685	3.125	389,34	194,67	129,78	64,89
2501-A	2.438.445	8.037	303,40	151,70	101,13	50,57
2502-A	3.274.360	10.876	301,06	150,53	100,35	50,18
2503-A	1.749.294	5.891	296,94	148,47	98,98	49,49
2504-A	1.460.341	4.080	357,93	178,96	119,31	59,65
2601-A	22.561	65	347,09	173,54	115,70	57,85
2602-A	293.867	602	488,15	244,08	162,72	81,36
2603-A	383.199	769	498,31	249,15	166,10	83,05
2604-A	3.630.975	4.895	741,77	370,89	247,26	123,63
2611-A	8.209	23	356,91	178,46	118,97	59,49
2612-A	116.736	324	360,30	180,15	120,10	60,05
2613-A	135.825	384	353,71	176,86	117,90	58,95
2614-A	425.068	758	560,78	280,39	186,93	93,46
2621-A	47.786	171	279,45	139,73	93,15	46,58
2622-A	127.364	424	300,39	150,19	100,13	50,06
2623-A	88.231	302	292,16	146,08	97,39	48,69
2624-A	220.139	481	457,67	228,83	152,56	76,28
2631-A	1.435.221	4.704	305,11	152,55	101,70	50,85
2632-A	1.932.121	5.811	332,49	166,25	110,83	55,42
2633-A	636.777	1.794	354,95	177,47	118,32	59,16
2634-A	406.619	1.009	402,99	201,50	134,33	67,17
2641-A	119.422	314	380,32	190,16	126,77	63,39
2642-A	89.194	230	387,80	193,90	129,27	64,63
2643-A	258.102	752	343,22	171,61	114,41	57,20
2644-A	611.994	962	636,17	318,08	212,06	106,03
2801-A	74.188	247	300,35	150,18	100,12	50,06
2802-A	382.858	1.266	302,42	151,21	100,81	50,40
2803-A	1.059.126	3.265	324,39	162,19	108,13	54,06
2804-A	1.454.371	2.609	557,44	278,72	185,81	92,91
2811-A	176.169	504	349,54	174,77	116,51	58,26
2812-A	770.422	2.418	318,62	159,31	106,21	53,10
2813-A	1.319.918	3.003	439,53	219,77	146,51	73,26
2814-A	244.871	682	359,05	179,52	119,68	59,84
2821-A	275.615	848	325,02	162,51	108,34	54,17
2822-A	603.226	1.966	306,83	153,41	102,28	51,14
2823-A	451.680	1.343	336,32	168,16	112,11	56,05
2824-A	1.266.306	2.310	548,18	274,09	182,73	91,36
2831-A	296.273	811	365,32	182,66	121,77	60,89
2832-A	495.955	1.514	327,58	163,79	109,19	54,60
2833-A	386.591	1.089	355,00	177,50	118,33	59,17
2834-A	511.354	790	647,28	323,64	215,76	107,88
2841-A	372.843	1.093	341,12	170,56	113,71	56,85
2842-A	855.952	2.654	322,51	161,26	107,50	53,75

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
2843-A	732.410	2.455	298,33	149,17	99,44	49,72
2844-A	698.229	1.739	401,51	200,76	133,84	66,92
3001-A	52.789	166	318,01	159,00	106,00	53,00
3002-A	260.665	917	284,26	142,13	94,75	47,38
3003-A	165.482	501	330,30	165,15	110,10	55,05
3011-A	196.391	914	214,87	107,43	71,62	35,81
3012-A	943.794	4.228	223,22	111,61	74,41	37,20
3013-A	2.011.300	8.039	250,19	125,10	83,40	41,70
3014-A	425.154	1.193	356,37	178,19	118,79	59,40
3021-A	2.530.216	10.807	234,13	117,06	78,04	39,02
3022-A	4.993.475	19.038	262,29	131,14	87,43	43,71
3023-A	4.056.947	12.132	334,40	167,20	111,47	55,73
3024-A	362.065	984	367,95	183,98	122,65	61,33
3031-A	39.300	76	517,10	258,55	172,37	86,18
3032-A	67.348	100	673,48	336,74	224,49	112,25
3033-A	52.023	106	490,79	245,39	163,60	81,80
3041-A	586.376	1.460	401,63	200,81	133,88	66,94
3042-A	513.190	1.509	340,09	170,04	113,36	56,68
3043-A	484.127	1.505	321,68	160,84	107,23	53,61
3044-A	67.708	234	289,35	144,68	96,45	48,23
3051-A	8.636	33	261,71	130,85	87,24	43,62
3052-A	182.058	567	321,09	160,54	107,03	53,51
3053-A	293.653	793	370,31	185,15	123,44	61,72
3054-A	54.822	81	676,81	338,41	225,60	112,80
3061-A	290.743	1.070	271,72	135,86	90,57	45,29
3062-A	474.810	1.788	265,55	132,78	88,52	44,26
3063-A	155.546	603	257,95	128,98	85,98	42,99
3071-A	63.221	161	392,67	196,34	130,89	65,45
3072-A	35.249	74	476,34	238,17	158,78	79,39
3073-A	196.891	408	482,57	241,29	160,86	80,43
3081-A	824.864	3.639	226,67	113,34	75,56	37,78
3082-A	2.692.822	11.308	238,13	119,07	79,38	39,69
3083-A	2.726.605	10.039	271,60	135,80	90,53	45,27
3084-A	841.398	2.833	297,00	148,50	99,00	49,50
3091-A	345.411	986	350,32	175,16	116,77	58,39
3092-A	737.834	2.313	318,99	159,50	106,33	53,17
3093-A	688.486	2.142	321,42	160,71	107,14	53,57
3094-A	509.383	1.214	419,59	209,80	139,86	69,93
3101-A	2.665.107	8.102	328,94	164,47	109,65	54,82
3102-A	2.790.227	7.342	380,04	190,02	126,68	63,34
3103-A	902.715	2.641	341,81	170,90	113,94	56,97
3104-A	73.142	215	340,19	170,10	113,40	56,70
3111-A	25.005	72	347,29	173,64	115,76	57,88
3112-A	39.980	124	322,42	161,21	107,47	53,74
3121-A	238.139	680	350,20	175,10	116,73	58,37
3122-A	281.601	898	313,59	156,79	104,53	52,26
3123-A	261.569	759	344,62	172,31	114,87	57,44
3124-A	99.137	262	378,39	189,19	126,13	63,06
3131-A	3.352.521	11.203	299,25	149,63	99,75	49,88
3132-A	2.212.623	7.526	294,00	147,00	98,00	49,00
3133-A	824.587	2.534	325,41	162,70	108,47	54,23
3134-A	32.068	81	395,90	197,95	131,97	65,98

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
3141-A	782.841	2.974	263,23	131,61	87,74	43,87
3142-A	788.653	2.693	292,85	146,43	97,62	48,81
3143-A	451.647	938	481,50	240,75	160,50	80,25
3151-A	2.453.756	8.345	294,04	147,02	98,01	49,01
3152-A	3.200.341	11.019	290,44	145,22	96,81	48,41
3153-A	756.046	2.609	289,78	144,89	96,59	48,30
3154-A	226.076	651	347,28	173,64	115,76	57,88
3161-A	439.358	1.403	313,16	156,58	104,39	52,19
3162-A	373.710	1.156	323,28	161,64	107,76	53,88
3163-A	132.513	325	407,73	203,87	135,91	67,96
3171-A	1.249.063	4.153	300,76	150,38	100,25	50,13
3172-A	703.408	2.087	337,04	168,52	112,35	56,17
3173-A	219.636	674	325,87	162,93	108,62	54,31
3174-A	54.486	190	286,77	143,38	95,59	47,79
3181-A	734.783	2.379	308,86	154,43	102,95	51,48
3182-A	831.829	2.388	348,34	174,17	116,11	58,06
3183-A	99.505	313	317,91	158,95	105,97	52,98
3184-A	51.451	124	414,93	207,46	138,31	69,15
3191-A	568.941	1.674	339,87	169,93	113,29	56,64
3192-A	455.650	1.292	352,67	176,34	117,56	58,78
3193-A	131.299	412	318,69	159,34	106,23	53,11
3201-A	1.949.745	4.810	405,35	202,68	135,12	67,56
3202-A	505.900	1.527	331,30	165,65	110,43	55,22
3203-A	330.605	996	331,93	165,97	110,64	55,32
3204-A	266.598	610	437,05	218,52	145,68	72,84
3401-A	187.212	681	274,91	137,45	91,64	45,82
3402-A	182.162	728	250,22	125,11	83,41	41,70
3403-A	22.154	88	251,75	125,88	83,92	41,96
3404-A	26.845	26	1.032,51	516,26	344,17	172,09
3411-A	336.097	1.413	237,86	118,93	79,29	39,64
3412-A	888.352	3.561	249,47	124,73	83,16	41,58
3413-A	538.073	2.231	241,18	120,59	80,39	40,20
3414-A	98.038	458	214,06	107,03	71,35	35,68
3421-A	1.546.625	6.020	256,91	128,46	85,64	42,82
3422-A	1.679.089	6.507	258,04	129,02	86,01	43,01
3423-A	580.017	2.433	238,40	119,20	79,47	39,73
3424-A	101.297	350	289,42	144,71	96,47	48,24
3431-A	406.940	1.604	253,70	126,85	84,57	42,28
3432-A	1.316.435	5.101	258,07	129,04	86,02	43,01
3433-A	1.188.087	4.534	262,04	131,02	87,35	43,67
3434-A	372.169	1.066	349,13	174,56	116,38	58,19
3441-A	42.209	142	297,25	148,62	99,08	49,54
3442-A	107.256	356	301,28	150,64	100,43	50,21
3443-A	18.446	64	288,22	144,11	96,07	48,04
3444-A	64.672	206	313,94	156,97	104,65	52,32
3451-A	63.882	192	332,72	166,36	110,91	55,45
3452-A	143.292	526	272,42	136,21	90,81	45,40
3453-A	68.990	186	370,91	185,46	123,64	61,82
3454-A	26.280	53	495,85	247,92	165,28	82,64
3461-A	361.203	1.121	322,21	161,11	107,40	53,70
3462-A	469.399	1.476	318,02	159,01	106,01	53,00
3463-A	399.494	1.036	385,61	192,81	128,54	64,27

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
3464-A	263.402	299	880,94	440,47	293,65	146,82
3471-A	3.023.524	11.229	269,26	134,63	89,75	44,88
3472-A	2.690.978	10.242	262,74	131,37	87,58	43,79
3473-A	1.150.811	4.383	262,56	131,28	87,52	43,76
3474-A	297.072	928	320,12	160,06	106,71	53,35
3481-A	260.997	998	261,52	130,76	87,17	43,59
3482-A	580.665	2.290	253,57	126,78	84,52	42,26
3483-A	602.834	1.987	303,39	151,69	101,13	50,56
3484-A	188.707	761	247,97	123,99	82,66	41,33
3491-A	337.940	1.291	261,77	130,88	87,26	43,63
3492-A	499.557	1.736	287,76	143,88	95,92	47,96
3493-A	134.213	475	282,55	141,28	94,18	47,09
3494-A	70.769	228	310,39	155,19	103,46	51,73
3501-A	348.377	1.281	271,96	135,98	90,65	45,33
3502-A	741.834	2.779	266,94	133,47	88,98	44,49
3503-A	279.724	891	313,94	156,97	104,65	52,32
3504-A	28.271	99	285,57	142,78	95,19	47,59
3511-A	595.964	1.991	299,33	149,66	99,78	49,89
3512-A	607.003	2.179	278,57	139,28	92,86	46,43
3513-A	278.782	804	346,74	173,37	115,58	57,79
3514-A	52.383	190	275,70	137,85	91,90	45,95
3601-A	195.043	622	313,57	156,79	104,52	52,26
3602-A	633.552	2.105	300,97	150,49	100,32	50,16
3603-A	654.208	2.275	287,56	143,78	95,85	47,93
3604-A	443.008	1.229	360,46	180,23	120,15	60,08
3611-A	901.029	2.562	351,69	175,84	117,23	58,61
3612-A	724.743	2.120	341,86	170,93	113,95	56,98
3613-A	156.380	496	315,28	157,64	105,09	52,55
3614-A	141.245	320	441,39	220,70	147,13	73,57
3621-A	609.538	2.064	295,32	147,66	98,44	49,22
3622-A	912.694	3.170	287,92	143,96	95,97	47,99
3623-A	172.403	604	285,43	142,72	95,14	47,57
3624-A	39.278	114	344,54	172,27	114,85	57,42
3631-A	622.422	1.978	314,67	157,34	104,89	52,45
3632-A	445.787	1.369	325,63	162,81	108,54	54,27
3633-A	264.620	662	399,73	199,86	133,24	66,62
3641-A	840.855	2.376	353,90	176,95	117,97	58,98
3642-A	1.024.496	2.966	345,41	172,71	115,14	57,57
3643-A	427.665	1.368	312,62	156,31	104,21	52,10
3644-A	111.850	286	391,08	195,54	130,36	65,18
3801-A	58.272	245	237,84	118,92	79,28	39,64
3802-A	537.859	2.040	263,66	131,83	87,89	43,94
3803-A	604.573	2.323	260,26	130,13	86,75	43,38
3804-A	94.103	333	282,59	141,30	94,20	47,10
3811-A	227.019	790	287,37	143,68	95,79	47,89
3812-A	236.502	775	305,16	152,58	101,72	50,86
3813-A	273.312	871	313,79	156,90	104,60	52,30
3814-A	159.080	320	497,13	248,56	165,71	82,85
3821-A	33.092	106	312,19	156,10	104,06	52,03
3822-A	379.275	1.243	305,13	152,56	101,71	50,85
3823-A	481.791	1.346	357,94	178,97	119,31	59,66
3824-A	81.507	187	435,87	217,93	145,29	72,64

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
3831-A	879.433	3.238	271,60	135,80	90,53	45,27
3832-A	1.178.546	4.333	271,99	136,00	90,66	45,33
3833-A	790.404	2.880	274,45	137,22	91,48	45,74
3834-A	217.044	657	330,36	165,18	110,12	55,06
3841-A	796.911	2.845	280,11	140,05	93,37	46,68
3842-A	887.156	3.448	257,30	128,65	85,77	42,88
3843-A	730.879	2.138	341,85	170,93	113,95	56,98
3844-A	193.262	640	301,97	150,99	100,66	50,33
3851-A	323.921	1.100	294,47	147,24	98,16	49,08
3852-A	381.200	1.275	298,98	149,49	99,66	49,83
3853-A	128.625	483	266,30	133,15	88,77	44,38
3854-A	76.508	187	409,13	204,57	136,38	68,19
4001-A	35.070	108	324,72	162,36	108,24	54,12
4003-A	140.714	380	370,30	185,15	123,43	61,72
4004-A	59.166	163	362,98	181,49	120,99	60,50
4011-A	26.089	57	457,70	228,85	152,57	76,28
4012-A	78.776	158	498,58	249,29	166,19	83,10
4013-A	229.315	456	502,88	251,44	167,63	83,81
4014-A	41.173	75	548,98	274,49	182,99	91,50
4021-A	21.422	89	240,70	120,35	80,23	40,12
4022-A	152.900	384	398,18	199,09	132,73	66,36
4023-A	174.404	389	448,34	224,17	149,45	74,72
4031-A	3.164.535	6.292	502,95	251,47	167,65	83,82
4032-A	333.809	746	447,46	223,73	149,15	74,58
4033-A	174.414	390	447,21	223,61	149,07	74,54
4034-A	224.834	332	677,21	338,60	225,74	112,87
4041-A	226.077	745	303,46	151,73	101,15	50,58
4042-A	354.543	1.062	333,84	166,92	111,28	55,64
4043-A	203.861	593	343,78	171,89	114,59	57,30
4044-A	43.305	61	709,93	354,96	236,64	118,32
4051-A	179.578	377	476,33	238,17	158,78	79,39
4052-A	119.632	382	313,17	156,59	104,39	52,20
4053-A	459.598	1.297	354,35	177,18	118,12	59,06
4054-A	243.926	392	622,26	311,13	207,42	103,71
4201-A	1.360.244	4.422	307,61	153,80	102,54	51,27
4202-A	1.382.603	4.923	280,85	140,42	93,62	46,81
4203-A	1.007.945	3.491	288,73	144,36	96,24	48,12
4204-A	506.862	1.264	401,00	200,50	133,67	66,83
4211-A	137.439	531	258,83	129,42	86,28	43,14
4212-A	1.055.951	3.734	282,79	141,40	94,26	47,13
4213-A	583.138	1.958	297,82	148,91	99,27	49,64
4214-A	190.770	594	321,16	160,58	107,05	53,53
4221-A	314.594	1.380	227,97	113,98	75,99	37,99
4222-A	1.783.002	6.397	278,72	139,36	92,91	46,45
4223-A	1.396.514	5.189	269,13	134,56	89,71	44,85
4224-A	1.022.576	2.889	353,96	176,98	117,99	58,99
4231-A	23.026	46	500,57	250,29	166,86	83,43
4232-A	104.542	295	354,38	177,19	118,13	59,06
4233-A	112.989	283	399,25	199,63	133,08	66,54
4234-A	94.875	152	624,18	312,09	208,06	104,03
4241-A	244.971	810	302,43	151,22	100,81	50,41
4242-A	623.604	2.151	289,91	144,96	96,64	48,32

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
4243-A	432.353	1.485	291,15	145,57	97,05	48,52
4244-A	131.629	215	612,23	306,11	204,08	102,04
4401-A	21.591	47	459,37	229,69	153,12	76,56
4402-A	142.249	254	560,04	280,02	186,68	93,34
4403-A	272.037	400	680,09	340,05	226,70	113,35
4404-A	129.037	202	638,80	319,40	212,93	106,47
4412-A	68.762	210	327,44	163,72	109,15	54,57
4413-A	450.270	1.522	295,84	147,92	98,61	49,31
4414-A	213.036	406	524,72	262,36	174,91	87,45
4421-A	113.912	400	284,78	142,39	94,93	47,46
4422-A	256.661	843	304,46	152,23	101,49	50,74
4423-A	238.012	758	314,00	157,00	104,67	52,33
4424-A	265.764	392	677,97	338,99	225,99	113,00
4431-A	248.727	735	338,40	169,20	112,80	56,40
4432-A	438.022	1.249	350,70	175,35	116,90	58,45
4433-A	318.854	826	386,02	193,01	128,67	64,34
4434-A	486.056	762	637,87	318,93	212,62	106,31
4441-A	31.634	70	451,91	225,96	150,64	75,32
4442-A	109.279	218	501,28	250,64	167,09	83,55
4443-A	49.874	111	449,31	224,66	149,77	74,89
4451-A	328.366	1.002	327,71	163,86	109,24	54,62
4452-A	252.792	742	340,69	170,34	113,56	56,78
4453-A	121.836	421	289,40	144,70	96,47	48,23
4454-A	119.098	368	323,64	161,82	107,88	53,94
4461-A	843.656	2.912	289,72	144,86	96,57	48,29
4462-A	1.420.730	4.607	308,39	154,19	102,80	51,40
4463-A	721.623	2.303	313,34	156,67	104,45	52,22
4464-A	155.995	269	579,91	289,95	193,30	96,65
4471-A	74.079	105	705,51	352,76	235,17	117,59
4472-A	687.991	1.427	482,12	241,06	160,71	80,35
4473-A	976.475	2.177	448,54	224,27	149,51	74,76
4474-A	560.768	1.016	551,94	275,97	183,98	91,99
4601-A	50.756	152	333,92	166,96	111,31	55,65
4602-A	590.476	1.999	295,39	147,69	98,46	49,23
4603-A	1.484.508	4.318	343,80	171,90	114,60	57,30
4604-A	1.120.082	1.925	581,86	290,93	193,95	96,98
4611-A	38.586	121	318,89	159,45	106,30	53,15
4612-A	256.615	876	292,94	146,47	97,65	48,82
4613-A	315.826	1.001	315,51	157,76	105,17	52,59
4614-A	28.600	98	291,84	145,92	97,28	48,64
4621-A	115.335	311	370,85	185,43	123,62	61,81
4622-A	131.348	382	343,84	171,92	114,61	57,31
4623-A	169.652	420	403,93	201,97	134,64	67,32
4624-A	85.504	201	425,39	212,70	141,80	70,90
4631-A	286.355	1.048	273,24	136,62	91,08	45,54
4632-A	1.821.760	6.651	273,91	136,95	91,30	45,65
4633-A	1.864.984	6.506	286,66	143,33	95,55	47,78
4634-A	852.619	2.508	339,96	169,98	113,32	56,66
4641-A	92.283	253	364,75	182,38	121,58	60,79
4642-A	141.205	431	327,62	163,81	109,21	54,60
4643-A	37.044	50	740,88	370,44	246,96	123,48
4644-A	33.683	96	350,86	175,43	116,95	58,48

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
4651-A	508.274	1.638	310,30	155,15	103,43	51,72
4652-A	512.784	1.637	313,25	156,62	104,42	52,21
4653-A	223.766	685	326,67	163,33	108,89	54,44
4654-A	68.905	149	462,45	231,22	154,15	77,07
4661-A	34.579	105	329,32	164,66	109,77	54,89
4662-A	369.820	977	378,53	189,26	126,18	63,09
4663-A	366.725	913	401,67	200,84	133,89	66,95
4664-A	113.222	222	510,01	255,00	170,00	85,00
4671-A	106.750	377	283,16	141,58	94,39	47,19
4672-A	337.061	1.102	305,86	152,93	101,95	50,98
4673-A	172.346	597	288,69	144,34	96,23	48,11
4674-A	14.645	43	340,59	170,29	113,53	56,76
4681-A	331.557	1.006	329,58	164,79	109,86	54,93
4682-A	680.136	2.169	313,57	156,79	104,52	52,26
4683-A	426.980	1.248	342,13	171,07	114,04	57,02
4684-A	109.165	210	519,83	259,92	173,28	86,64
4801-A	426.834	1.830	233,24	116,62	77,75	38,87
4802-A	502.680	1.790	280,83	140,41	93,61	46,80
4803-A	218.399	612	356,86	178,43	118,95	59,48
4804-A	189.945	276	688,21	344,10	229,40	114,70
4811-A	234.451	750	312,60	156,30	104,20	52,10
4812-A	20.302	65	312,33	156,17	104,11	52,06
4813-A	117.648	245	480,19	240,10	160,06	80,03
4821-A	790.562	3.524	224,34	112,17	74,78	37,39
4822-A	1.242.032	4.592	270,48	135,24	90,16	45,08
4823-A	482.740	1.664	290,11	145,05	96,70	48,35
4824-A	144.431	377	383,10	191,55	127,70	63,85
4831-A	278.859	934	298,56	149,28	99,52	49,76
4832-A	263.059	802	328,00	164,00	109,33	54,67
4833-A	125.556	272	461,60	230,80	153,87	76,93
4841-A	477.908	1.365	350,12	175,06	116,71	58,35
4842-A	65.552	81	809,28	404,64	269,76	134,88
4843-A	37.237	128	290,92	145,46	96,97	48,49
4844-A	69.436	160	433,98	216,99	144,66	72,33
5001-A	70.186	155	452,81	226,41	150,94	75,47
5002-A	233.359	771	302,67	151,34	100,89	50,45
5003-A	274.416	894	306,95	153,48	102,32	51,16
5004-A	168.468	469	359,21	179,60	119,74	59,87
5011-A	137.606	481	286,08	143,04	95,36	47,68
5012-A	282.252	989	285,39	142,70	95,13	47,57
5013-A	223.267	694	321,71	160,86	107,24	53,62
5014-A	99.010	288	343,79	171,89	114,60	57,30
5101-A	79.063	271	291,74	145,87	97,25	48,62
5102-A	286.645	996	287,80	143,90	95,93	47,97
5103-A	213.543	608	351,22	175,61	117,07	58,54
5104-A	287.216	606	473,95	236,98	157,98	78,99
5111-A	9.429	26	362,65	181,32	120,88	60,44
5112-A	138.548	355	390,28	195,14	130,09	65,05
5113-A	65.974	198	333,20	166,60	111,07	55,53
5114-A	31.822	40	795,55	397,77	265,18	132,59
5121-A	65.262	254	256,94	128,47	85,65	42,82
5122-A	84.162	315	267,18	133,59	89,06	44,53

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
5123-A	58.460	183	319,46	159,73	106,49	53,24
5124-A	29.926	100	299,26	149,63	99,75	49,88
5131-A	595.016	2.038	291,96	145,98	97,32	48,66
5132-A	823.194	2.886	285,24	142,62	95,08	47,54
5133-A	197.332	454	434,65	217,33	144,88	72,44
5134-A	77.296	187	413,35	206,67	137,78	68,89
5141-A	931.784	3.740	249,14	124,57	83,05	41,52
5142-A	206.685	776	266,35	133,17	88,78	44,39
5143-A	112.342	316	355,51	177,76	118,50	59,25
5151-A	301.704	861	350,41	175,21	116,80	58,40
5152-A	127.936	383	334,04	167,02	111,35	55,67
5153-A	104.486	283	369,21	184,60	123,07	61,53
5161-A	192.839	574	335,96	167,98	111,99	55,99
5162-A	89.178	236	377,87	188,94	125,96	62,98
5163-A	137.396	228	602,61	301,31	200,87	100,44
5171-A	115.685	368	314,36	157,18	104,79	52,39
5172-A	231.185	682	338,98	169,49	112,99	56,50
5173-A	70.821	215	329,40	164,70	109,80	54,90
5181-A	54.851	141	389,02	194,51	129,67	64,84
5182-A	175.010	512	341,82	170,91	113,94	56,97
5183-A	84.122	263	319,86	159,93	106,62	53,31
5184-A	38.432	95	404,55	202,28	134,85	67,43
5301-A	41.658	139	299,70	149,85	99,90	49,95
5302-A	245.755	769	319,58	159,79	106,53	53,26
5303-A	448.524	1.362	329,31	164,66	109,77	54,89
5304-A	114.746	300	382,49	191,24	127,50	63,75
5311-A	78.543	267	294,17	147,08	98,06	49,03
5312-A	66.169	226	292,78	146,39	97,59	48,80
5313-A	48.511	143	339,24	169,62	113,08	56,54
5314-A	13.032	27	482,67	241,33	160,89	80,44
5321-A	193.756	579	334,64	167,32	111,55	55,77
5322-A	140.218	455	308,17	154,09	102,72	51,36
5323-A	142.839	435	328,37	164,18	109,46	54,73
5401-A	738.557	3.108	237,63	118,82	79,21	39,61
5402-A	2.636.623	9.597	274,73	137,37	91,58	45,79
5403-A	3.069.487	9.367	327,69	163,85	109,23	54,62
5404-A	211.919	401	528,48	264,24	176,16	88,08
5411-A	11.703	60	195,06	97,53	65,02	32,51
5412-A	34.633	93	372,40	186,20	124,13	62,07
5413-A	60.048	169	355,31	177,66	118,44	59,22
5421-A	9.068	49	185,06	92,53	61,69	30,84
5422-A	67.001	266	251,88	125,94	83,96	41,98
5423-A	97.568	295	330,74	165,37	110,25	55,12
5424-A	24.853	34	730,98	365,49	243,66	121,83
5431-A	38.422	103	373,03	186,51	124,34	62,17
5432-A	45.787	98	467,21	233,61	155,74	77,87
5433-A	58.754	61	963,18	481,59	321,06	160,53
5441-A	114.445	362	316,15	158,07	105,38	52,69
5442-A	97.966	260	376,79	188,40	125,60	62,80
5443-A	24.447	37	660,73	330,36	220,24	110,12
5601-A	1.414.725	7.416	190,77	95,38	63,59	31,79
5602-A	4.285.799	17.240	248,60	124,30	82,87	41,43

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
5603-A	2.771.089	9.452	293,17	146,59	97,72	48,86
5604-A	108.646	164	662,48	331,24	220,83	110,41
5611-A	20.896	82	254,83	127,41	84,94	42,47
5612-A	66.904	221	302,73	151,37	100,91	50,46
5613-A	32.041	91	352,10	176,05	117,37	58,68
5614-A	9.394	15	626,30	313,15	208,77	104,38
5621-A	49.583	181	273,94	136,97	91,31	45,66
5622-A	23.683	64	370,05	185,03	123,35	61,68
5623-A	21.917	50	438,34	219,17	146,11	73,06
5631-A	2.279.952	6.966	327,30	163,65	109,10	54,55
5632-A	1.207.247	3.414	353,62	176,81	117,87	58,94
5633-A	419.344	1.197	350,33	175,16	116,78	58,39
5641-A	71.420	151	472,98	236,49	157,66	78,83
5642-A	42.537	124	343,04	171,52	114,35	57,17
5643-A	34.855	67	520,23	260,11	173,41	86,70
5651-A	163.291	508	321,44	160,72	107,15	53,57
5652-A	76.926	235	327,34	163,67	109,11	54,56
5661-A	738.963	2.390	309,19	154,59	103,06	51,53
5662-A	1.251.796	3.748	333,99	167,00	111,33	55,67
5663-A	561.400	1.658	338,60	169,30	112,87	56,43
5664-A	12.351	35	352,88	176,44	117,63	58,81
5801-A	13.821	16	863,80	431,90	287,93	143,97
5802-A	6.721	10	672,08	336,04	224,03	112,01
6022-A	21.299	99	215,14	107,57	71,71	35,86
6024-A	35.397	104	340,35	170,18	113,45	56,73
6032-A	26.698	80	333,72	166,86	111,24	55,62
610--A	158.531	264	600,50	300,25	200,17	100,08
6112-A	17.497	51	343,07	171,54	114,36	57,18
6141-A	53.168	180	295,38	147,69	98,46	49,23
6142-A	35.108	137	256,26	128,13	85,42	42,71
6213-A	114.250	313	365,02	182,51	121,67	60,84
6214-A	46.505	88	528,46	264,23	176,15	88,08
6221-A	4.685	14	334,64	167,32	111,55	55,77
6224-A	72.909	161	452,85	226,42	150,95	75,47
6232-A	20.667	67	308,47	154,24	102,82	51,41
6241-A	40.871	124	329,60	164,80	109,87	54,93
6242-A	32.134	116	277,02	138,51	92,34	46,17
6243-A	25.349	69	367,38	183,69	122,46	61,23
6251-A	9.239	38	243,14	121,57	81,05	40,52
6253-A	52.139	150	347,59	173,80	115,86	57,93
6262-A	15.002	56	267,89	133,95	89,30	44,65
6304-A	172.558	213	810,13	405,07	270,04	135,02
6314-A	99.665	204	488,55	244,28	162,85	81,43
6321-A	11.372	27	421,18	210,59	140,39	70,20
6322-A	33.387	70	476,95	238,48	158,98	79,49
6323-A	100.312	219	458,05	229,02	152,68	76,34
6331-A	51.462	118	436,12	218,06	145,37	72,69
6332-A	121.009	273	443,26	221,63	147,75	73,88
6333-A	83.235	220	378,34	189,17	126,11	63,06
6334-A	193.737	397	488,00	244,00	162,67	81,33
6341-A	10.957	34	322,26	161,13	107,42	53,71
6342-A	29.618	71	417,16	208,58	139,05	69,53

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
6343-A	11.094	22	504,27	252,13	168,09	84,04
6344-A	73.345	160	458,41	229,20	152,80	76,40
6353-A	35.026	61	574,20	287,10	191,40	95,70
6361-A	43.661	98	445,52	222,76	148,51	74,25
6362-A	52.324	152	344,23	172,12	114,74	57,37
6363-A	10.743	34	315,98	157,99	105,33	52,66
6371-A	94.425	345	273,69	136,85	91,23	45,62
6372-A	99.374	307	323,70	161,85	107,90	53,95
6373-A	89.571	258	347,17	173,59	115,72	57,86
6374-A	39.864	75	531,51	265,76	177,17	88,59
6381-A	287.049	909	315,79	157,89	105,26	52,63
6382-A	122.082	329	371,07	185,53	123,69	61,84
6383-A	47.325	108	438,19	219,10	146,06	73,03
6391-A	7.187	27	266,20	133,10	88,73	44,37
6392-A	53.985	144	374,90	187,45	124,97	62,48
6394-A	17.281	43	401,87	200,94	133,96	66,98
6401-A	20.948	56	374,07	187,03	124,69	62,34
6402-A	5.021	18	278,96	139,48	92,99	46,49
6403-A	17.014	53	321,01	160,51	107,00	53,50
6501-A	23.497	30	783,24	391,62	261,08	130,54
6502-A	99.326	188	528,33	264,17	176,11	88,06
6503-A	96.607	216	447,26	223,63	149,09	74,54
6504-A	63.780	75	850,40	425,20	283,47	141,73
6511-A	212.552	538	395,08	197,54	131,69	65,85
6512-A	59.543	178	334,51	167,26	111,50	55,75
6513-A	178.675	359	497,70	248,85	165,90	82,95
6514-A	277.830	219	1.268,63	634,32	422,88	211,44
6601-A	20.240	42	481,91	240,95	160,64	80,32
6602-A	380.520	806	472,11	236,05	157,37	78,68
6603-A	499.930	965	518,06	259,03	172,69	86,34
6604-A	306.416	472	649,19	324,59	216,40	108,20
6611-A	384.451	488	787,81	393,90	262,60	131,30
6612-A	978.531	468	2.090,88	1.045,44	696,96	348,48
6613-A	1.093.024	501	2.181,68	1.090,84	727,23	363,61
6614-A	117.379	192	611,35	305,68	203,78	101,89
6621-A	29.416	84	350,19	175,10	116,73	58,37
6622-A	14.500	39	371,80	185,90	123,93	61,97
6623-A	43.217	101	427,89	213,95	142,63	71,32
6631-A	279.586	879	318,07	159,04	106,02	53,01
6632-A	1.000.860	3.241	308,81	154,41	102,94	51,47
6633-A	2.158.339	5.829	370,28	185,14	123,43	61,71
6634-A	1.076.893	1.676	642,54	321,27	214,18	107,09
6641-A	207.635	568	365,55	182,78	121,85	60,93
6642-A	147.876	475	311,32	155,66	103,77	51,89
6643-A	216.665	249	870,14	435,07	290,05	145,02
6644-A	257.479	201	1.280,99	640,49	427,00	213,50
6801-A	122.615	256	478,96	239,48	159,65	79,83
6802-A	79.754	155	514,54	257,27	171,51	85,76
6803-A	110.592	225	491,52	245,76	163,84	81,92
6804-A	170.192	238	715,09	357,55	238,36	119,18
6811-A	231.572	435	532,35	266,17	177,45	88,72
6812-A	338.996	645	525,58	262,79	175,19	87,60

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
6813-A	488.962	947	516,33	258,16	172,11	86,05
6814-A	703.151	789	891,19	445,60	297,06	148,53
6821-A	152.683	425	359,25	179,63	119,75	59,88
6822-A	139.630	346	403,55	201,78	134,52	67,26
6823-A	29.983	94	318,97	159,49	106,32	53,16
6824-A	277.394	389	713,10	356,55	237,70	118,85
6831-A	160.984	163	987,63	493,81	329,21	164,60
6832-A	234.688	595	394,43	197,22	131,48	65,74
6833-A	94.913	223	425,62	212,81	141,87	70,94
6901-A	355.148	456	778,83	389,42	259,61	129,81
6902-A	539.493	824	654,72	327,36	218,24	109,12
6903-A	335.601	465	721,72	360,86	240,57	120,29
6904-A	777.496	1.053	738,36	369,18	246,12	123,06
6911-A	428.740	807	531,28	265,64	177,09	88,55
6912-A	756.879	1.789	423,07	211,54	141,02	70,51
6913-A	761.354	1.731	439,83	219,92	146,61	73,31
6914-A	751.027	1.126	666,99	333,49	222,33	111,16
6921-A	254.224	636	399,72	199,86	133,24	66,62
6922-A	178.159	509	350,02	175,01	116,67	58,34
6923-A	50.341	141	357,03	178,51	119,01	59,50
6924-A	51.416	126	408,06	204,03	136,02	68,01
6931-A	2.651.335	3.540	748,96	374,48	249,65	124,83
6932-A	2.276.460	3.801	598,91	299,46	199,64	99,82
6933-A	1.859.895	3.401	546,87	273,43	182,29	91,14
6934-A	1.584.508	2.002	791,46	395,73	263,82	131,91
6941-A	229.365	405	566,33	283,17	188,78	94,39
6942-A	573.719	1.488	385,56	192,78	128,52	64,26
6943-A	523.265	1.420	368,50	184,25	122,83	61,42
6944-A	458.139	832	550,65	275,32	183,55	91,77
7101-A	73.393	177	414,65	207,33	138,22	69,11
7102-A	73.762	219	336,81	168,41	112,27	56,14
7103-A	333.936	896	372,70	186,35	124,23	62,12
7104-A	1.024.915	1.384	740,55	370,27	246,85	123,42
7111-A	135.524	410	330,55	165,27	110,18	55,09
7112-A	536.936	1.567	342,65	171,33	114,22	57,11
7113-A	136.322	416	327,70	163,85	109,23	54,62
7114-A	510.886	913	559,57	279,78	186,52	93,26
7201-A	37.501	114	328,96	164,48	109,65	54,83
7202-A	696.237	2.364	294,52	147,26	98,17	49,09
7203-A	1.222.197	3.665	333,48	166,74	111,16	55,58
7204-A	2.534.397	4.516	561,20	280,60	187,07	93,53
7211-A	313.442	1.008	310,95	155,48	103,65	51,83
7212-A	484.429	1.533	316,00	158,00	105,33	52,67
7213-A	316.298	892	354,59	177,30	118,20	59,10
7214-A	210.473	440	478,35	239,17	159,45	79,72
7221-A	123.668	324	381,69	190,85	127,23	63,62
7222-A	270.863	763	355,00	177,50	118,33	59,17
7223-A	117.677	353	333,36	166,68	111,12	55,56
7224-A	85.950	229	375,33	187,66	125,11	62,55
7231-A	291.480	970	300,49	150,25	100,16	50,08
7232-A	470.539	1.471	319,88	159,94	106,63	53,31
7233-A	322.029	895	359,81	179,90	119,94	59,97

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
7234-A	376.238	482	780,58	390,29	260,19	130,10
7241-A	151.991	471	322,70	161,35	107,57	53,78
7242-A	411.254	1.239	331,92	165,96	110,64	55,32
7243-A	351.444	896	392,24	196,12	130,75	65,37
7244-A	548.003	749	731,65	365,82	243,88	121,94
7401-A	101.622	291	349,22	174,61	116,41	58,20
7402-A	239.599	1.020	234,90	117,45	78,30	39,15
7403-A	247.072	1.156	213,73	106,87	71,24	35,62
7404-A	47.862	182	262,98	131,49	87,66	43,83
7501-A	92.755	315	294,46	147,23	98,15	49,08
7502-A	67.656	274	246,92	123,46	82,31	41,15
7503-A	23.664	106	223,25	111,62	74,42	37,21
7511-A	530.990	2.185	243,02	121,51	81,01	40,50
7512-A	1.170.682	4.982	234,98	117,49	78,33	39,16
7513-A	338.410	1.441	234,84	117,42	78,28	39,14
7514-A	124.087	466	266,28	133,14	88,76	44,38
7521-A	129.264	502	257,50	128,75	85,83	42,92
7522-A	159.294	653	243,94	121,97	81,31	40,66
7523-A	138.101	572	241,44	120,72	80,48	40,24
7531-A	118.228	464	254,80	127,40	84,93	42,47
7532-A	80.375	326	246,55	123,28	82,18	41,09
7533-A	35.638	156	228,45	114,22	76,15	38,07
7541-A	344.049	1.373	250,58	125,29	83,53	41,76
7542-A	1.025.002	4.311	237,76	118,88	79,25	39,63
7543-A	342.842	1.518	225,85	112,93	75,28	37,64
7551-A	244.824	920	266,11	133,06	88,70	44,35
7552-A	181.787	715	254,25	127,12	84,75	42,37
7553-A	65.801	255	258,04	129,02	86,01	43,01
7561-A	408.549	1.428	286,10	143,05	95,37	47,68
7562-A	335.415	1.242	270,06	135,03	90,02	45,01
7563-A	37.325	156	239,26	119,63	79,75	39,88
7564-A	38.044	108	352,26	176,13	117,42	58,71
7571-A	882.908	3.657	241,43	120,71	80,48	40,24
7572-A	1.567.455	6.883	227,73	113,86	75,91	37,95
7573-A	1.194.686	5.154	231,80	115,90	77,27	38,63
7574-A	148.868	655	227,28	113,64	75,76	37,88
7581-A	181.048	644	281,13	140,56	93,71	46,85
7582-A	154.601	548	282,12	141,06	94,04	47,02
7583-A	188.557	660	285,69	142,85	95,23	47,62
7591-A	93.681	318	294,60	147,30	98,20	49,10
7592-A	60.315	225	268,07	134,03	89,36	44,68
7593-A	15.211	65	234,02	117,01	78,01	39,00
7594-A	16.808	70	240,12	120,06	80,04	40,02
7601-A	508.666	1.669	304,77	152,39	101,59	50,80
7602-A	790.583	2.444	323,48	161,74	107,83	53,91
7603-A	77.231	247	312,67	156,34	104,22	52,11
7701-A	80.928	312	259,39	129,69	86,46	43,23
7702-A	70.198	249	281,92	140,96	93,97	46,99
7703-A	22.932	89	257,66	128,83	85,89	42,94
7711-A	45.164	188	240,23	120,12	80,08	40,04
7712-A	279.526	1.137	245,85	122,92	81,95	40,97
7713-A	166.341	457	363,98	181,99	121,33	60,66

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
7721-A	13.753	58	237,12	118,56	79,04	39,52
7722-A	41.236	187	220,51	110,26	73,50	36,75
7723-A	25.897	93	278,46	139,23	92,82	46,41
7731-A	33.315	115	289,69	144,85	96,56	48,28
7732-A	38.828	140	277,34	138,67	92,45	46,22
7733-A	26.647	76	350,62	175,31	116,87	58,44
7741-A	4.629	14	330,64	165,32	110,21	55,11
7742-A	34.555	89	388,26	194,13	129,42	64,71
7751-A	994.343	3.487	285,16	142,58	95,05	47,53
7752-A	932.011	3.549	262,61	131,31	87,54	43,77
7753-A	593.967	2.239	265,28	132,64	88,43	44,21
7754-A	215.271	542	397,18	198,59	132,39	66,20
7761-A	110.938	391	283,73	141,86	94,58	47,29
7762-A	195.384	762	256,41	128,20	85,47	42,73
7763-A	208.873	808	258,51	129,25	86,17	43,08
7901-A	402.513	1.225	328,58	164,29	109,53	54,76
7902-A	414.256	1.166	355,28	177,64	118,43	59,21
7903-A	180.322	582	309,83	154,92	103,28	51,64
7904-A	134.083	126	1.064,15	532,08	354,72	177,36
7911-A	636.328	1.565	406,60	203,30	135,53	67,77
7912-A	581.031	1.512	384,28	192,14	128,09	64,05
7913-A	191.632	463	413,89	206,95	137,96	68,98
7914-A	1.091.804	1.931	565,41	282,70	188,47	94,23
7921-A	210.706	584	360,80	180,40	120,27	60,13
7922-A	214.147	565	379,02	189,51	126,34	63,17
7923-A	64.059	216	296,57	148,28	98,86	49,43
7924-A	87.122	144	605,01	302,51	201,67	100,84
8101-A	187.608	644	291,32	145,66	97,11	48,55
8102-A	211.980	750	282,64	141,32	94,21	47,11
8103-A	30.458	119	255,95	127,98	85,32	42,66
8104-A	44.852	171	262,29	131,15	87,43	43,72
8111-A	55.040	149	369,40	184,70	123,13	61,57
8112-A	45.733	144	317,59	158,79	105,86	52,93
8113-A	52.632	178	295,68	147,84	98,56	49,28
8121-A	913.113	3.040	300,37	150,18	100,12	50,06
8122-A	1.120.107	3.739	299,57	149,79	99,86	49,93
8123-A	617.904	2.125	290,78	145,39	96,93	48,46
8124-A	512.120	1.097	466,84	233,42	155,61	77,81
8131-A	366.382	1.201	305,06	152,53	101,69	50,84
8132-A	659.542	2.068	318,93	159,46	106,31	53,15
8133-A	860.028	2.056	418,30	209,15	139,43	69,72
8134-A	184.302	396	465,41	232,70	155,14	77,57
8141-A	56.108	202	277,76	138,88	92,59	46,29
8142-A	337.534	1.270	265,77	132,89	88,59	44,30
8143-A	60.577	230	263,38	131,69	87,79	43,90
8151-A	269.832	854	315,96	157,98	105,32	52,66
8152-A	177.726	595	298,70	149,35	99,57	49,78
8153-A	92.851	333	278,83	139,42	92,94	46,47
8154-A	121.419	382	317,85	158,93	105,95	52,98
8301-A	13.624	13	1.047,99	524,00	349,33	174,67
8302-A	37.756	38	993,57	496,78	331,19	165,59
8321-A	139.540	229	609,34	304,67	203,11	101,56

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
8322-A	194.201	181	1.072,93	536,47	357,64	178,82
8323-A	185.052	215	860,71	430,35	286,90	143,45
8331-A	13.331	44	302,97	151,48	100,99	50,49
8332-A	128.496	161	798,11	399,06	266,04	133,02
8401-A	383.403	581	659,90	329,95	219,97	109,98
8402-A	160.278	208	770,57	385,28	256,86	128,43
8403-A	30.800	30	1.026,68	513,34	342,23	171,11
8501-A	1.275.014	2.360	540,26	270,13	180,09	90,04
8502-A	669.803	1.899	352,71	176,36	117,57	58,79
8503-A	252.422	935	269,97	134,99	89,99	45,00
8504-A	318.797	679	469,51	234,76	156,50	78,25
8601-A	1.064.627	4.937	215,64	107,82	71,88	35,94
8602-A	3.424.004	15.130	226,31	113,15	75,44	37,72
8603-A	3.668.516	16.593	221,09	110,54	73,70	36,85
8604-A	1.035.582	4.273	242,35	121,18	80,78	40,39
8611-A	315.954	1.043	302,93	151,46	100,98	50,49
8612-A	479.355	1.714	279,67	139,84	93,22	46,61
8613-A	468.278	1.726	271,31	135,65	90,44	45,22
8614-A	650.656	1.633	398,44	199,22	132,81	66,41
8621-A	5.226.489	14.298	365,54	182,77	121,85	60,92
8622-A	3.922.626	11.344	345,79	172,89	115,26	57,63
8623-A	1.912.584	6.314	302,91	151,46	100,97	50,49
8624-A	413.687	850	486,69	243,35	162,23	81,12
8714-A	146.419	294	498,02	249,01	166,01	83,00
8722-A	18.707	60	311,78	155,89	103,93	51,96
8731-A	24.180	53	456,23	228,12	152,08	76,04
8732-A	86.489	149	580,46	290,23	193,49	96,74
8903-A	21.448	51	420,55	210,27	140,18	70,09
8904-A	49.854	38	1.311,96	655,98	437,32	218,66
8912-A	15.488	32	484,01	242,01	161,34	80,67
8913-A	124.875	255	489,70	244,85	163,23	81,62
8923-A	50.898	98	519,37	259,68	173,12	86,56
8931-A	27.687	76	364,31	182,15	121,44	60,72
8932-A	126.366	321	393,66	196,83	131,22	65,61
8933-A	89.489	214	418,18	209,09	139,39	69,70
8941-A	7.087	5	1.417,44	708,72	472,48	236,24
8942-A	27.789	74	375,53	187,77	125,18	62,59
9101-A	23.104	77	300,05	150,03	100,02	50,01
9102-A	75.729	253	299,32	149,66	99,77	49,89
9103-A	270.218	853	316,79	158,39	105,60	52,80
9104-A	278.756	452	616,72	308,36	205,57	102,79
9112-A	121.113	402	301,28	150,64	100,43	50,21
9113-A	134.607	289	465,77	232,88	155,26	77,63
9114-A	199.118	285	698,66	349,33	232,89	116,44
9302-A	143.052	464	308,30	154,15	102,77	51,38
9303-A	82.533	329	250,86	125,43	83,62	41,81
9304-A	181.323	435	416,84	208,42	138,95	69,47
9312-A	51.110	194	263,45	131,73	87,82	43,91
9313-A	17.089	69	247,66	123,83	82,55	41,28
9501-A	1.067.856	1.804	591,94	295,97	197,31	98,66
9502-A	1.453.677	3.000	484,56	242,28	161,52	80,76
9503-A	1.341.510	4.367	307,19	153,60	102,40	51,20

APR-DRG-SOI (*)	Excess billing amounts	Excess days	Overall per diem price	Scaling		
				≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
9504-A	3.415.552	6.896	495,29	247,65	165,10	82,55
9511-A	76.357	281	271,73	135,87	90,58	45,29
9512-A	114.441	475	240,93	120,46	80,31	40,15
9513-A	106.963	473	226,14	113,07	75,38	37,69
9514-A	135.320	585	231,32	115,66	77,11	38,55
9521-A	550.269	1.626	338,42	169,21	112,81	56,40
9522-A	820.201	3.043	269,54	134,77	89,85	44,92
9523-A	925.774	3.712	249,40	124,70	83,13	41,57
9524-A	780.225	1.700	458,96	229,48	152,99	76,49
9550-A	172.122	611	281,70	140,85	93,90	46,95
9560-A	123.652	305	405,42	202,71	135,14	67,57
PAL--A	9.595.927	26.153	366,91	183,46	122,30	61,15
0421-C	163.356	971	168,24	84,12	56,08	28,04
0422-C	251.670	2.056	122,41	61,20	40,80	20,40
0423-C	102.821	841	122,26	61,13	40,75	20,38
0431-C	511.774	2.410	212,35	106,18	70,78	35,39
0432-C	219.288	1.189	184,43	92,22	61,48	30,74
0433-C	79.510	357	222,72	111,36	74,24	37,12
0582-C	106.307	695	152,96	76,48	50,99	25,49
0583-C	216.947	1.426	152,14	76,07	50,71	25,36
3511-C	31.403	182	172,55	86,27	57,52	28,76
3512-C	189.744	1.218	155,78	77,89	51,93	25,96
3513-C	108.509	722	150,29	75,14	50,10	25,05
3514-C	45.201	195	231,80	115,90	77,27	38,63
7571-C	145.649	1.057	137,79	68,90	45,93	22,97
7572-C	102.299	770	132,86	66,43	44,29	22,14
7573-C	204.048	1.382	147,65	73,82	49,22	24,61
8601-C	1.452.656	8.477	171,36	85,68	57,12	28,56
8602-C	3.047.463	18.848	161,69	80,84	53,90	26,95
8603-C	3.540.737	20.468	172,99	86,49	57,66	28,83
8604-C	536.564	2.765	194,06	97,03	64,69	32,34
8621-C	103.239	624	165,45	82,72	55,15	27,57
8622-C	267.669	1.720	155,62	77,81	51,87	25,94
8623-C	172.086	1.090	157,88	78,94	52,63	26,31
8624-C	132.043	752	175,59	87,79	58,53	29,26
PAL--C	781.863	2.089	374,28	187,14	124,76	62,38
(*) Suffux 'A' = acute hospitals ; 'C' = chronic hospitals						

Looking at the data in Table 3.30 we found four particular APR-DRG-SOI cells that show exceptionally high per diem supplements and therefore would need a closer investigation and possibly 'corrective measures' (see Table 3.31).

Table 3.31: APR-DRG-SOIs with extreme high per diem supplements

APR-DRG-SOI	APR-DRG label	Outlier excess billing amount	Outlier excess days	Outlier per diem price	Scaling		
					≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0912-A	Other major head & neck procedures	507.763	103	4.929,74	2.464,87	1.643,25	821,62
1761-A	Cardiac pacemaker & defibrillator device replacement	378.234	179	2.113,04	1.056,52	704,35	352,17
6612-A	Coagulation disorders	978.531	468	2.090,88	1.045,44	696,96	348,48
6613-A	Coagulation disorders	1.093.024	501	2.181,68	1.090,84	727,23	363,61

There is yet another issue to be dealt with: what about the 89 APR-DRG-SOI cells in the 2005 database with no outliers at all? It would be advisable to foresee the possibility of having sooner or later an outlier in those APR-DRG-SOIs: tariffs are meant to be prospective and 'future' patients can have different resource needs. A possible and rather simple solution would be to apply an 'overall fraction' on base APR-DRG-SOI prices (inlier prices). For the database this overall fraction is 10.8 % (see Table 3.32).

Table 3.32: Applying inlier prices on APR-DRG-SOIs without outliers

Outlier category	APR-DRG-SOI count	Stays 2005	Days billed 2005	NIHDI billing amounts 2005	Outlier part	Outlier part in % of total
> Q3 + 1,5 × IQR	1.207	52.145	1.066.176	498.634.773	323.916.396	5,5%
> Q3 + 3 × IQR	994	15.051	401.521	184.505.954	137.754.224	2,3%
> Q3 + 4,5 × IQR	885	14.365	452.131	209.066.059	174.963.949	3,0%
	Total 2005	**1.540.173**	**11.532.133**	**5.909.627.814**	**636.634.569**	**10,8%**

The resulting 'provisional' per diem supplement tariffs figure in Table 3.33. Such a system would necessitate timely publication of 3 (extrapolated) billing thresholds per APR-DRG-SOI, so that hospitals get informed which 'add on' invoicing is due. This would equally necessitate the publication of an instruction manual, explaining and giving the tools for 'real time' extrapolation calculations with proper reference tables.

Another possibility would be that health insurers who centralize the billing claims from hospitals, would proceed to such a 'monitoring' and automatically insert 'add on' price modules if outlier limits are crossed. Finally, the need for monitoring implies continuation of existent micro-data registrations, both clinical data (MCD) as well as billing data (HBD) and this until 'prices' can shift to detailed and representative 'cost' measurements.

Table 3.33: 'Provisional' per diem supplement tariffs for 'no outlier' APR-DRG-SOI

APrDRG-SOI (*)	Overall per diem price for outliers	Scaling		
		≤ Q3 + 1,5×IQR	≤ Q3 + 3×IQR	> Q3 + 3×IQR
0013-A	218,59	109,30	72,86	36,43
0031-A	118,68	59,34	39,56	19,78
0051-A	67,70	33,85	22,57	11,28
0234-A	70,77	35,38	23,59	11,79
0424-C	20,08	10,04	6,69	3,35
0581-C	24,07	12,03	8,02	4,01
0584-C	28,04	14,02	9,35	4,67
0734-A	60,60	30,30	20,20	10,10
0803-A	47,43	23,72	15,81	7,91
0911-A	404,88	202,44	134,96	67,48
0944-A	65,18	32,59	21,73	10,86
0984-A	65,12	32,56	21,71	10,85
1124-A	53,16	26,58	17,72	8,86
1321-A	38,53	19,27	12,84	6,42
1322-A	43,65	21,83	14,55	7,28
1611-A	233,28	116,64	77,76	38,88
1612-A	183,19	91,60	61,06	30,53

APrDRG-SOI (*)	Overall per diem price for outliers	Scaling		
		≤ Q3 + 1,5×IQR	≤ Q3 + 3×IQR	> Q3 + 3×IQR
1621-A	144,73	72,36	48,24	24,12
1644-A	69,36	34,68	23,12	11,56
1794-A	71,33	35,66	23,78	11,89
1932-A	46,38	23,19	15,46	7,73
1933-A	47,57	23,79	15,86	7,93
3004-A	55,91	27,95	18,64	9,32
3064-A	51,80	25,90	17,27	8,63
3144-A	48,49	24,24	16,16	8,08
3194-A	63,77	31,88	21,26	10,63
4024-A	51,39	25,69	17,13	8,56
4411-A	86,56	43,28	28,85	14,43
4444-A	69,79	34,90	23,26	11,63
5803-A	93,49	46,75	31,16	15,58
5804-A	123,51	61,75	41,17	20,58
5812-A	84,36	42,18	28,12	14,06
5832-A	339,70	169,85	113,23	56,62
5834-A	204,21	102,10	68,07	34,03
5904-A	85,18	42,59	28,39	14,20
591--A	71,75	35,87	23,92	11,96
5924-A	79,10	39,55	26,37	13,18
5933-A	60,22	30,11	20,07	10,04
5934-A	66,40	33,20	22,13	11,07
6004-A	71,07	35,54	23,69	11,85
6013-A	56,68	28,34	18,89	9,45
6014-A	62,67	31,34	20,89	10,45
6023-A	58,48	29,24	19,49	9,75
6031-A	45,37	22,69	15,12	7,56
6033-A	57,08	28,54	19,03	9,51
6034-A	57,21	28,61	19,07	9,54
6111-A	44,85	22,42	14,95	7,47
6113-A	59,12	29,56	19,71	9,85
6114-A	70,32	35,16	23,44	11,72
6121-A	49,21	24,60	16,40	8,20
6122-A	55,17	27,58	18,39	9,19
6123-A	61,89	30,95	20,63	10,32
6124-A	68,73	34,37	22,91	11,46
6131-A	53,62	26,81	17,87	8,94
6132-A	52,85	26,42	17,62	8,81
6133-A	58,94	29,47	19,65	9,82
6143-A	49,91	24,95	16,64	8,32
6144-A	57,34	28,67	19,11	9,56
620--A	82,05	41,03	27,35	13,68
6212-A	55,19	27,60	18,40	9,20
6222-A	55,77	27,88	18,59	9,29
6223-A	66,29	33,15	22,10	11,05
6231-A	58,13	29,07	19,38	9,69
6233-A	65,82	32,91	21,94	10,97
6252-A	50,14	25,07	16,71	8,36
6261-A	45,04	22,52	15,01	7,51
6263-A	48,15	24,08	16,05	8,03
6303-A	129,47	64,73	43,16	21,58
6312-A	69,88	34,94	23,29	11,65
6313-A	72,97	36,48	24,32	12,16
6351-A	68,59	34,30	22,86	11,43
6364-A	66,87	33,44	22,29	11,15
6393-A	59,41	29,71	19,80	9,90
6834-A	74,07	37,03	24,69	12,34
7544-A	39,75	19,88	13,25	6,63
7574-C	23,89	11,94	7,96	3,98
7604-A	45,64	22,82	15,21	7,61

APrDRG-SOI (*)	Overall per diem price for outliers	Scaling		
		≤ Q3 + 1,5×IQR	≤ Q3 + 3×IQR	> Q3 + 3×IQR
7764-A	43,18	21,59	14,39	7,20
8114-A	57,91	28,96	19,30	9,65
8144-A	43,04	21,52	14,35	7,17
8303-A	127,81	63,91	42,60	21,30
831--A	170,49	85,25	56,83	28,42
8324-A	136,97	68,49	45,66	22,83
8704-A	111,83	55,92	37,28	18,64
8712-A	59,42	29,71	19,81	9,90
8713-A	55,61	27,81	18,54	9,27
8723-A	84,10	42,05	28,03	14,02
8914-A	87,43	43,71	29,14	14,57
8922-A	59,82	29,91	19,94	9,97
(*) Suffux 'A' = acute hospitals ; 'C' = chronic hospitals				

Table 3.34: Limits for outliers and extremes per APR-DRG-SOI

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0013-A	38	56.066,68	72.695,27	89.323,85
0014-A	159	102.377,25	144.087,56	185.797,86
0023-A	30	44.859,57	51.243,07	57.626,58
0024-A	69	154.219,95	222.228,03	290.236,11
0031-A	43	54.408,49	84.393,12	114.377,75
0032-A	89	39.844,02	57.136,03	74.428,04
0033-A	170	46.931,73	65.245,00	83.558,28
0034-A	338	80.416,91	116.031,24	151.645,57
0041-A	15	22.251,22	34.814,12	47.377,02
0042-A	57	27.624,93	41.142,16	54.659,39
0043-A	202	56.081,21	82.361,16	108.641,11
0044-A	1.785	110.485,25	159.146,15	207.807,05
0051-A	37	21.007,06	30.518,33	40.029,60
0052-A	122	23.579,57	33.075,06	42.570,55
0053-A	124	29.389,27	41.048,47	52.707,67
0054-A	163	65.046,65	94.984,02	124.921,39
0201-A	111	11.953,46	17.022,40	22.091,35
0202-A	142	18.285,95	26.327,77	34.369,59
0203-A	173	24.030,07	34.753,68	45.477,28
0204-A	212	46.267,62	68.212,77	90.157,92
0211-A	1.054	15.754,23	22.297,39	28.840,55
0212-A	1.336	18.794,99	25.916,03	33.037,08
0213-A	732	29.120,10	41.628,29	54.136,48
0214-A	708	52.547,67	76.883,57	101.219,48
0221-A	145	7.773,52	10.196,87	12.620,22
0222-A	279	12.185,62	17.020,43	21.855,24
0223-A	122	31.134,96	46.924,50	62.714,04
0224-A	82	42.451,25	63.515,48	84.579,72
0231-A	569	10.672,57	16.034,82	21.397,06
0232-A	341	17.547,65	26.122,77	34.697,89
0233-A	157	29.949,63	43.592,54	57.235,46
0234-A	54	55.862,42	82.799,49	109.736,56
0241-A	1.033	5.064,06	6.556,37	8.048,69
0242-A	2.267	7.039,56	9.511,15	11.982,75
0243-A	679	17.665,44	26.156,41	34.647,37
0244-A	88	43.324,08	63.616,53	83.908,99
0251-A	2.416	2.124,42	2.907,55	3.690,68
0252-A	234	6.913,50	10.452,41	13.991,32
0253-A	63	16.209,65	25.137,70	34.065,76
0261-A	659	13.782,36	21.125,38	28.468,39
0262-A	442	21.374,83	32.532,88	43.690,93
0263-A	278	27.988,66	40.822,40	53.656,14
0264-A	73	55.669,19	80.969,60	106.270,00
0401-A	154	4.663,68	6.981,01	9.298,34

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0402-A	178	7.896,38	11.850,53	15.804,68
0403-A	118	16.688,43	25.310,63	33.932,84
0404-A	36	20.009,30	29.285,62	38.561,95
0411-A	338	7.304,19	10.842,48	14.380,76
0412-A	1.129	10.559,87	15.714,63	20.869,38
0413-A	850	18.525,66	27.365,79	36.205,91
0414-A	206	27.678,44	41.031,36	54.384,27
0421-A	1.900	8.589,85	13.060,21	17.530,57
0421-C	80	26.633,19	40.863,43	55.093,67
0422-A	4.906	12.740,13	18.853,21	24.966,30
0422-C	248	26.215,22	38.969,91	51.724,59
0423-A	2.735	19.079,83	27.935,53	36.791,23
0423-C	133	30.296,23	45.437,98	60.579,73
0424-A	381	33.550,85	49.390,08	65.229,32
0424-C	12	28.168,63	40.374,96	52.581,28
0431-A	1.123	4.540,96	6.591,55	8.642,13
0431-C	95	25.140,76	38.480,69	51.820,62
0432-A	714	7.025,61	10.145,51	13.265,42
0432-C	96	45.508,12	69.915,09	94.322,07
0433-A	182	14.008,20	20.960,11	27.912,03
0433-C	26	28.572,92	44.303,62	60.034,32
0434-A	25	29.600,56	44.443,55	59.286,53
0441-A	328	9.288,17	14.291,15	19.294,13
0442-A	868	13.154,70	20.034,12	26.913,55
0443-A	1.127	15.150,05	23.354,98	31.559,92
0444-A	470	32.676,16	49.929,20	67.182,24
0451-A	866	7.121,73	10.127,53	13.133,34
0452-A	5.926	9.955,33	14.163,30	18.371,27
0453-A	3.216	17.089,92	25.081,87	33.073,82
0454-A	1.694	28.559,86	42.520,00	56.480,14
0461-A	471	5.945,79	8.781,02	11.616,25
0462-A	1.976	8.957,73	13.011,67	17.065,61
0463-A	774	14.758,32	21.595,67	28.433,01
0464-A	258	23.215,94	33.955,53	44.695,13
0471-A	1.245	5.297,67	7.598,67	9.899,67
0472-A	4.444	7.305,02	10.410,91	13.516,80
0473-A	1.471	12.312,61	17.845,95	23.379,30
0474-A	144	25.449,19	37.837,03	50.224,87
0481-A	1.397	4.495,38	6.701,05	8.906,72
0482-A	2.425	7.650,44	11.067,06	14.483,68
0483-A	1.964	12.143,66	18.136,93	24.130,20
0484-A	89	30.208,15	44.914,05	59.619,94
0491-A	106	7.871,23	10.814,56	13.757,90
0492-A	326	19.047,08	28.688,18	38.329,28
0493-A	138	20.399,57	30.197,50	39.995,43
0494-A	116	38.960,24	58.928,89	78.897,54
0501-A	213	7.836,99	11.573,59	15.310,19
0502-A	269	11.515,51	17.178,23	22.840,96
0503-A	133	18.273,99	26.751,45	35.228,90
0504-A	56	42.433,79	62.539,03	82.644,27
0511-A	743	3.674,23	5.157,80	6.641,37
0512-A	229	7.772,63	11.548,69	15.324,75
0513-A	32	6.072,81	8.723,36	11.373,92
0514-A	12	12.992,00	16.626,24	20.260,48
0521-A	580	4.225,77	6.330,65	8.435,52
0522-A	559	7.181,03	10.718,56	14.256,10
0523-A	561	12.592,05	18.701,35	24.810,64
0524-A	228	26.744,23	40.982,12	55.220,01
0531-A	5.920	2.969,47	4.377,18	5.784,89
0532-A	4.507	6.325,86	9.470,69	12.615,53
0533-A	2.486	9.968,29	15.110,05	20.251,81
0534-A	467	27.997,03	41.442,94	54.888,85

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0541-A	2.705	2.924,01	4.251,92	5.579,84
0542-A	1.480	5.228,59	7.739,36	10.250,14
0543-A	217	7.881,97	11.734,57	15.587,17
0551-A	507	6.655,86	9.945,70	13.235,53
0552-A	563	11.503,85	17.007,16	22.510,47
0553-A	407	18.794,28	28.645,27	38.496,26
0554-A	175	30.490,86	45.385,35	60.279,84
0561-A	777	3.414,50	4.993,24	6.571,98
0562-A	375	8.078,39	11.991,64	15.904,88
0563-A	101	16.023,71	23.947,34	31.870,98
0564-A	30	32.497,19	48.498,64	64.500,10
0571-A	8.331	1.666,64	2.395,65	3.124,66
0572-A	1.330	4.068,08	6.059,72	8.051,37
0573-A	177	10.550,65	15.881,85	21.213,04
0574-A	31	14.335,92	20.765,18	27.194,44
0581-A	11.967	1.072,07	1.385,67	1.699,28
0581-C	19	23.328,16	33.764,38	44.200,59
0582-A	6.989	2.697,75	3.986,26	5.274,78
0582-C	99	25.633,50	38.290,08	50.946,67
0583-A	1.546	14.934,39	22.954,40	30.974,41
0583-C	75	25.372,55	37.214,50	49.056,44
0584-A	209	31.448,46	46.649,43	61.850,40
0584-C	16	30.534,10	45.404,51	60.274,91
0701-A	325	4.325,93	6.102,87	7.879,82
0702-A	169	6.651,35	9.782,86	12.914,37
0703-A	26	22.078,93	33.998,43	45.917,92
0711-A	2.991	4.070,84	5.403,13	6.735,43
0712-A	2.079	5.002,28	6.723,82	8.445,36
0713-A	86	11.461,57	16.814,98	22.168,39
0721-A	1.887	2.470,55	3.360,77	4.250,99
0722-A	477	5.527,22	8.135,49	10.743,76
0723-A	63	14.106,48	21.689,36	29.272,25
0731-A	4.075	1.984,79	2.473,97	2.963,15
0732-A	1.687	2.159,79	2.733,02	3.306,26
0733-A	156	3.133,14	4.264,70	5.396,26
0734-A	15	28.702,55	44.740,83	60.779,11
0801-A	199	4.208,97	5.989,15	7.769,34
0802-A	102	5.610,91	7.951,16	10.291,40
0803-A	20	16.632,45	25.121,35	33.610,25
0811-A	236	4.863,49	7.098,80	9.334,12
0812-A	284	6.710,56	9.766,65	12.822,74
0813-A	87	10.073,67	14.702,02	19.330,37
0821-A	785	3.791,75	5.649,86	7.507,97
0822-A	1.335	6.359,57	9.262,91	12.166,24
0823-A	498	11.215,52	16.428,95	21.642,39
0824-A	28	19.353,17	27.361,88	35.370,59
0901-A	64	2.185,86	2.854,19	3.522,52
0902-A	128	20.374,68	31.380,26	42.385,84
0903-A	27	22.221,88	29.931,63	37.641,38
0904-A	97	45.588,58	66.383,69	87.178,80
0911-A	255	54.226,50	85.146,17	116.065,83
0912-A	167	17.992,49	26.997,56	36.002,63
0913-A	46	21.212,72	30.468,41	39.724,10
0914-A	82	31.137,80	45.173,44	59.209,08
0921-A	3.029	4.953,94	6.988,94	9.023,95
0922-A	378	6.910,20	10.014,98	13.119,76
0923-A	57	14.938,50	21.486,78	28.035,06
0931-A	6.181	3.302,91	4.462,59	5.622,27
0932-A	1.008	3.961,17	5.435,91	6.910,65
0933-A	56	13.839,47	20.955,91	28.072,35
0934-A	11	38.383,88	58.277,58	78.171,28
0941-A	1.303	2.700,67	3.772,14	4.843,62

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
0942-A	448	4.645,10	6.765,71	8.886,32
0943-A	94	15.902,46	24.193,29	32.484,13
0944-A	12	45.375,36	69.076,24	92.777,13
0951-A	398	3.479,52	4.827,36	6.175,21
0952-A	123	4.056,02	5.613,54	7.171,05
0961-A	794	3.347,77	4.562,20	5.776,62
0962-A	224	4.307,57	5.849,51	7.391,45
0963-A	11	6.362,11	9.130,40	11.898,70
0971-A	7.009	1.546,83	2.079,50	2.612,17
0972-A	1.200	2.024,77	2.717,38	3.410,00
0973-A	96	6.456,70	9.710,97	12.965,23
0981-A	11.544	2.737,75	3.767,14	4.796,53
0982-A	1.850	4.001,79	5.727,06	7.452,33
0983-A	140	10.634,07	16.147,56	21.661,05
0984-A	31	55.015,54	83.889,59	112.763,65
1101-A	369	4.304,75	6.306,71	8.308,67
1102-A	725	5.533,99	8.092,81	10.651,64
1103-A	563	13.783,32	20.776,11	27.768,89
1104-A	133	34.973,89	51.937,58	68.901,27
1111-A	1.794	4.263,38	6.243,44	8.223,50
1112-A	1.696	6.880,30	10.005,14	13.129,97
1113-A	351	11.413,84	16.580,57	21.747,31
1114-A	25	21.783,73	31.788,08	41.792,44
1121-A	564	2.344,78	3.404,78	4.464,78
1122-A	330	3.827,66	5.659,55	7.491,44
1123-A	130	7.637,21	11.262,14	14.887,06
1124-A	21	32.724,90	50.298,08	67.871,26
1131-A	6.162	2.682,88	3.839,12	4.995,37
1132-A	4.811	3.774,32	5.453,59	7.132,86
1133-A	839	7.017,68	10.373,75	13.729,82
1134-A	121	19.141,16	28.989,83	38.838,49
1141-A	1.587	2.597,60	3.751,62	4.905,65
1142-A	879	4.250,35	6.236,87	8.223,40
1143-A	284	10.409,02	15.658,58	20.908,14
1144-A	70	22.302,84	33.772,00	45.241,15
1151-A	2.083	2.583,39	3.804,34	5.025,28
1152-A	3.046	1.593,08	2.220,43	2.847,78
1153-A	273	8.841,52	13.422,51	18.003,50
1154-A	55	25.719,14	39.222,86	52.726,57
1201-A	273	10.650,64	13.768,59	16.886,55
1202-A	671	12.704,85	16.375,86	20.046,87
1203-A	407	18.772,07	25.369,95	31.967,83
1204-A	248	40.438,14	58.572,48	76.706,83
1211-A	984	9.001,15	13.643,70	18.286,24
1212-A	1.626	13.169,69	19.533,67	25.897,64
1213-A	912	22.096,02	32.025,23	41.954,43
1214-A	479	39.788,69	57.298,43	74.808,18
1221-A	158	4.956,31	7.233,20	9.510,10
1222-A	172	14.714,35	22.028,21	29.342,07
1223-A	129	21.285,45	30.946,49	40.607,52
1224-A	112	48.621,13	71.924,26	95.227,39
1302-A	42	20.450,22	30.411,67	40.373,12
1303-A	223	26.568,40	38.142,17	49.715,94
1304-A	1.394	39.415,61	57.180,78	74.945,94
1311-A	73	8.564,39	12.657,48	16.750,56
1312-A	171	15.429,99	23.440,17	31.450,36
1313-A	335	15.855,85	24.052,20	32.248,54
1314-A	90	19.849,57	28.558,26	37.266,95
1321-A	18	6.749,71	9.673,21	12.596,71
1322-A	27	7.246,13	11.083,19	14.920,25
1323-A	43	9.216,68	13.422,49	17.628,31
1331-A	418	8.288,13	12.060,60	15.833,08

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1332-A	1.099	9.077,36	14.126,42	19.175,48
1333-A	1.740	14.152,34	21.040,09	27.927,83
1334-A	737	23.972,30	35.665,70	47.359,09
1341-A	401	6.765,93	9.455,31	12.144,69
1342-A	1.810	8.914,03	12.416,61	15.919,19
1343-A	1.462	12.846,80	18.241,53	23.636,26
1344-A	435	22.401,64	33.066,39	43.731,15
1351-A	449	3.445,30	5.060,81	6.676,31
1352-A	652	8.423,55	12.527,99	16.632,44
1353-A	345	15.170,53	22.322,82	29.475,11
1354-A	67	24.530,23	35.949,40	47.368,56
1361-A	638	4.862,80	7.125,65	9.388,50
1362-A	3.842	7.036,82	10.338,54	13.640,25
1363-A	3.892	13.522,28	20.293,52	27.064,76
1364-A	544	24.948,73	37.186,70	49.424,68
1371-A	617	7.182,71	10.510,02	13.837,33
1372-A	1.706	10.999,95	15.877,53	20.755,12
1373-A	2.430	15.803,08	22.882,88	29.962,69
1374-A	1.729	25.202,46	37.181,70	49.160,94
1381-A	255	4.075,72	5.638,01	7.200,30
1382-A	205	5.072,57	7.071,76	9.070,95
1383-A	70	6.024,04	8.513,49	11.002,93
1384-A	25	9.800,85	14.390,24	18.979,62
1391-A	8.839	3.963,19	5.503,07	7.042,95
1392-A	10.666	7.885,97	11.339,69	14.793,40
1393-A	8.383	12.405,43	17.902,62	23.399,82
1394-A	3.428	21.338,90	31.624,51	41.910,11
1401-A	3.371	6.299,63	9.142,62	11.985,61
1402-A	9.312	8.337,50	11.843,25	15.349,00
1403-A	8.766	11.556,02	16.528,09	21.500,15
1404-A	2.678	22.415,85	32.877,71	43.339,57
1411-A	7.724	3.612,52	5.172,05	6.731,57
1412-A	4.771	5.478,93	7.873,12	10.267,31
1413-A	1.546	7.119,35	10.286,50	13.453,64
1414-A	195	16.109,80	24.267,19	32.424,58
1421-A	183	5.017,72	7.277,94	9.538,15
1422-A	577	8.752,79	12.965,50	17.178,21
1423-A	459	14.254,85	21.204,00	28.153,14
1424-A	126	24.502,17	36.020,20	47.538,23
1431-A	829	4.325,86	6.085,14	7.844,42
1432-A	1.261	7.191,64	10.461,92	13.732,19
1433-A	720	13.250,47	19.499,94	25.749,42
1434-A	177	21.674,49	32.135,74	42.596,99
1441-A	9.019	3.241,38	4.856,33	6.471,29
1442-A	9.351	6.364,64	9.477,86	12.591,08
1443-A	4.466	11.214,70	16.493,87	21.773,04
1444-A	884	21.180,57	31.191,38	41.202,19
1603-A	30	24.618,22	31.793,77	38.969,31
1604-A	98	43.173,68	61.006,08	78.838,49
1611-A	162	47.238,12	74.388,30	101.538,48
1612-A	356	49.643,00	77.898,31	106.153,63
1613-A	296	53.475,64	83.279,77	113.083,90
1614-A	82	86.090,84	128.078,21	170.065,58
1621-A	27	25.519,77	32.152,29	38.784,81
1622-A	110	27.351,45	33.858,28	40.365,10
1623-A	379	36.207,81	47.400,95	58.594,10
1624-A	386	65.664,48	90.827,33	115.990,17
1631-A	183	19.667,23	23.675,68	27.684,12
1632-A	426	21.708,31	26.050,74	30.393,17
1633-A	1.191	26.053,15	32.643,11	39.233,07
1634-A	893	46.802,35	64.639,56	82.476,76
1651-A	22	18.559,75	22.019,30	25.478,84

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1652-A	495	20.951,15	26.129,93	31.308,72
1653-A	1.273	26.174,40	33.862,04	41.549,69
1654-A	678	48.090,16	67.097,92	86.105,68
1661-A	95	13.107,37	15.161,05	17.214,74
1662-A	1.555	15.958,95	19.319,59	22.680,23
1663-A	1.649	18.373,88	22.754,52	27.135,15
1664-A	718	35.679,46	49.335,97	62.992,48
1671-A	310	13.062,39	16.168,14	19.273,88
1672-A	202	15.329,52	19.141,96	22.954,40
1673-A	165	23.626,35	32.004,97	40.383,60
1674-A	112	46.525,37	66.002,16	85.478,95
1681-A	506	14.625,22	21.084,19	27.543,16
1682-A	1.379	16.610,59	23.442,09	30.273,59
1683-A	825	22.594,82	31.841,70	41.088,58
1684-A	673	47.545,20	69.900,04	92.254,89
1691-A	68	13.074,24	17.921,34	22.768,44
1692-A	226	13.940,65	17.983,74	22.026,83
1693-A	195	21.402,86	29.731,63	38.060,40
1694-A	210	48.131,68	71.036,08	93.940,47
1701-A	34	12.466,10	15.252,54	18.038,99
1702-A	161	17.545,43	22.995,96	28.446,50
1703-A	145	24.801,25	33.265,30	41.729,34
1704-A	50	30.973,49	41.674,17	52.374,84
1711-A	1.654	10.633,53	12.899,38	15.165,23
1712-A	2.966	13.317,82	16.881,63	20.445,44
1713-A	1.177	19.539,75	26.090,92	32.642,09
1714-A	246	32.979,49	45.797,48	58.615,47
1721-A	43	25.926,11	38.768,81	51.611,52
1722-A	194	23.433,32	34.338,69	45.244,06
1723-A	345	43.946,88	64.830,03	85.713,17
1724-A	187	55.375,37	80.841,96	106.308,55
1731-A	5.358	7.246,79	10.019,57	12.792,35
1732-A	6.863	10.429,82	14.845,56	19.261,29
1733-A	2.985	21.779,28	31.913,91	42.048,55
1734-A	677	42.588,70	61.617,88	80.647,06
1741-A	1.337	11.823,18	15.699,31	19.575,43
1742-A	2.363	13.267,96	17.575,67	21.883,37
1743-A	637	17.321,40	23.371,22	29.421,04
1744-A	418	30.737,61	43.573,83	56.410,06
1751-A	10.592	9.420,39	13.362,13	17.303,88
1752-A	8.724	9.304,66	12.167,25	15.029,83
1753-A	2.212	14.694,55	20.494,41	26.294,26
1754-A	440	30.213,57	43.371,14	56.528,70
1761-A	957	8.527,20	10.845,74	13.164,27
1762-A	877	8.982,02	11.399,76	13.817,51
1763-A	220	16.460,88	23.287,78	30.114,68
1764-A	41	31.269,21	44.778,38	58.287,54
1771-A	288	11.977,84	18.251,42	24.525,00
1772-A	312	12.133,71	18.305,91	24.478,11
1773-A	109	17.675,32	26.533,79	35.392,25
1774-A	22	27.267,76	39.401,01	51.534,27
1781-A	67	5.866,53	8.762,71	11.658,88
1782-A	322	11.780,78	17.960,49	24.140,19
1783-A	222	22.356,80	33.592,00	44.827,20
1784-A	41	44.802,91	65.675,24	86.547,58
1791-A	6.626	1.729,26	2.239,08	2.748,90
1792-A	618	2.493,92	3.421,15	4.348,37
1793-A	40	16.897,72	25.721,71	34.545,70
1794-A	14	66.544,03	103.129,78	139.715,52
1801-A	173	7.339,28	10.819,64	14.299,99
1802-A	370	12.126,39	18.337,47	24.548,56
1803-A	280	25.206,07	37.668,16	50.130,25

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
1804-A	136	53.557,40	79.837,06	106.116,71
1901-A	1.532	7.530,45	11.135,42	14.740,40
1902-A	4.567	9.224,86	13.600,70	17.976,53
1903-A	2.016	13.626,66	19.987,26	26.347,85
1904-A	1.485	20.962,32	31.764,94	42.567,57
1911-A	3.255	4.139,54	5.321,94	6.504,33
1912-A	2.791	6.047,12	8.306,96	10.566,81
1913-A	2.035	13.173,02	19.056,77	24.940,52
1914-A	267	30.573,84	44.672,61	58.771,38
1921-A	10.328	3.337,49	4.163,66	4.989,82
1922-A	10.049	4.275,89	5.544,19	6.812,48
1923-A	860	10.250,61	14.905,86	19.561,10
1924-A	65	22.771,88	33.079,28	43.386,68
1932-A	50	23.910,98	36.370,06	48.829,14
1933-A	76	31.761,38	47.555,33	63.349,28
1934-A	74	38.442,36	57.208,20	75.974,04
1941-A	1.028	6.481,37	9.389,95	12.298,53
1942-A	7.199	8.526,70	12.238,33	15.949,97
1943-A	8.095	12.875,58	18.660,31	24.445,03
1944-A	2.045	24.742,78	36.615,00	48.487,21
1951-A	213	5.525,44	7.859,92	10.194,40
1952-A	284	9.005,80	12.925,92	16.846,04
1953-A	305	11.364,56	16.290,91	21.217,26
1954-A	69	23.780,80	35.109,53	46.438,26
1961-A	220	913,15	1.262,57	1.611,99
1962-A	234	1.645,75	2.329,37	3.012,98
1963-A	300	5.033,51	7.707,59	10.381,67
1964-A	310	17.666,27	26.959,62	36.252,96
1971-A	1.771	4.304,12	6.255,12	8.206,13
1972-A	3.336	6.611,93	9.837,76	13.063,59
1973-A	1.853	12.550,51	19.033,49	25.516,47
1974-A	304	27.936,02	42.255,37	56.574,73
1981-A	1.397	4.403,91	6.667,11	8.930,30
1982-A	2.642	6.138,43	9.158,51	12.178,60
1983-A	745	11.060,70	16.536,22	22.011,73
1984-A	120	26.795,32	40.683,75	54.572,19
1991-A	962	4.413,98	6.473,88	8.533,78
1992-A	1.896	6.702,10	9.687,91	12.673,71
1993-A	523	9.261,19	13.331,94	17.402,69
1994-A	35	21.448,67	31.696,54	41.944,41
2001-A	182	4.599,16	6.907,28	9.215,40
2002-A	626	7.423,74	11.126,27	14.828,81
2003-A	368	11.503,25	16.979,24	22.455,22
2004-A	84	22.531,24	33.476,37	44.421,49
2011-A	4.967	2.956,06	4.299,51	5.642,95
2012-A	8.637	5.773,60	8.563,91	11.354,23
2013-A	3.599	9.714,72	14.253,01	18.791,30
2014-A	698	22.337,38	33.314,91	44.292,44
2021-A	1.700	4.176,59	6.243,18	8.309,78
2022-A	2.498	5.511,25	8.125,49	10.739,72
2023-A	656	9.557,47	14.051,49	18.545,50
2024-A	84	21.256,81	32.137,53	43.018,24
2031-A	2.474	2.635,27	3.816,77	4.998,27
2032-A	2.388	4.652,00	6.873,66	9.095,31
2033-A	309	8.382,37	12.348,99	16.315,61
2034-A	21	17.678,81	25.559,20	33.439,59
2041-A	2.700	2.958,21	4.326,82	5.695,43
2042-A	3.472	5.990,00	8.902,90	11.815,79
2043-A	1.030	10.650,10	15.637,93	20.625,77
2044-A	92	23.095,32	34.722,91	46.350,50
2051-A	84	4.375,59	6.491,79	8.607,99
2052-A	213	7.311,40	10.776,13	14.240,86

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
2053-A	155	10.182,14	14.790,90	19.399,66
2054-A	51	22.406,23	32.727,48	43.048,72
2061-A	137	3.820,68	5.487,42	7.154,16
2062-A	499	8.458,14	12.755,94	17.053,75
2063-A	346	13.591,28	20.536,48	27.481,68
2064-A	231	25.417,52	38.456,92	51.496,32
2071-A	2.565	4.497,55	6.657,59	8.817,64
2072-A	1.919	7.076,16	10.479,21	13.882,26
2073-A	776	10.819,93	15.756,76	20.693,60
2074-A	262	22.355,30	33.267,04	44.178,77
2201-A	2.058	4.240,56	5.573,00	6.905,44
2202-A	894	12.238,36	17.587,48	22.936,59
2203-A	1.193	21.913,41	31.380,20	40.846,99
2204-A	759	52.690,76	76.963,32	101.235,87
2211-A	1.967	9.351,72	12.523,24	15.694,77
2212-A	4.448	12.016,14	16.135,15	20.254,15
2213-A	4.907	18.895,22	26.278,31	33.661,40
2214-A	2.237	44.193,67	64.525,30	84.856,94
2221-A	286	3.847,32	5.228,39	6.609,47
2222-A	178	7.007,21	10.229,53	13.451,86
2223-A	86	14.564,84	21.298,68	28.032,52
2224-A	37	46.828,30	67.988,64	89.148,98
2231-A	593	6.452,12	9.035,81	11.619,49
2232-A	596	9.489,36	13.560,03	17.630,70
2233-A	327	14.960,98	21.091,79	27.222,59
2234-A	97	38.024,10	55.350,12	72.676,14
2241-A	987	5.722,58	8.346,74	10.970,90
2242-A	559	8.872,64	12.646,24	16.419,83
2243-A	363	17.262,71	24.965,76	32.668,81
2244-A	155	29.852,99	42.369,69	54.886,38
2251-A	7.992	2.808,33	3.711,98	4.615,63
2252-A	4.433	5.105,10	7.180,63	9.256,16
2253-A	340	10.884,39	15.764,35	20.644,30
2254-A	95	23.722,28	35.101,54	46.480,80
2261-A	7.988	2.435,57	3.366,05	4.296,52
2262-A	1.398	5.151,25	7.618,94	10.086,63
2263-A	265	13.911,70	20.751,23	27.590,75
2264-A	51	30.897,95	45.453,28	60.008,61
2271-A	5.698	3.585,51	5.093,31	6.601,11
2272-A	2.500	5.567,37	7.956,85	10.346,33
2273-A	413	11.035,64	16.163,36	21.291,08
2274-A	73	36.211,87	53.957,37	71.702,88
2281-A	14.525	2.387,37	3.197,86	4.008,35
2282-A	3.457	3.433,55	4.760,30	6.087,04
2283-A	376	8.395,93	12.394,43	16.392,93
2284-A	61	29.905,40	44.635,58	59.365,76
2291-A	644	6.428,29	9.549,08	12.669,88
2292-A	638	10.903,40	16.120,15	21.336,91
2293-A	406	20.182,60	29.516,11	38.849,63
2294-A	276	49.158,25	74.157,96	99.157,67
2401-A	846	4.521,11	6.534,92	8.548,72
2402-A	2.967	7.053,35	10.389,87	13.726,39
2403-A	2.283	12.879,43	19.177,70	25.475,98
2404-A	499	26.809,98	40.219,07	53.628,17
2411-A	2.090	3.741,10	5.414,31	7.087,52
2412-A	4.282	6.405,99	9.328,26	12.250,53
2413-A	2.110	10.696,11	15.438,46	20.180,82
2414-A	661	21.405,78	31.612,63	41.819,49
2421-A	168	3.034,47	4.417,35	5.800,23
2422-A	346	6.196,70	9.027,24	11.857,78
2423-A	205	11.413,71	16.603,35	21.792,99
2424-A	94	18.792,98	26.895,70	34.998,42

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
2431-A	3.990	2.573,31	3.725,14	4.876,97
2432-A	4.204	5.514,03	8.149,65	10.785,28
2433-A	1.249	9.417,30	13.764,80	18.112,31
2434-A	468	20.170,96	30.233,67	40.296,38
2441-A	2.951	4.982,28	7.226,67	9.471,06
2442-A	3.418	6.399,93	9.195,35	11.990,77
2443-A	1.247	9.410,39	13.328,79	17.247,19
2444-A	444	15.370,52	22.227,41	29.084,29
2451-A	1.000	6.136,09	9.130,97	12.125,85
2452-A	1.082	8.179,18	11.952,07	15.724,96
2453-A	368	11.150,52	15.973,61	20.796,70
2454-A	314	17.883,63	26.081,03	34.278,42
2461-A	193	6.810,95	10.075,66	13.340,37
2462-A	520	8.755,99	12.730,56	16.705,12
2463-A	352	13.606,11	20.087,39	26.568,67
2464-A	208	25.408,40	38.425,74	51.443,07
2471-A	2.286	3.821,66	5.595,00	7.368,34
2472-A	2.883	6.240,27	9.127,96	12.015,65
2473-A	1.324	10.475,22	15.366,30	20.257,37
2474-A	748	18.239,72	27.134,79	36.029,86
2481-A	186	6.242,70	8.926,17	11.609,64
2482-A	195	10.393,26	15.268,38	20.143,49
2483-A	167	11.677,78	16.992,10	22.306,42
2484-A	113	26.369,89	39.328,53	52.287,16
2491-A	13.583	2.641,10	3.769,96	4.898,82
2492-A	8.939	4.156,38	6.008,20	7.860,02
2493-A	2.331	7.597,07	11.287,97	14.978,87
2494-A	826	11.578,85	17.649,11	23.719,37
2501-A	11.507	3.074,84	4.449,16	5.823,47
2502-A	9.710	5.772,65	8.534,85	11.297,06
2503-A	3.185	10.733,48	15.925,51	21.117,55
2504-A	1.634	20.450,32	30.902,80	41.355,28
2601-A	223	11.676,16	17.026,93	22.377,69
2602-A	517	13.971,23	19.913,43	25.855,63
2603-A	351	20.302,15	28.602,81	36.903,48
2604-A	585	45.915,63	67.046,17	88.176,71
2611-A	92	9.241,56	13.397,11	17.552,67
2612-A	241	13.596,38	19.703,31	25.810,24
2613-A	172	21.280,70	30.885,64	40.490,57
2614-A	211	38.586,97	56.422,19	74.257,42
2621-A	227	6.453,96	8.887,88	11.321,79
2622-A	363	9.531,12	13.305,58	17.080,04
2623-A	159	16.838,25	23.929,84	31.021,43
2624-A	143	37.631,06	55.476,01	73.320,95
2631-A	9.864	3.236,41	4.197,39	5.158,37
2632-A	5.587	5.525,71	7.698,98	9.872,25
2633-A	957	13.101,04	19.051,45	25.001,87
2634-A	232	31.296,34	46.500,14	61.703,95
2641-A	225	6.723,75	9.986,65	13.249,56
2642-A	260	9.995,54	14.946,92	19.898,29
2643-A	272	14.757,41	21.241,75	27.726,08
2644-A	235	40.680,36	60.969,29	81.258,22
2801-A	219	5.307,38	7.910,82	10.514,26
2802-A	1.257	8.264,46	12.278,85	16.293,24
2803-A	1.683	12.891,28	18.655,72	24.420,15
2804-A	682	30.545,54	45.474,40	60.403,27
2811-A	383	5.381,79	7.962,77	10.543,75
2812-A	1.813	8.755,43	13.072,72	17.390,01
2813-A	1.787	13.466,18	20.114,48	26.762,78
2814-A	369	22.601,87	33.704,87	44.807,87
2821-A	1.364	5.867,01	8.397,36	10.927,71
2822-A	2.321	7.691,20	11.051,12	14.411,04

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
2823-A	823	12.333,28	17.893,81	23.454,34
2824-A	664	25.860,88	38.271,27	50.681,66
2831-A	980	3.414,23	5.065,57	6.716,90
2832-A	1.304	7.846,76	11.771,10	15.695,44
2833-A	903	13.528,28	20.157,47	26.786,66
2834-A	364	30.191,81	45.424,99	60.658,18
2841-A	2.267	4.896,32	7.107,07	9.317,82
2842-A	3.488	7.963,21	11.563,26	15.163,30
2843-A	1.519	11.736,76	16.800,91	21.865,05
2844-A	690	22.515,72	33.240,19	43.964,67
3001-A	55	21.405,01	29.785,80	38.166,60
3002-A	80	27.967,60	39.513,67	51.059,74
3003-A	124	44.511,61	64.873,62	85.235,63
3004-A	20	87.675,31	127.424,40	167.173,48
3011-A	701	11.056,85	14.215,69	17.374,53
3012-A	1.926	13.049,93	17.187,87	21.325,82
3013-A	1.992	20.673,29	28.712,71	36.752,14
3014-A	354	41.721,67	60.391,92	79.062,16
3021-A	14.373	9.952,60	12.455,50	14.958,39
3022-A	12.498	11.525,58	14.658,09	17.790,60
3023-A	2.773	17.758,62	24.070,42	30.382,23
3024-A	254	48.898,42	71.627,52	94.356,62
3031-A	96	21.253,80	28.386,42	35.519,03
3032-A	102	24.163,97	32.468,56	40.773,15
3033-A	48	41.526,40	58.524,73	75.523,05
3041-A	3.885	12.366,42	16.711,10	21.055,78
3042-A	1.426	15.624,46	21.110,94	26.597,41
3043-A	467	22.012,98	30.426,32	38.839,67
3044-A	49	65.825,82	96.775,47	127.725,13
3051-A	26	11.999,69	17.607,42	23.215,15
3052-A	67	27.049,81	40.324,87	53.599,94
3053-A	84	51.859,19	77.799,13	103.739,07
3054-A	31	77.412,13	113.706,60	150.001,08
3061-A	942	7.899,92	10.760,85	13.621,78
3062-A	550	11.553,63	16.072,31	20.591,00
3063-A	99	25.215,52	37.169,16	49.122,81
3064-A	24	43.477,48	63.363,42	83.249,36
3071-A	248	6.588,96	9.432,84	12.276,72
3072-A	64	14.250,26	20.653,52	27.056,77
3073-A	34	28.219,58	41.574,81	54.930,04
3081-A	2.145	9.914,34	13.576,20	17.238,05
3082-A	3.211	12.393,15	17.087,43	21.781,71
3083-A	2.048	23.268,64	33.669,57	44.070,50
3084-A	547	41.651,33	61.033,93	80.416,52
3091-A	936	7.424,36	10.944,19	14.464,03
3092-A	647	15.998,25	23.207,48	30.416,70
3093-A	346	32.462,39	47.564,62	62.666,84
3094-A	67	51.707,27	74.254,96	96.802,66
3101-A	13.508	5.797,91	8.007,26	10.216,62
3102-A	4.995	8.501,42	11.900,40	15.299,39
3103-A	596	22.329,91	32.801,36	43.272,80
3104-A	84	46.057,72	67.624,57	89.191,42
3111-A	66	3.344,99	4.834,41	6.323,83
3112-A	23	23.653,68	36.570,64	49.487,60
3121-A	259	6.085,40	9.052,46	12.019,53
3122-A	299	20.695,91	31.333,16	41.970,40
3123-A	147	37.486,81	54.586,60	71.686,39
3124-A	42	72.342,58	102.575,14	132.807,69
3131-A	17.328	3.662,14	5.221,64	6.781,15
3132-A	3.870	8.345,06	12.515,60	16.686,14
3133-A	588	18.289,35	27.137,04	35.984,72
3134-A	82	43.446,07	63.479,46	83.512,85

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
3141-A	8.561	2.837,26	3.876,40	4.915,54
3142-A	1.784	4.324,97	6.131,81	7.938,66
3143-A	229	16.796,89	25.566,71	34.336,52
3144-A	26	52.139,05	78.406,32	104.673,59
3151-A	19.194	2.371,89	3.168,53	3.965,17
3152-A	6.239	5.749,39	8.348,57	10.947,75
3153-A	593	19.175,24	28.627,43	38.079,62
3154-A	121	47.615,72	70.902,02	94.188,32
3161-A	5.013	2.059,96	2.792,83	3.525,70
3162-A	779	2.976,68	4.177,20	5.377,71
3163-A	62	21.618,47	33.443,84	45.269,21
3171-A	6.403	2.268,66	3.081,74	3.894,83
3172-A	914	5.891,16	8.758,04	11.624,91
3173-A	131	22.594,93	34.973,06	47.351,18
3174-A	26	69.118,14	107.520,24	145.922,35
3181-A	3.501	2.086,81	2.828,20	3.569,59
3182-A	753	5.566,79	8.336,29	11.105,78
3183-A	77	21.957,45	34.046,10	46.134,75
3184-A	15	58.471,71	87.668,26	116.864,81
3191-A	2.581	2.235,66	3.028,98	3.822,31
3192-A	496	6.067,68	9.058,42	12.049,17
3193-A	75	23.356,59	35.081,04	46.805,48
3194-A	11	36.346,56	52.010,01	67.673,46
3201-A	3.394	3.452,11	4.915,72	6.379,33
3202-A	1.060	16.203,30	24.648,05	33.092,80
3203-A	252	25.233,39	37.116,05	48.998,72
3204-A	73	63.958,87	95.226,80	126.494,73
3401-A	335	7.518,72	11.407,24	15.295,75
3402-A	506	12.659,81	19.354,06	26.048,30
3403-A	196	20.409,45	31.482,20	42.554,94
3404-A	67	35.262,28	54.648,29	74.034,31
3411-A	742	6.855,28	10.198,28	13.541,28
3412-A	1.312	13.017,41	19.507,36	25.997,30
3413-A	876	21.083,79	31.184,60	41.285,40
3414-A	115	32.083,40	46.312,34	60.541,27
3421-A	6.329	1.849,44	2.560,04	3.270,64
3422-A	1.973	7.751,87	11.773,72	15.795,56
3423-A	656	19.957,13	29.843,01	39.728,89
3424-A	112	31.895,75	47.484,94	63.074,13
3431-A	956	7.243,96	10.689,59	14.135,22
3432-A	2.675	12.304,99	18.243,95	24.182,91
3433-A	1.969	18.212,80	26.630,53	35.048,26
3434-A	301	30.459,36	44.517,41	58.575,47
3441-A	71	8.969,57	13.375,35	17.781,14
3442-A	256	13.335,72	19.699,97	26.064,22
3443-A	93	23.987,54	34.943,94	45.900,34
3444-A	29	42.803,61	64.358,18	85.912,76
3451-A	70	5.981,68	8.694,83	11.407,98
3452-A	185	10.322,73	15.143,38	19.964,04
3453-A	67	19.181,24	27.290,07	35.398,91
3454-A	23	37.708,08	55.232,08	72.756,09
3461-A	1.086	6.420,56	9.429,45	12.438,34
3462-A	1.132	9.713,43	14.453,52	19.193,62
3463-A	462	14.489,56	21.444,45	28.399,34
3464-A	137	39.733,90	60.627,71	81.521,52
3471-A	11.294	4.349,67	6.426,77	8.503,87
3472-A	5.799	8.455,12	12.534,85	16.614,58
3473-A	1.295	16.862,02	24.615,99	32.369,97
3474-A	218	32.093,84	47.382,52	62.671,20
3481-A	1.274	4.875,54	7.299,70	9.723,85
3482-A	1.783	8.988,58	13.468,98	17.949,39
3483-A	660	13.575,72	19.792,88	26.010,04

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
3484-A	93	27.331,90	39.653,48	51.975,07
3491-A	956	3.115,46	4.452,17	5.788,88
3492-A	790	7.254,27	10.912,49	14.570,70
3493-A	214	17.558,88	26.415,21	35.271,54
3494-A	39	31.837,94	47.337,13	62.836,31
3501-A	1.600	4.151,46	6.195,38	8.239,31
3502-A	1.375	7.898,68	11.772,95	15.647,21
3503-A	421	16.857,15	25.115,26	33.373,36
3504-A	47	35.621,37	54.815,49	74.009,61
3511-A	1.823	3.655,18	5.396,18	7.137,18
3511-C	80	20.052,38	29.214,91	38.377,44
3512-A	1.194	7.910,14	11.852,02	15.793,90
3512-C	242	20.132,91	29.248,84	38.364,78
3513-A	461	16.204,19	23.911,38	31.618,58
3513-C	161	21.817,50	31.001,35	40.185,20
3514-A	116	29.767,08	44.017,54	58.268,00
3514-C	19	38.019,37	56.391,96	74.764,56
3601-A	177	7.035,78	10.530,71	14.025,64
3602-A	390	18.522,36	28.235,70	37.949,03
3603-A	264	35.720,06	52.344,87	68.969,68
3604-A	96	57.678,43	83.500,94	109.323,45
3611-A	2.265	4.032,62	5.812,17	7.591,71
3612-A	832	9.821,44	14.828,95	19.836,45
3613-A	153	30.123,69	46.198,97	62.274,25
3614-A	34	46.339,81	67.660,18	88.980,54
3621-A	3.286	5.366,74	7.158,92	8.951,11
3622-A	2.641	6.450,63	8.629,68	10.808,72
3623-A	189	17.370,90	25.623,57	33.876,24
3624-A	16	35.931,17	53.526,61	71.122,04
3631-A	8.078	3.796,04	5.381,45	6.966,87
3632-A	3.861	4.983,32	6.889,68	8.796,03
3633-A	153	10.291,08	15.061,90	19.832,72
3641-A	5.772	3.360,98	4.820,10	6.279,22
3642-A	1.419	5.947,12	8.743,40	11.539,67
3643-A	289	24.207,63	36.584,94	48.962,25
3644-A	89	51.930,18	77.806,36	103.682,55
3801-A	109	10.050,92	15.108,52	20.166,13
3802-A	550	13.231,85	19.586,61	25.941,37
3803-A	584	20.522,17	30.165,67	39.809,16
3804-A	138	35.670,99	53.277,48	70.883,98
3811-A	471	5.137,56	7.289,26	9.440,96
3812-A	573	7.895,20	11.333,65	14.772,09
3813-A	247	14.238,92	20.792,48	27.346,04
3814-A	48	27.403,07	40.206,18	53.009,28
3821-A	133	2.891,24	4.060,42	5.229,61
3822-A	506	7.117,40	10.557,35	13.997,30
3823-A	435	12.443,74	18.612,57	24.781,39
3824-A	77	22.660,24	32.915,40	43.170,55
3831-A	4.173	4.068,51	5.874,75	7.680,99
3832-A	2.770	7.795,21	11.282,17	14.769,14
3833-A	1.066	13.324,59	19.269,89	25.215,19
3834-A	248	28.343,04	42.190,45	56.037,86
3841-A	3.677	2.348,60	3.456,21	4.563,81
3842-A	1.996	8.214,28	12.519,04	16.823,80
3843-A	843	14.903,33	22.097,93	29.292,53
3844-A	135	29.737,71	44.633,89	59.530,08
3851-A	1.688	3.377,24	5.022,33	6.667,42
3852-A	1.118	6.933,34	10.401,90	13.870,46
3853-A	334	14.075,06	21.016,76	27.958,46
3854-A	54	24.998,05	37.544,05	50.090,06
4001-A	65	17.197,59	25.778,99	34.360,39
4003-A	134	34.445,12	52.235,89	70.026,66

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
4004-A	39	82.501,37	123.204,20	163.907,03
4011-A	184	12.412,21	17.779,38	23.146,55
4012-A	149	12.908,69	17.156,12	21.403,56
4013-A	63	21.118,07	29.664,28	38.210,49
4014-A	15	49.688,67	72.542,72	95.396,77
4021-A	102	3.491,61	4.488,45	5.485,29
4022-A	69	10.436,98	15.534,96	20.632,94
4023-A	75	39.107,92	59.095,15	79.082,38
4024-A	16	68.060,44	100.294,29	132.528,14
4031-A	7.573	4.410,03	6.162,77	7.915,51
4032-A	2.385	9.539,98	13.725,07	17.910,15
4033-A	250	13.091,80	18.035,50	22.979,19
4034-A	86	44.742,75	65.688,49	86.634,24
4041-A	4.392	3.577,82	4.709,59	5.841,37
4042-A	1.718	4.642,11	6.179,14	7.716,18
4043-A	122	13.026,20	19.201,23	25.376,25
4044-A	22	31.173,61	44.454,76	57.735,90
4051-A	357	4.998,56	7.117,25	9.235,95
4052-A	224	13.134,99	19.579,55	26.024,11
4053-A	289	13.763,88	19.587,27	25.410,66
4054-A	99	51.303,09	76.963,44	102.623,78
4201-A	4.715	5.304,08	7.626,97	9.949,87
4202-A	3.447	7.609,41	11.106,81	14.604,21
4203-A	1.758	11.927,99	17.573,97	23.219,95
4204-A	397	24.643,02	36.484,12	48.325,21
4211-A	789	3.201,71	4.656,21	6.110,70
4212-A	2.356	4.930,51	7.306,09	9.681,68
4213-A	876	13.385,36	19.986,82	26.588,28
4214-A	173	23.760,29	35.265,90	46.771,50
4221-A	3.466	2.447,28	3.305,70	4.164,13
4222-A	3.966	6.216,18	9.222,43	12.228,68
4223-A	2.290	12.187,57	18.033,28	23.878,99
4224-A	1.139	21.506,39	32.787,13	44.067,88
4231-A	149	5.035,56	7.584,44	10.133,32
4232-A	186	6.705,39	9.919,79	13.134,19
4233-A	69	11.380,14	17.132,05	22.883,97
4234-A	17	19.819,23	29.312,82	38.806,40
4241-A	862	3.285,80	4.603,46	5.921,12
4242-A	1.382	7.456,20	11.024,30	14.592,40
4243-A	627	13.514,46	20.184,92	26.855,37
4244-A	86	28.028,92	41.277,62	54.526,32
4401-A	21	24.333,61	28.259,37	32.185,13
4402-A	147	28.815,92	34.666,57	40.517,22
4403-A	125	44.478,52	58.783,39	73.088,26
4404-A	48	76.688,76	105.033,28	133.377,80
4411-A	110	14.567,22	21.894,72	29.222,21
4412-A	252	16.900,70	24.261,70	31.622,71
4413-A	535	18.656,74	24.665,77	30.674,81
4414-A	124	49.693,35	71.373,58	93.053,82
4421-A	496	6.965,38	9.044,13	11.122,88
4422-A	649	9.204,84	12.332,68	15.460,52
4423-A	296	16.450,86	23.190,41	29.929,96
4424-A	169	35.177,89	51.969,81	68.761,73
4431-A	1.388	6.121,39	8.598,31	11.075,24
4432-A	991	9.358,56	13.409,75	17.460,94
4433-A	352	19.811,43	29.046,09	38.280,76
4434-A	182	44.094,07	65.543,51	86.992,96
4441-A	70	4.081,94	5.744,09	7.406,24
4442-A	230	5.799,86	8.353,96	10.908,05
4443-A	72	10.017,22	14.879,30	19.741,39
4444-A	13	24.353,00	33.180,21	42.007,42
4451-A	1.093	3.250,57	4.452,54	5.654,51

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
4452-A	446	6.625,24	9.761,75	12.898,26
4453-A	138	14.556,14	21.889,79	29.223,44
4454-A	46	31.659,85	46.707,33	61.754,80
4461-A	8.232	3.041,12	4.195,39	5.349,67
4462-A	4.993	4.241,44	5.986,48	7.731,52
4463-A	730	11.146,73	16.553,09	21.959,44
4464-A	137	29.898,49	44.540,45	59.182,42
4471-A	584	5.719,20	8.389,40	11.059,59
4472-A	1.136	7.077,06	10.476,19	13.875,32
4473-A	485	19.795,41	30.113,20	40.430,99
4474-A	134	56.063,95	83.337,00	110.610,05
4601-A	241	5.032,96	7.523,98	10.014,99
4602-A	1.563	8.785,40	13.008,59	17.231,78
4603-A	2.357	14.758,57	21.830,91	28.903,26
4604-A	693	29.306,25	43.773,07	58.239,90
4611-A	173	3.590,10	5.220,71	6.851,33
4612-A	549	8.037,96	12.090,35	16.142,74
4613-A	491	13.771,12	20.687,02	27.602,91
4614-A	83	25.512,87	38.746,05	51.979,24
4621-A	219	4.466,19	6.566,05	8.665,91
4622-A	276	5.992,45	8.933,07	11.873,68
4623-A	165	15.057,44	22.570,26	30.083,08
4624-A	33	28.015,66	41.357,01	54.698,37
4631-A	5.058	4.025,91	5.694,46	7.363,00
4632-A	5.513	6.472,42	9.328,07	12.183,73
4633-A	2.608	11.335,04	16.406,84	21.478,64
4634-A	750	22.016,86	32.716,60	43.416,34
4641-A	1.101	3.709,82	5.241,23	6.772,65
4642-A	714	4.377,53	6.173,11	7.968,69
4643-A	36	8.258,51	12.082,06	15.905,62
4644-A	13	15.561,72	21.116,57	26.671,43
4651-A	6.067	2.471,31	3.496,42	4.521,53
4652-A	3.404	3.166,41	4.515,06	5.863,71
4653-A	377	6.194,92	9.083,66	11.972,41
4654-A	51	21.531,43	32.839,47	44.147,51
4661-A	213	2.732,42	3.951,92	5.171,42
4662-A	728	4.728,90	6.989,92	9.250,94
4663-A	462	10.670,95	16.234,15	21.797,35
4664-A	78	30.146,97	45.962,42	61.777,87
4671-A	887	2.354,09	3.375,23	4.396,36
4672-A	906	4.711,65	6.975,03	9.238,41
4673-A	265	11.041,83	16.412,92	21.784,00
4674-A	32	20.489,76	30.276,73	40.063,70
4681-A	1.423	2.899,52	4.230,05	5.560,58
4682-A	2.353	5.713,50	8.569,51	11.425,52
4683-A	962	11.229,72	16.926,53	22.623,33
4684-A	83	33.011,28	49.535,51	66.059,75
4801-A	2.749	7.189,50	9.223,88	11.258,27
4802-A	1.472	8.409,82	10.864,27	13.318,72
4803-A	183	13.370,33	18.062,62	22.754,91
4804-A	53	28.720,43	40.150,81	51.581,19
4811-A	1.052	4.593,28	6.622,11	8.650,94
4812-A	167	8.823,49	13.131,03	17.438,56
4813-A	46	16.785,22	24.472,69	32.160,16
4821-A	5.356	3.469,18	4.423,79	5.378,40
4822-A	3.361	5.434,92	7.446,62	9.458,32
4823-A	667	15.718,26	23.371,77	31.025,28
4824-A	119	31.326,00	46.287,53	61.249,06
4831-A	3.170	1.906,23	2.502,86	3.099,49
4832-A	575	3.232,03	4.558,33	5.884,62
4833-A	61	14.754,21	22.757,41	30.760,61
4841-A	1.106	3.112,07	4.643,00	6.173,92

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
4842-A	1.167	18.908,21	28.248,35	37.588,49
4843-A	295	19.715,02	29.845,96	39.976,90
4844-A	26	30.966,19	44.958,96	58.951,73
5001-A	199	3.644,49	5.436,04	7.227,60
5002-A	522	6.369,76	9.499,65	12.629,55
5003-A	302	13.330,82	19.987,16	26.643,50
5004-A	60	22.203,77	32.990,40	43.777,02
5011-A	1.481	3.280,76	4.813,12	6.345,48
5012-A	1.168	5.241,35	7.668,88	10.096,41
5013-A	334	10.261,50	15.190,27	20.119,04
5014-A	67	24.887,39	38.047,84	51.208,30
5101-A	911	7.305,02	9.985,65	12.666,28
5102-A	776	9.829,24	13.562,04	17.294,85
5103-A	162	16.472,52	22.885,28	29.298,05
5104-A	164	28.240,65	40.856,84	53.473,03
5111-A	133	6.708,36	9.439,83	12.171,31
5112-A	226	11.689,72	16.693,75	21.697,79
5113-A	91	21.453,74	30.785,24	40.116,74
5114-A	26	45.103,25	66.441,96	87.780,68
5121-A	438	5.533,50	7.299,79	9.066,07
5122-A	279	7.283,87	9.952,50	12.621,13
5123-A	47	18.451,10	27.131,20	35.811,30
5124-A	11	42.031,92	63.250,62	84.469,32
5131-A	16.991	4.536,66	6.342,46	8.148,26
5132-A	4.781	5.348,97	7.338,32	9.327,67
5133-A	336	11.807,88	17.132,95	22.458,02
5134-A	54	38.474,09	57.547,40	76.620,70
5141-A	7.226	3.137,49	4.112,91	5.088,33
5142-A	1.447	4.933,94	6.947,03	8.960,11
5143-A	144	10.622,06	15.502,92	20.383,79
5151-A	1.408	2.405,19	3.424,00	4.442,81
5152-A	373	6.058,17	9.138,57	12.218,98
5153-A	74	16.453,82	25.228,45	34.003,08
5161-A	1.502	1.788,04	2.394,10	3.000,15
5162-A	396	5.062,99	7.518,32	9.973,65
5163-A	66	12.301,78	18.473,42	24.645,07
5171-A	1.393	1.663,84	2.285,74	2.907,64
5172-A	513	2.718,37	3.864,05	5.009,73
5173-A	67	24.808,96	38.776,68	52.744,40
5181-A	470	5.279,08	7.675,92	10.072,75
5182-A	306	7.513,99	10.810,03	14.106,07
5183-A	79	18.350,70	26.649,14	34.947,58
5184-A	17	51.094,55	72.927,61	94.760,67
5301-A	126	4.408,32	6.507,23	8.606,15
5302-A	401	6.584,75	9.754,89	12.925,03
5303-A	466	12.175,22	18.135,34	24.095,47
5304-A	126	28.742,04	42.656,42	56.570,80
5311-A	538	3.800,98	5.454,78	7.108,58
5312-A	269	5.700,94	8.348,32	10.995,71
5313-A	53	8.892,68	12.902,97	16.913,26
5314-A	11	14.246,37	21.592,34	28.938,31
5321-A	1.293	2.482,11	3.622,14	4.762,16
5322-A	478	4.147,07	6.178,84	8.210,61
5323-A	113	8.272,61	12.173,43	16.074,24
5401-A	9.426	4.256,98	5.181,73	6.106,48
5402-A	8.327	4.858,10	6.037,80	7.217,50
5403-A	3.078	8.282,25	11.299,06	14.315,87
5404-A	146	17.538,15	24.956,21	32.374,27
5411-A	173	3.554,20	4.349,77	5.145,33
5412-A	236	4.191,52	5.399,18	6.606,84
5413-A	89	7.528,19	10.482,83	13.437,47
5421-A	183	2.741,03	3.341,83	3.942,63

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
5422-A	279	3.000,70	3.625,66	4.250,62
5423-A	74	10.082,46	14.778,47	19.474,48
5424-A	13	22.627,67	31.533,49	40.439,31
5431-A	190	1.825,69	2.549,45	3.273,21
5432-A	135	3.633,02	5.320,85	7.008,68
5433-A	47	12.750,27	19.843,14	26.936,00
5441-A	1.772	1.472,26	2.018,97	2.565,68
5442-A	490	2.248,63	3.200,01	4.151,39
5443-A	55	5.980,38	8.954,36	11.928,33
5601-A	49.511	2.945,17	3.631,19	4.317,22
5602-A	32.049	3.214,02	3.999,11	4.784,20
5603-A	6.100	4.089,84	5.277,50	6.465,15
5604-A	57	9.467,41	13.382,68	17.297,94
5611-A	553	3.473,95	4.981,18	6.488,41
5612-A	397	3.631,00	5.138,13	6.645,26
5613-A	78	6.172,02	8.979,11	11.786,20
5614-A	13	12.909,81	18.659,11	24.408,41
5621-A	1.034	2.648,58	3.526,40	4.404,22
5622-A	306	3.501,29	4.748,37	5.995,45
5623-A	75	5.871,15	8.068,38	10.265,61
5631-A	5.208	4.566,42	6.937,01	9.307,60
5632-A	1.375	6.631,89	10.014,78	13.397,68
5633-A	450	8.360,27	12.436,03	16.511,80
5641-A	773	1.981,65	2.863,80	3.745,96
5642-A	242	3.149,49	4.562,62	5.975,76
5643-A	38	6.302,16	9.173,65	12.045,14
5651-A	738	738,31	975,94	1.213,58
5652-A	75	1.608,16	2.359,07	3.109,99
5661-A	3.995	2.882,05	4.313,20	5.744,36
5662-A	3.774	3.625,02	5.347,65	7.070,28
5663-A	839	5.622,85	8.424,42	11.225,98
5664-A	14	11.346,84	16.922,52	22.498,20
5801-A	116	3.709,40	5.526,15	7.342,89
5802-A	97	5.033,31	7.267,40	9.501,49
5803-A	43	5.074,76	7.095,05	9.115,33
5804-A	13	7.674,89	11.052,12	14.429,35
5812-A	19	5.708,29	8.581,81	11.455,33
5904-A	13	135.826,33	192.804,09	249.781,84
591--A	44	85.294,57	134.653,99	184.013,42
5924-A	18	149.479,30	217.673,52	285.867,74
5933-A	19	54.069,00	79.190,66	104.312,33
5934-A	82	81.827,71	115.317,87	148.808,03
6004-A	33	106.396,77	147.472,13	188.547,50
6013-A	26	46.514,34	66.035,06	85.555,79
6014-A	31	76.388,26	113.955,64	151.523,02
6022-A	17	22.241,11	29.143,94	36.046,76
6023-A	46	43.986,47	59.695,91	75.405,34
6024-A	61	60.303,09	86.223,81	112.144,54
6031-A	18	25.555,06	35.953,57	46.352,07
6032-A	56	29.804,84	42.175,57	54.546,30
6033-A	41	47.468,31	68.641,33	89.814,36
6034-A	21	49.194,20	70.749,24	92.304,27
610--A	20	87.350,75	130.944,40	174.538,05
6111-A	16	15.493,95	21.781,53	28.069,12
6112-A	29	22.916,83	32.225,97	41.535,10
6113-A	29	23.715,87	33.169,82	42.623,77
6114-A	19	78.522,40	120.206,70	161.890,99
6121-A	22	20.263,19	28.182,96	36.102,73
6122-A	36	25.893,74	37.582,55	49.271,36
6123-A	51	33.709,24	49.331,56	64.953,88
6124-A	44	44.635,69	63.450,43	82.265,17
6131-A	15	26.296,97	37.363,27	48.429,58

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
6132-A	20	30.714,68	43.839,24	56.963,80
6133-A	29	36.673,06	53.133,03	69.593,00
6141-A	148	16.212,26	23.088,44	29.964,62
6142-A	105	19.760,74	27.282,32	34.803,91
6143-A	48	26.011,61	37.214,36	48.417,12
6144-A	12	31.265,91	44.774,02	58.282,13
620--A	30	62.163,03	91.489,97	120.816,91
6212-A	33	18.898,63	27.065,42	35.232,21
6213-A	34	22.928,95	33.523,55	44.118,15
6214-A	22	31.535,70	43.152,00	54.768,30
6221-A	17	10.980,71	14.239,17	17.497,63
6222-A	36	23.156,01	33.194,47	43.232,93
6223-A	38	29.446,60	42.624,05	55.801,51
6224-A	24	18.988,05	26.023,91	33.059,78
6231-A	11	13.144,53	17.519,70	21.894,88
6232-A	22	12.904,40	17.870,25	22.836,10
6233-A	23	28.965,75	42.250,48	55.535,22
6241-A	126	7.432,15	11.468,24	15.504,33
6242-A	100	9.385,63	14.496,29	19.606,95
6243-A	28	12.862,54	18.278,03	23.693,53
6251-A	38	14.625,18	20.311,87	25.998,56
6252-A	37	18.638,37	27.114,57	35.590,77
6253-A	25	24.746,23	35.206,27	45.666,30
6261-A	26	13.102,02	18.879,35	24.656,67
6262-A	50	10.891,69	15.527,81	20.163,93
6263-A	49	13.575,44	19.559,70	25.543,96
6303-A	21	35.161,04	48.920,94	62.680,85
6304-A	65	63.742,78	90.064,69	116.386,59
6312-A	22	35.442,21	53.556,34	71.670,48
6313-A	34	30.341,45	42.592,35	54.843,24
6314-A	28	72.078,97	104.114,26	136.149,55
6321-A	106	5.608,50	8.049,12	10.489,74
6322-A	26	11.554,68	17.312,18	23.069,68
6323-A	28	34.430,28	50.769,58	67.108,88
6331-A	73	6.815,22	10.102,07	13.388,92
6332-A	154	10.083,13	14.769,25	19.455,37
6333-A	124	17.556,01	25.715,89	33.875,77
6334-A	71	33.799,44	49.563,16	65.326,88
6341-A	34	8.352,41	12.409,51	16.466,61
6342-A	68	12.403,19	17.850,31	23.297,42
6343-A	55	16.078,26	22.662,11	29.245,95
6344-A	43	23.870,54	33.506,13	43.141,72
6351-A	13	6.270,79	8.318,35	10.365,91
6353-A	32	17.685,17	25.361,61	33.038,04
6361-A	77	6.952,57	10.263,91	13.575,25
6362-A	140	8.683,72	12.480,50	16.277,28
6363-A	41	15.652,15	22.476,71	29.301,27
6364-A	13	19.317,41	27.363,75	35.410,09
6371-A	769	4.329,15	6.397,13	8.465,11
6372-A	460	5.339,71	7.725,18	10.110,64
6373-A	185	7.821,99	11.074,95	14.327,90
6374-A	26	13.613,24	18.993,67	24.374,10
6381-A	1.439	2.438,08	3.560,51	4.682,95
6382-A	383	4.252,01	6.291,62	8.331,23
6383-A	49	8.740,34	13.080,04	17.419,74
6391-A	45	10.763,34	16.124,12	21.484,91
6392-A	49	12.892,74	19.514,80	26.136,86
6393-A	52	13.785,88	20.737,08	27.688,28
6394-A	13	13.632,22	19.219,78	24.807,33
6401-A	31	5.194,93	7.522,99	9.851,04
6402-A	61	6.392,11	9.528,31	12.664,52
6403-A	70	10.171,78	15.152,25	20.132,72

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
6501-A	95	9.205,10	12.819,97	16.434,84
6502-A	79	12.336,99	17.523,27	22.709,56
6503-A	50	16.390,68	23.186,58	29.982,47
6504-A	29	80.744,87	123.007,28	165.269,68
6511-A	518	4.056,39	5.796,09	7.535,79
6512-A	126	11.837,81	17.841,45	23.845,09
6513-A	73	18.936,91	28.067,61	37.198,32
6514-A	34	47.829,30	71.105,57	94.381,84
6601-A	155	5.980,90	8.774,72	11.568,54
6602-A	771	8.247,26	11.947,73	15.648,20
6603-A	806	12.450,87	18.058,15	23.665,42
6604-A	208	30.415,28	45.197,08	59.978,89
6611-A	709	4.767,16	7.065,51	9.363,86
6612-A	417	10.064,06	15.190,97	20.317,89
6613-A	338	12.058,71	18.131,37	24.204,03
6614-A	57	21.805,12	32.123,84	42.442,57
6621-A	97	5.205,41	7.655,89	10.106,37
6622-A	106	7.105,02	10.387,72	13.670,43
6623-A	74	12.643,22	18.654,18	24.665,14
6631-A	1.119	3.904,24	5.700,03	7.495,83
6632-A	3.194	6.874,93	10.244,59	13.614,25
6633-A	3.524	10.857,67	16.239,61	21.621,55
6634-A	599	25.769,93	38.373,01	50.976,09
6641-A	855	4.284,05	6.158,88	8.033,72
6642-A	364	7.116,73	10.615,06	14.113,39
6643-A	272	14.104,92	21.533,05	28.961,19
6644-A	71	49.216,97	76.104,43	102.991,88
6801-A	174	9.144,70	13.742,24	18.339,77
6802-A	107	18.283,44	26.610,68	34.937,91
6803-A	52	32.552,98	47.711,12	62.869,27
6804-A	104	82.284,81	124.707,44	167.130,06
6811-A	355	6.362,81	9.313,49	12.264,17
6812-A	284	14.853,23	22.486,73	30.120,24
6813-A	238	26.114,64	38.293,25	50.471,87
6814-A	160	68.927,66	102.252,51	135.577,37
6821-A	513	5.685,42	7.898,00	10.110,58
6822-A	362	9.910,02	14.405,89	18.901,76
6823-A	116	20.824,10	30.158,84	39.493,58
6824-A	112	37.663,25	54.972,93	72.282,60
6831-A	411	6.084,62	8.880,95	11.677,28
6832-A	284	9.829,87	14.693,15	19.556,44
6833-A	125	21.503,47	32.052,21	42.600,95
6834-A	69	70.258,34	107.248,87	144.239,39
6901-A	346	6.235,56	9.446,91	12.658,26
6902-A	225	13.644,06	20.885,35	28.126,63
6903-A	271	33.908,36	52.009,21	70.110,06
6904-A	460	68.075,00	101.256,80	134.438,60
6911-A	779	7.123,79	10.664,75	14.205,71
6912-A	1.248	10.389,33	15.379,97	20.370,60
6913-A	967	17.417,73	25.883,67	34.349,61
6914-A	516	42.565,45	64.290,68	86.015,90
6921-A	332	6.165,99	9.213,85	12.261,71
6922-A	283	11.343,93	17.303,40	23.262,87
6923-A	108	19.704,02	29.572,84	39.441,67
6924-A	82	32.382,83	50.457,82	68.532,81
6931-A	14.870	4.483,27	6.412,39	8.341,52
6932-A	9.621	5.190,82	7.488,38	9.785,94
6933-A	2.266	6.985,82	10.256,87	13.527,93
6934-A	866	37.612,19	58.626,63	79.641,06
6941-A	295	5.005,32	7.426,06	9.846,79
6942-A	644	7.693,83	11.471,87	15.249,92
6943-A	569	11.891,15	17.958,60	24.026,06

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
6944-A	230	24.837,32	37.139,51	49.441,71
7101-A	91	5.829,72	8.444,16	11.058,60
7102-A	117	13.141,31	19.240,80	25.340,28
7103-A	200	27.171,93	39.462,71	51.753,50
7104-A	294	62.257,22	92.880,88	123.504,54
7111-A	281	6.238,88	9.167,71	12.096,53
7112-A	562	13.354,86	19.971,68	26.588,49
7113-A	264	23.910,75	35.372,00	46.833,26
7114-A	135	47.435,84	69.356,01	91.276,17
7201-A	336	5.045,08	7.133,51	9.221,93
7202-A	1.486	9.216,75	13.239,90	17.263,06
7203-A	1.807	14.233,01	20.826,89	27.420,77
7204-A	1.373	28.892,85	43.675,70	58.458,56
7211-A	1.017	5.513,70	8.150,37	10.787,04
7212-A	851	8.703,36	12.910,60	17.117,83
7213-A	361	14.249,68	21.156,23	28.062,78
7214-A	94	21.158,93	31.272,71	41.386,49
7221-A	731	3.182,24	4.642,11	6.101,98
7222-A	704	6.583,22	9.736,31	12.889,39
7223-A	300	9.662,82	14.296,95	18.931,07
7224-A	53	18.422,65	27.516,65	36.610,65
7231-A	2.614	2.544,43	3.602,44	4.660,45
7232-A	1.992	3.932,53	5.699,23	7.465,93
7233-A	600	7.999,34	11.863,57	15.727,80
7234-A	69	32.579,69	49.899,84	67.219,99
7241-A	714	3.968,56	5.740,16	7.511,75
7242-A	717	6.289,15	9.116,50	11.943,85
7243-A	466	14.428,58	21.408,98	28.389,38
7244-A	206	38.735,10	58.560,31	78.385,51
7401-A	142	9.748,13	14.574,07	19.400,01
7402-A	211	17.378,38	25.159,83	32.941,27
7403-A	165	28.693,43	40.543,20	52.392,96
7404-A	44	43.414,01	62.848,97	82.283,93
7501-A	228	4.387,75	6.791,49	9.195,23
7502-A	128	10.214,97	15.669,24	21.123,52
7503-A	36	17.031,32	25.095,56	33.159,81
7511-A	1.816	7.637,95	11.727,70	15.817,45
7512-A	2.255	10.264,22	15.099,90	19.935,58
7513-A	466	17.975,00	26.306,04	34.637,08
7514-A	80	29.756,19	43.900,40	58.044,60
7521-A	294	5.181,63	8.011,95	10.842,28
7522-A	314	7.886,09	11.874,29	15.862,49
7523-A	83	17.719,07	26.079,85	34.440,64
7531-A	360	9.803,52	15.318,21	20.832,90
7532-A	259	13.666,56	20.656,79	27.647,02
7533-A	63	18.214,24	26.443,20	34.672,15
7541-A	1.334	5.576,06	8.627,52	11.678,98
7542-A	3.260	8.351,85	12.428,30	16.504,76
7543-A	459	13.066,63	18.905,59	24.744,56
7544-A	36	27.711,90	40.649,98	53.588,06
7551-A	695	5.907,80	8.967,01	12.026,22
7552-A	532	7.228,99	10.596,06	13.963,13
7553-A	107	12.390,06	18.354,53	24.319,01
7561-A	1.426	4.251,87	6.513,77	8.775,67
7562-A	905	6.498,08	9.876,86	13.255,63
7563-A	123	14.854,88	22.326,06	29.797,24
7564-A	13	39.293,21	58.946,04	78.598,87
7571-A	1.220	11.068,63	16.672,88	22.277,12
7571-C	91	25.835,56	38.467,61	51.099,66
7572-A	2.670	13.905,15	20.558,95	27.212,75
7572-C	127	30.921,94	46.323,91	61.725,88
7573-A	1.540	18.555,12	27.173,54	35.791,96

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
7573-C	80	25.380,77	37.766,48	50.152,19
7574-A	296	31.976,28	47.366,86	62.757,44
7574-C	18	45.288,73	70.626,66	95.964,60
7581-A	458	3.776,01	5.702,42	7.628,84
7582-A	333	6.404,02	9.673,53	12.943,05
7583-A	88	16.661,97	25.790,09	34.918,21
7591-A	113	7.475,02	11.355,94	15.236,87
7592-A	118	11.119,63	16.849,41	22.579,20
7593-A	61	22.232,20	33.473,55	44.714,91
7594-A	13	18.127,90	25.138,25	32.148,59
7601-A	3.775	1.118,34	1.454,26	1.790,18
7602-A	1.375	2.338,15	3.403,28	4.468,41
7603-A	172	15.008,84	23.372,54	31.736,23
7604-A	17	42.738,33	64.197,44	85.656,54
7701-A	502	1.965,10	2.890,72	3.816,34
7702-A	315	4.163,13	6.300,74	8.438,35
7703-A	67	6.512,98	9.575,27	12.637,57
7711-A	237	5.238,24	7.571,59	9.904,94
7712-A	640	6.984,91	9.950,73	12.916,55
7713-A	131	13.787,68	20.249,94	26.712,19
7721-A	46	6.594,40	9.779,99	12.965,58
7722-A	124	9.880,11	14.519,46	19.158,81
7723-A	30	15.962,10	23.630,75	31.299,41
7731-A	109	2.667,02	4.013,38	5.359,74
7732-A	200	7.153,18	11.096,98	15.040,77
7733-A	62	9.349,09	13.642,37	17.935,65
7741-A	56	1.976,33	2.882,38	3.788,44
7742-A	65	5.143,36	7.894,82	10.646,28
7751-A	3.473	1.810,34	2.660,03	3.509,73
7752-A	3.613	7.297,55	11.136,08	14.974,61
7753-A	955	11.149,51	16.120,52	21.091,53
7754-A	147	26.834,24	39.779,65	52.725,05
7761-A	524	3.154,70	4.756,69	6.358,68
7762-A	548	8.600,31	12.764,59	16.928,87
7763-A	221	13.484,98	19.532,57	25.580,17
7764-A	21	34.398,26	52.281,28	70.164,29
7901-A	617	4.940,15	7.351,99	9.763,82
7902-A	349	14.906,09	22.721,77	30.537,44
7903-A	115	29.548,56	43.498,02	57.447,49
7904-A	38	76.124,62	113.305,73	150.486,83
7911-A	1.642	3.950,53	5.746,74	7.542,94
7912-A	1.100	8.487,82	12.610,76	16.733,70
7913-A	324	15.682,38	23.454,61	31.226,84
7914-A	266	43.093,81	64.900,10	86.706,38
7921-A	780	3.244,72	4.721,20	6.197,69
7922-A	257	8.998,72	13.529,33	18.059,94
7923-A	91	19.236,22	28.412,38	37.588,54
7924-A	66	45.284,96	66.896,69	88.508,41
8101-A	707	2.452,83	3.635,05	4.817,28
8102-A	375	8.451,97	12.865,28	17.278,58
8103-A	152	15.581,48	23.427,12	31.272,75
8104-A	29	21.358,07	30.770,88	40.183,70
8111-A	509	1.593,18	2.267,60	2.942,02
8112-A	265	3.685,43	5.516,70	7.347,97
8113-A	62	7.195,58	10.744,18	14.292,79
8114-A	18	21.756,10	32.709,19	43.662,29
8121-A	5.455	1.590,14	2.275,76	2.961,37
8122-A	3.205	4.206,83	6.405,47	8.604,11
8123-A	1.050	9.225,10	13.752,20	18.279,30
8124-A	399	19.966,87	29.830,87	39.694,88
8131-A	1.521	3.186,64	4.708,52	6.230,40
8132-A	1.402	5.482,90	8.150,64	10.818,37

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
8133-A	732	10.804,73	16.179,59	21.554,44
8134-A	184	22.611,48	33.761,91	44.912,34
8141-A	70	4.971,92	7.704,09	10.436,27
8142-A	274	10.677,91	16.499,75	22.321,59
8143-A	48	23.259,37	34.025,46	44.791,55
8144-A	13	29.216,62	41.210,98	53.205,34
8151-A	860	2.056,51	3.028,67	4.000,82
8152-A	299	7.306,76	11.212,04	15.117,33
8153-A	152	12.725,05	19.462,66	26.200,28
8154-A	115	22.582,77	33.474,31	44.365,85
8301-A	13	1.746,33	2.536,59	3.326,85
8302-A	15	13.955,53	21.741,53	29.527,54
8303-A	25	158.202,69	248.129,36	338.056,03
831--A	16	166.378,96	244.796,51	323.214,06
8321-A	84	9.218,29	13.924,78	18.631,27
8322-A	151	30.757,68	48.293,36	65.829,04
8323-A	48	52.539,17	74.792,29	97.045,42
8324-A	28	142.174,90	211.948,10	281.721,29
8331-A	18	6.600,24	10.024,46	13.448,67
8332-A	29	18.020,06	28.172,84	38.325,63
8401-A	483	4.458,97	6.755,69	9.052,41
8402-A	158	22.602,77	35.254,22	47.905,67
8403-A	34	28.581,56	42.952,96	57.324,36
8501-A	1.641	5.408,29	7.952,81	10.497,33
8502-A	847	15.211,30	23.210,81	31.210,32
8503-A	272	31.415,22	47.027,08	62.638,95
8504-A	146	65.635,80	97.991,66	130.347,52
8601-A	1.020	14.361,28	21.635,26	28.909,24
8601-C	1.118	20.471,51	30.425,30	40.379,09
8602-A	3.125	19.349,82	28.827,79	38.305,77
8602-C	2.961	26.009,20	39.091,84	52.174,47
8603-A	2.878	26.948,44	39.790,95	52.633,46
8603-C	2.182	35.132,45	53.329,84	71.527,23
8604-A	630	43.386,19	65.065,92	86.745,65
8604-C	332	44.576,08	68.499,20	92.422,32
8611-A	1.349	3.177,16	4.754,38	6.331,60
8612-A	1.879	6.322,15	9.318,88	12.315,60
8613-A	832	10.727,03	15.701,36	20.675,69
8614-A	394	13.792,43	20.500,44	27.208,44
8621-A	18.456	1.012,99	1.284,08	1.555,17
8621-C	64	18.037,17	27.579,56	37.121,96
8622-A	8.613	4.343,23	6.612,46	8.881,69
8622-C	289	24.951,51	38.017,38	51.083,26
8623-A	2.208	7.275,70	10.848,10	14.420,49
8623-C	234	23.239,17	35.658,46	48.077,76
8624-A	276	24.148,60	37.092,42	50.036,25
8624-C	65	14.615,60	22.716,59	30.817,59
8722-A	21	21.939,35	32.630,34	43.321,32
8723-A	18	111.131,56	173.082,64	235.033,72
8731-A	13	6.227,09	9.437,03	12.646,98
8732-A	23	21.594,41	31.707,83	41.821,24
8903-A	20	31.064,57	46.590,60	62.116,63
8904-A	17	68.071,32	101.757,16	135.443,01
8912-A	91	17.872,64	26.639,28	35.405,93
8913-A	96	30.439,91	46.005,99	61.572,06
8914-A	18	72.796,25	106.567,06	140.337,86
8922-A	47	13.904,87	20.916,86	27.928,86
8923-A	47	15.483,12	22.617,27	29.751,41
8931-A	62	5.703,34	8.408,99	11.114,64
8932-A	162	10.598,10	15.717,50	20.836,89
8933-A	63	16.682,44	23.984,83	31.287,22
8941-A	55	5.274,30	7.837,85	10.401,40

DRG-SOI	N obs	≤ Q3 + 3×IQR	≤ Q3 + 4,5×IQR	> Q3 + 4,5×IQR
8942-A	74	10.187,72	15.412,35	20.636,97
9101-A	31	14.969,09	20.656,48	26.343,87
9102-A	83	19.599,62	27.465,46	35.331,31
9103-A	154	27.496,07	39.187,19	50.878,31
9104-A	206	65.000,98	96.661,05	128.321,13
9112-A	133	15.768,67	22.177,15	28.585,63
9113-A	170	30.490,98	44.922,22	59.353,47
9114-A	177	61.365,68	92.176,60	122.987,52
9302-A	229	11.485,05	17.009,62	22.534,18
9303-A	179	15.496,02	22.666,00	29.835,99
9304-A	99	35.275,74	53.278,52	71.281,29
9312-A	80	10.012,55	14.402,65	18.792,76
9313-A	23	19.558,26	28.872,31	38.186,35
9501-A	1.197	6.313,83	9.241,55	12.169,27
9502-A	1.455	19.650,57	29.453,82	39.257,06
9503-A	1.471	32.169,69	46.868,62	61.567,56
9504-A	1.144	51.218,94	74.483,16	97.747,37
9511-A	98	7.406,11	10.768,30	14.130,49
9512-A	211	16.119,51	23.648,56	31.177,60
9513-A	202	24.334,72	34.578,47	44.822,22
9514-A	99	28.127,81	39.026,85	49.925,89
9521-A	1.041	5.160,94	7.617,02	10.073,11
9522-A	1.295	14.217,28	21.168,11	28.118,95
9523-A	943	22.174,91	32.243,93	42.312,95
9524-A	282	39.449,10	57.984,19	76.519,28
9550-A	158	7.434,39	11.539,76	15.645,12
9560-A	238	11.166,51	17.560,46	23.954,41
PAL--A	3.215	31.100,03	48.030,46	64.923,05
PAL--C	515	29.648,37	45.600,90	61.553,43
1644-A	1	43.317,42	60.691,94	78.066,45
5832-A	3	26.092,04	32.259,67	38.427,29
5834-A	2	202.060,32	292.473,83	382.887,34
8704-A	3	146.249,53	219.441,17	292.632,82
8712-A	2	22.156,04	32.722,02	43.288,01
8713-A	3	42.681,67	64.361,65	86.041,64
8714-A	4	146.249,53	219.441,17	292.632,82

APPENDIX 3.8 HANDLING SMALL CELL APR-DRG-SOI

Appendix 3.8 is an appendix to section 5.3.10 in the main text.

'Up hill' severity merging

Merging a 'lower' small cell SOI with the following one and even further 'up hill' until the base threshold of 10 is passed.

'Down hill' severity merging

Merging a 'higher' small cell SOI with the preceding one and even further 'down hill' until the base threshold of 10 is passed.

Collapsing severities

In some cases 'up hill' and/ or 'down hill' merging result in all SOI being collapsed in a 'no SOI' APR-DRG. Even after collapsing, some APR-DRGs do not reach the base threshold of 10 stays (absolute small cells). Fortunately their number is restricted in the Belgian 2005 database (Table 3.35).

Table 3.35: 'Absolute' small cell APR-DRG-SOI

APR-DRG	SOI	Stays
164	4	1
583	2	3
583	4	2
870	4	3
871	2	2
871	3	3
871	4	4

In those cases a method of 'apparentage' was applied: each of them was 'bundled' with similar APR-DRGs of equal SOI. Similarity was judged by clinical rationale. APR-DRG-SOI 164-1 for example was 'mated' with all other APR-DRGs containing coronary bypass procedures (discarding heart valve and other cardiovascular procedures - see Table 3.36).

Table 3.36: 'Apparentage' for APR-DRG-SOI 164-4

APR-DRG	APR-DRG_label	MDC	Stays	Discarded
160-4	Major cardiothoracic repair of heart anomaly	5-P	98	1
161-4	Cardiac defibrillator implant	5-P	82	1
162-4	Cardiac valve procedures with cardiac catheterization	5-P	386	1
163-4	Cardiac valve procedures w/o cardiac catheterization	5-P	893	1
164-4	**Coronary bypass with malfunctioning coronary bypass graft**	**5-P**	**1**	**0**
165-4	**Coronary bypass w/o malfunctioning coronary bypass w. cardiac cath**	**5-P**	**678**	**0**
166-4	**Coronary bypass w/o malfunctioning coronary bypass w/o cardiac cath**	**5-P**	**718**	**0**
167-4	Other cardiothoracic procedures	5-P	112	1
168-4	Major thoracic vascular procedures	5-P	673	1
169-4	Major abdominal vascular procedures	5-P	210	1

'Apparentage' for APR-DRG 870-4, 871-2, 871-3 and 871-4 (all HIV related) is presented in Table 3.37.

Table 3.37: 'Apparentage' for HIV APR-DRGs 870 and 871

APrDRG	sev	Stays	Grouping
871	2	2	
872	2	16	**33**
873	2	15	
871	3	3	
872	3	8	**19**
873	3	8	
870	4	3	
871	4	4	**17**
872	4	10	

For APR-DRG 583 (neonate with ECMO-SOI 2 and 4) 'apparentage' proved refutable, due to its high specificity and high mortality (overall mortality rate of 27.5% in scientific publications and 4/5 in Belgian linked data 2005 – see Table 3.38). Hence, given the extreme variability in the billing amounts, a mean price was calculated.

Table 3.38: In-hospital mortality and invoiced LOS for APR-DRG 583

APR-DRG	Label	SOI	Hospital mortality	Invoiced LOS
583	583-Neonate, w ECMO/15-P	2	1	5
583	583-Neonate, w ECMO/15-P	2	1	7
583	583-Neonate, w ECMO/15-P	2	1	5
583	583-Neonate, w ECMO/15-P	4	0	78
583	583-Neonate, w ECMO/15-P	4	1	8

No data APR-DRG

When introducing an all-inclusive case-base reimbursement system, zero stay cells will have to be taken into account since these may change from year to year. Possible solutions are applying the apparentage principle with prices from allied APR-DRG-SOIs or taking prices from previous years (taking into account tariff adjustments).

APPENDIX 3.9 RELEVANCE OF SUB-GROUPING

Appendix 3.9 is an appendix to section 5.3.11 in the main text.

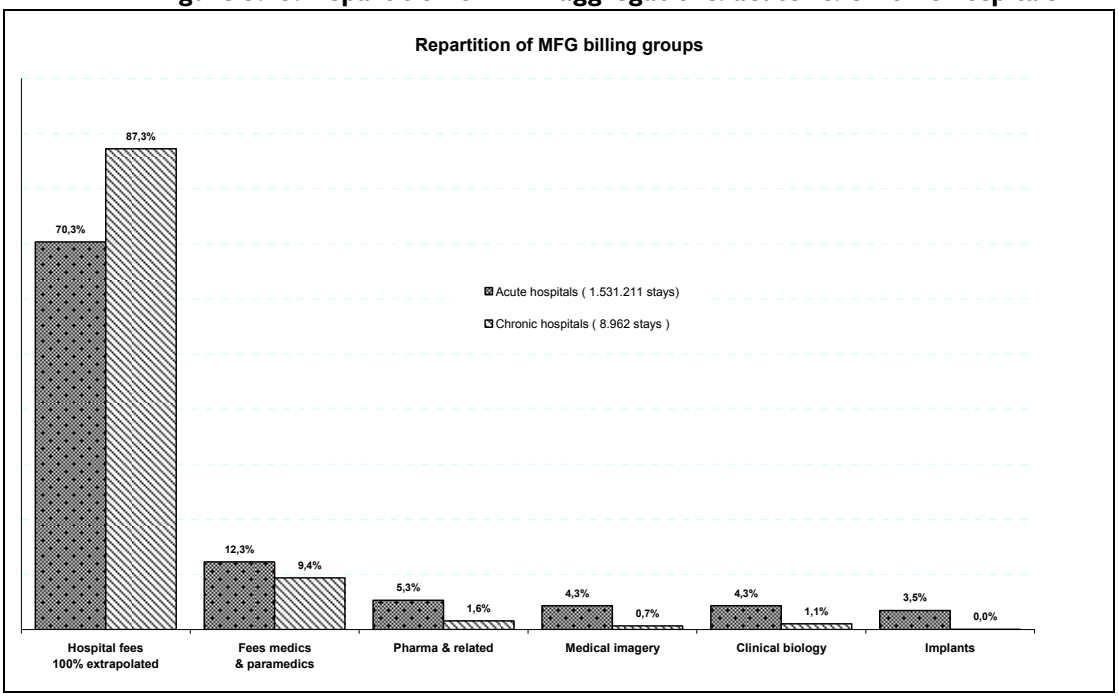
Acute versus chronic hospitals

Extrapolated NIHDI reimbursements for billing codes in Figure 3.24 were compared between acute and chronic hospitals (type G or Sp) (Figure 3.25).

Figure 3.24: Aggregations of NIHDI (extrapolated) billing codes

1. Hospital fees
    a. remunerations for stay days (N87 - 100% extrapolated)
    b. remunerations for hospital guard duties ($N00_{perm}$)
2. Pharmacy
    a. remunerations for pharmaceutical prescriptions
    b. blood & derivates (N86)
    c. radio-isotopes, diagnostic and therapeutical use (N48)
3. Medical & paramedical fees :
    $N00_{toez}$; N01-N02; N04-N05;
    N10-N16; N18-N23; N25-N26;
    N28; N30; N32-N33; N40-N42;
    N45; N51; N54-N57; N59; N81
4. Clinical biology
    a. common biology (N08 and N60)
    b. in vitro radio-immune assays (N47)
    c. anatomopathology (N63)
    d. genetic examinations (N64)
5. Medical imaging
    a. röntgen, US (N50)
    b. scintigraphy and PET-scan (N46)
6. Implants, artheses & disposables
    N70-N80; N82-N83

Figure 3.25: Repartition of HBD aggregations: acute vs. chronic hospitals



In Figure 3.26 and 3.27 reimbursed amounts are given per MDC and type of hospitals.

Figure 3.26: Repartition of HBD aggregations: acute hospitals

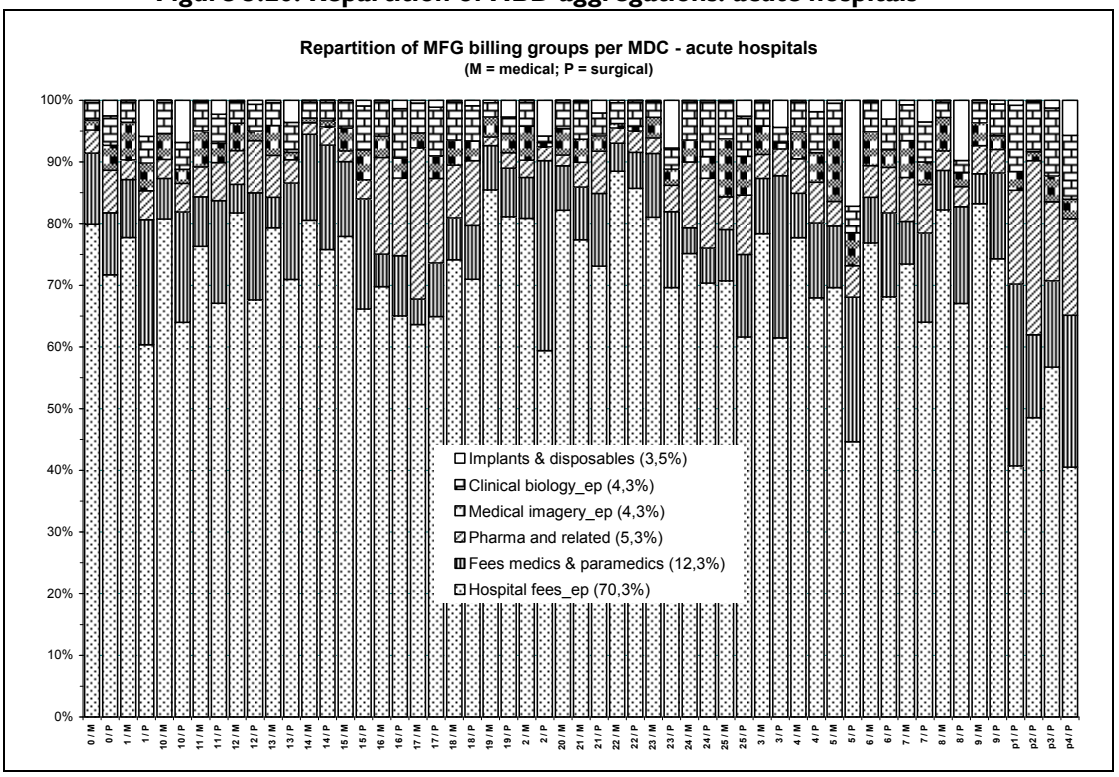


Figure 3.27: Repartition of HBD aggregations: chronic hospitals

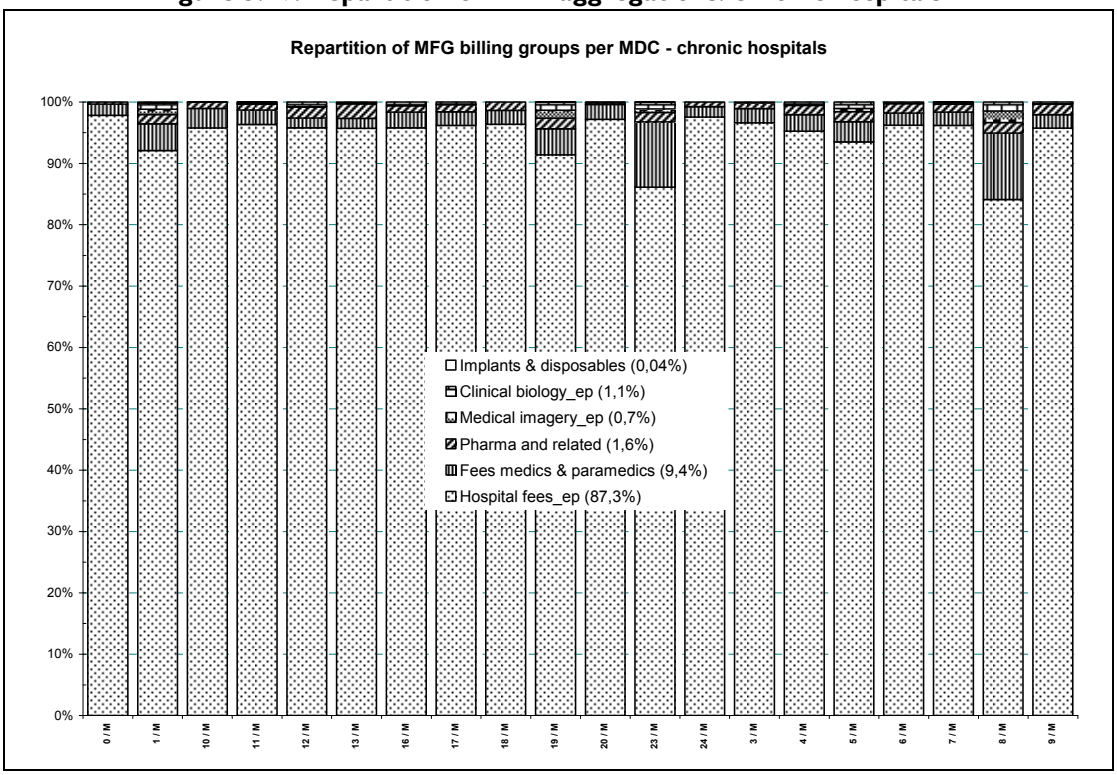
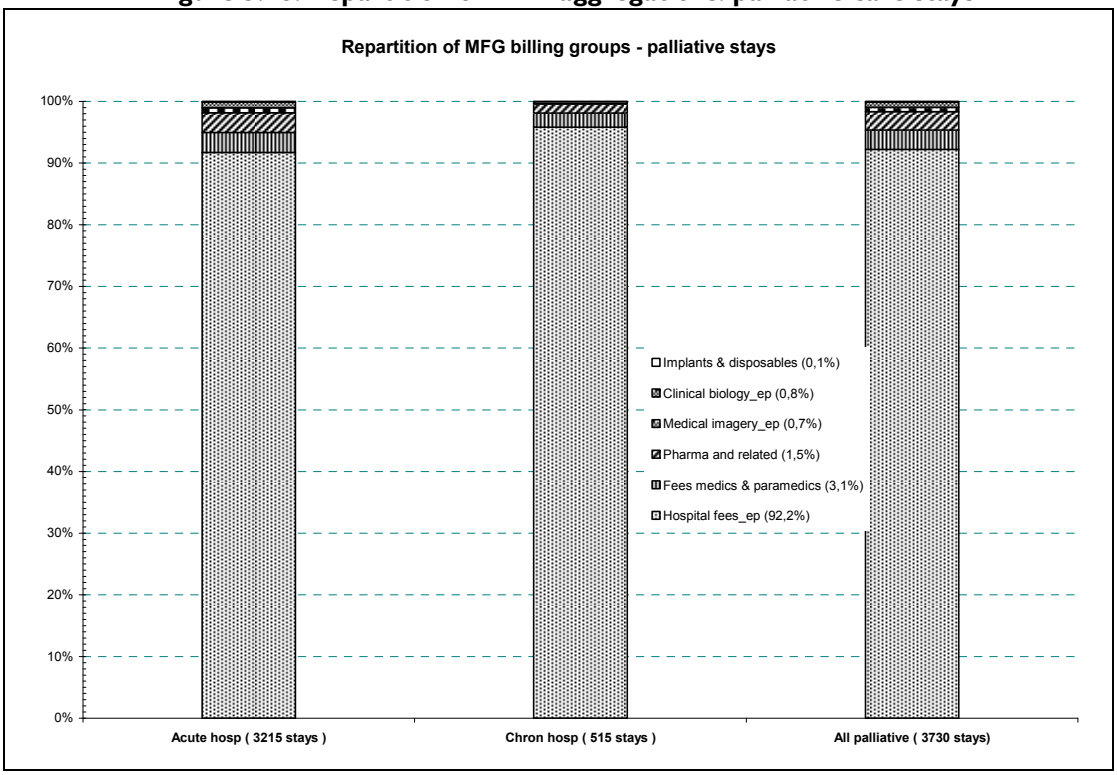


Figure 3.28 compares (extrapolated) reimbursed amounts for palliative stays in acute versus chronic hospitals.

Figure 3.28: Repartition of HBD aggregations: palliative care stays



The 8 962 stays in chronic hospitals (not palliative, N=515) mainly occur in 7 APR-DRGs (Table 3.39). Only SOIs with more than 50 stays were included.

Table 3.39: APR-DRGs in chronic versus acute hospitals

Stays	Type hosp			
APrDRG	A	C	Grand Total	APrDRG label
862	29.553	652	30.205	OTHER FACTORS INFLUENCING HEALTH STATUS
860	7.653	6.593	14.246	REHABILITATION
042	9.541	461	10.002	DEGENERATIVE NERVOUS SYSTEM DISORDERS
058	8.535	174	8.709	OTHER DISORDERS OF NERVOUS SYSTEM
757	5.430	298	5.728	ORGANIC DISTURBANCES & MENTAL RETARDATION
351	3.478	483	3.961	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES
043	1.837	191	2.028	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA
Grand Total	66.027	8.852	74.879	
% of total	88,18%	11,82%		

Comparing mean reimbursements between APR-DRG-SOIs in chronic hospitals (label C) with the mean amounts for the same APR-DRG-SOIs in acute hospitals (label A) gave statistically significant differences for the majority of the APR-DRG-SOIs (Table 3.40).

Table 3.40: Descriptive statistics of APR-DRG-SOIs in chronic vs. acute hospitals

DRG×SOI	ID_DRGsub	N_obs	Mean	Q2	Lo99%CI mean	Up99%CI mean	CV	p<0,01	Lo95%CI mean	Up95%CI mean	p<0,05
0421	0421-A	1.900	3.280,08	2.346,41	3.070,30	3.489,87	108,12	1	3.120,51	3.439,65	1
0421	0421-C	80	9.285,89	6.200,53	6.361,45	12.210,33	106,72		7.080,57	11.491,21	
0422	0422-A	4.906	5.183,29	4.175,59	5.026,82	5.339,77	82,06	1	5.064,25	5.302,34	1
0422	0422-C	248	10.259,36	8.196,84	9.002,58	11.516,14	74,32		9.305,78	11.212,94	
0423	0423-A	2.735	7.965,47	6.634,06	7.684,48	8.246,47	71,57	1	7.751,72	8.179,23	1
0423	0423-C	133	11.286,36	9.614,84	9.452,49	13.120,22	71,70		9.898,39	12.674,32	
0431	0431-A	1.123	2.037,30	1.816,07	1.928,91	2.145,69	69,10	1	1.954,88	2.119,73	1
0431	0431-C	95	11.997,05	6.709,85	8.104,38	15.889,73	120,29		9.057,32	14.936,79	
0432	0432-A	714	3.132,80	2.628,04	2.906,51	3.359,08	74,73	1	2.960,78	3.304,81	1
0432	0432-C	96	14.466,47	7.629,56	10.639,14	18.293,81	98,62		11.575,85	17.357,09	
0582	0582-A	6.989	1.542,96	682,45	1.476,21	1.609,71	140,36	1	1.492,18	1.593,74	1
0582	0582-C	99	9.963,44	8.041,39	7.978,47	11.948,42	75,46		8.463,93	11.462,95	
0583	0583-A	1.546	5.003,90	4.063,21	4.715,48	5.292,33	87,88	1	4.784,54	5.223,27	1
0583	0583-C	75	11.808,16	8.865,49	8.916,38	14.699,94	80,22		9.628,82	13.987,51	
3511	3511-A	1.823	1.623,41	1.156,84	1.522,32	1.724,50	103,11	1	1.546,51	1.700,30	1
3511	3511-C	80	7.847,56	6.786,22	6.372,20	9.322,93	63,71		6.734,99	8.960,14	
3512	3512-A	1.194	3.127,68	2.266,66	2.922,79	3.332,57	87,74	1	2.971,87	3.283,49	1
3512	3512-C	242	8.674,99	7.615,30	7.738,75	9.611,23	64,66		7.964,67	9.385,31	
3513	3513-A	461	6.420,82	5.408,76	5.837,03	7.004,60	75,47	1	5.977,28	6.864,35	1
3513	3513-C	161	10.087,22	8.935,30	8.931,45	11.242,99	55,77		9.211,65	10.962,79	
7571	7571-A	1.220	4.340,82	3.311,00	4.012,65	4.668,99	102,36	1	4.091,26	4.590,39	1
7571	7571-C	91	10.596,44	8.523,65	8.229,23	12.963,66	80,98		8.809,33	12.383,55	
7572	7572-A	2.670	5.685,76	4.655,76	5.465,11	5.906,40	77,79	1	5.517,91	5.853,60	1
7572	7572-C	127	11.203,37	9.237,74	9.364,76	13.041,98	70,71		9.812,17	12.594,56	
7573	7573-A	1.540	7.780,73	6.383,52	7.408,80	8.152,66	72,74	0	7.497,85	8.063,60	1
7573	7573-C	80	10.676,81	7.838,23	8.073,39	13.280,22	82,63		8.713,57	12.640,04	
8601	8601-A	1.020	5.646,83	4.159,19	5.226,52	6.067,14	92,12	1	5.327,23	5.966,42	1
8601	8601-C	1.118	8.297,45	6.311,64	7.754,40	8.840,51	84,81		7.884,50	8.710,41	
8602	8602-A	3.125	7.689,23	6.096,98	7.384,66	7.993,79	85,91	1	7.457,53	7.920,92	1
8602	8602-C	2.961	9.649,25	7.631,11	9.289,29	10.009,21	78,76		9.375,42	9.923,08	
8603	8603-A	2.878	11.070,76	9.031,78	10.671,54	11.469,97	75,05	1	10.767,06	11.374,45	1
8603	8603-C	2.182	12.461,64	9.586,64	11.876,24	13.047,03	85,11		12.016,35	12.906,92	
8604	8604-C	332	14.504,62	10.603,90	12.673,56	16.335,68	88,78	0	13.114,30	15.894,93	**0**
8604	8604-A	630	15.984,81	12.824,41	14.697,39	17.272,22	78,24		15.006,29	16.963,32	
8621	8621-A	18.456	867,86	574,99	850,64	885,08	104,65	1	854,76	880,96	1
8621	8621-C	64	6.779,96	4.341,83	4.295,14	9.264,78	110,38		4.910,51	8.649,40	
8622	8622-A	8.613	1.677,16	797,76	1.619,33	1.734,98	124,20	1	1.633,16	1.721,15	1
8622	8622-C	289	8.561,32	6.096,71	7.416,84	9.705,80	87,64		7.692,60	9.430,04	
8623	8623-A	2.208	3.295,03	2.276,22	3.103,85	3.486,21	105,75	1	3.149,60	3.440,46	1
8623	8623-C	234	7.511,88	6.420,06	6.418,13	8.605,63	85,76		6.682,14	8.341,61	
8624	8624-C	65	5.514,95	1.977,94	2.653,50	8.376,40	157,57	0	3.361,76	7.668,14	**0**
8624	8624-A	276	8.424,79	5.454,42	7.121,26	9.728,31	99,10		7.435,45	9.414,12	

Except for APR-DRG-SOI 860-4 and 862-4 (p>0.05), for the other 19 APR-DRG-SOIs a split in an acute and chronic hospitals and hence a separate case-based financing can be statistically justified (as is currently the case for the BFM).

Acute hospitals: stays in acute versus stays in chronic wards

A large number of acute hospitals combine acute and chronic wards (Sp-beds) (76/105 = 72.4% in 2005). As a consequence, in addition to acute stays (the majority), also purely chronic or mixed stays are possible (Table 3.41).

Table 3.41: Chronic or mixed stays in acute hospitals 2005

Data	Total
Acute hospitals with Sp	76
Stays with days in Sp (full Sp or partial Sp)	7 388
Pure acute stays	1 156 809

The combination of purely acute stays (N = 2 225) and purely chronic stays (N = 5 428) with a sufficient large number of stays in acute hospitals with chronic wards is particularly relevant for APR-DRG 860. Based on statistical analysis a split seems justified (Table 3.42).

Table 3.42: APR-DRG 860 in chronic versus acute wards

DRG-sub	N_obs	Mean	Std	Q1	Q2	Q3	Lo99%CI	Up99%CI	CV	p<0,01
8601a (*)	598	4.037,99	3.111,10	1.859,90	3.344,81	5.375,38	3.709,23	4.366,74	77,05	1
8601s (**)	422	7.926,66	6.548,07	3.614,23	6.042,79	9.545,92	7.101,86	8.751,45	82,61	
8602a	2.172	6.634,88	4.793,46	3.264,94	5.463,48	8.957,81	6.369,72	6.900,05	72,25	1
8602s	953	10.092,20	9.081,71	4.473,88	7.639,03	12.409,42	9.332,91	10.851,49	89,99	
8603a	2.191	10.061,86	6.797,15	5.399,36	8.489,19	13.244,07	9.687,49	10.436,24	67,55	1
8603s	687	14.288,35	11.332,74	6.046,23	11.384,90	19.147,80	13.171,53	15.405,17	79,31	
8604a	467	14.738,23	10.698,88	7.056,61	12.304,89	20.531,99	13.457,73	16.018,72	72,59	1
8604s	163	19.556,29	16.148,47	7.816,50	14.858,08	27.022,31	16.259,45	22.853,14	82,57	
(*) acute ward stays (**) chronic ward stays										

Palliative care stays

Palliative care stays are a special case of chronic stays. Table 3.43 shows the number of palliative care stays in acute hospitals. Stays were selected as palliative care stays if maximum 1 day was registered at a non-palliative care unit or if at least 90 percent of stay days were registered in the palliative care unit. Only palliative care stays in hospitals with a recognized palliative care unit were included because the linked MCD-HBD do not allow to identify palliative care stays in otherwise.

Table 3.43: Stays with palliative care in acute hospitals

APR-DRG	DRG label	Stays	Stay_days	% PAL stays
136	**Respiratory malignancy**	**478**	**11.044**	**14,9%**
240	**Digestive malignancy**	**408**	**9.533**	**12,7%**
281	**Malignancy of hepatobiliary system & pancreas**	**291**	**6.698**	**9,1%**
041	**Nervous system neoplasms**	**217**	**6.769**	**6,7%**
382	Malignant breast disorders	146	3.809	4,5%
343	Musculoskeletal & conn tiss malignancy & pathological fractures	125	3.566	3,9%
461	Kidney & urinary tract malignancy	112	2.259	3,5%
110	Ear, nose, mouth & throat malignancy	107	2.449	3,3%
530	Female reproductive system malignancy	107	2.497	3,3%
500	Malignancy, male reproductive system	89	2.630	2,8%
862	Other factors influencing health status	82	1.399	2,6%
691	Lymphoma & non-acute leukemia	68	1.514	2,1%
694	Other myeloprolif disorders & poorly diff neoplasm diagnosis	55	1.120	1,7%
042	Degenerative nervous system disorders	37	986	1,2%
139	Simple pneumonia	35	821	1,1%
140	Chronic obstructive pulmonary disease	35	701	1,1%
247	G.I. obstruction	33	915	1,0%
690	Acute leukemia	30	341	0,9%
194	Heart failure	26	518	0,8%
381	Major skin disorders	26	466	0,8%
045	CVA with infarct	25	462	0,8%
950	Extensive procedure unrelated to principal diagnosis	25	1.519	0,8%
720	Septicemia	24	453	0,7%
250	Other digestive system diagnoses	23	412	0,7%
663	Red blood cell disorders except sickle cell anemia crisis	22	366	0,7%
860	Rehabilitation	22	768	0,7%
197	Peripheral & other vascular disorders	20	308	0,6%
144	Respiratory system signs, symptoms & other diagnoses	20	341	0,6%
044	Intracranial hemorrhage	20	747	0,6%
137	Respiratory infections & inflammations	17	288	0,5%
422	Hypovolemia & electrolyte disorders	17	366	0,5%
693	Chemotherapy	17	522	0,5%
004	Tracheostomy except for face, mouth & neck diagnoses	16	1.105	0,5%
460	Renal failure	16	395	0,5%
280	Cirrhosis & alcoholic hepatitis	15	359	0,5%
058	Other disorders of nervous system	15	191	0,5%
660	Agranulocytosis & other neutropenia	13	175	0,4%
221	Major small & large bowel procedures	12	843	0,4%
052	Nontraumatic stupor & coma	12	214	0,4%
952	Nonextensive procedure unrelated to principal diagnosis	11	532	0,3%
133	Pulmonary edema & respiratory failure	10	119	0,3%
249	Nonbacterial gastroenteritis & abdominal pain	10	297	0,3%
	Rest (123 DRG)	326	10.282	10,1%

APR-DRG	DRG label	Stays	Stay_days	% PAL stays
	TOTAL	**3.215**	**81.099**	100%

43.4% of the selected palliative care stays fall into 4 APR-DRGs (136, 240, 281 en 041) which do no primarily reflect palliative care but the primary pathology (malignancy). Calculating mean NIHDI reimbursements for the purely palliative care stays in those 4 APR-DRGs as a separate "pseudo-DRG PAL" (without SOI levels) and comparing it with mean amounts when included in the registered APR-DRG-SOI, gives substantially larger values for the right trimmed mean in the pseudo-DRG (Table 3.44). Only APR-DRG-SOI 136-4, 240-4 and 041-4 have larger values.

Table 3.45: Mean and median prices for palliative stays versus prices in source APR-DRG-SOI – acute hospitals

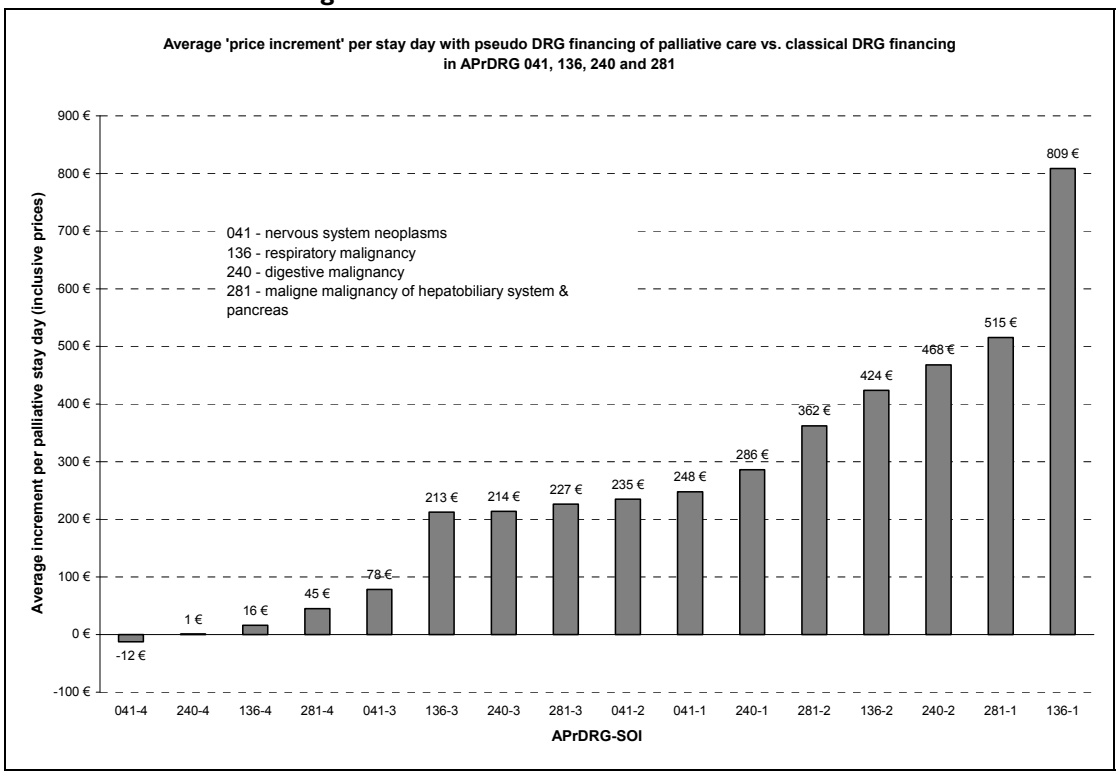
Palliative stays included in original APR-DRG-SOI			**Palliative stays separately calculated in pseudo-DRG PAL**		
DRG	**Mean_rt**	**Median price**	**DRG**	**Mean_rt**	**Median price**
240-1	1.821,37	1.777,97	240-1	1.797,18	1.750,06
136-1	1.823,10	1.722,90	136-1	1.817,44	1.700,86
281-1	1.884,24	2.763,30	281-1	1.866,51	1.650,06
136-2	2.625,76	2.421,82	136-2	2.560,69	2.360,03
240-2	2.637,51	2.451,50	240-2	2.575,95	2.418,20
041-1	2.673,38	2.597,87	041-1	2.640,98	2.537,31
281-2	3.048,31	4.096,74	281-2	2.997,69	2.680,13
041-2	3.779,48	3.662,93	041-2	3.683,52	3.507,45
240-3	4.582,12	4.112,03	240-3	4.429,74	3.957,62
136-3	4.624,19	4.137,31	136-3	4.527,93	4.050,11
281-3	4.645,25	7.885,88	281-3	4.566,66	4.008,70
041-3	6.835,65	6.263,14	041-3	6.718,41	6.171,16
281-4	8.198,07	8.236,10	281-4	8.048,23	7.505,68
PAL (pseudo)	-	-	PAL (pseudo)	8.312,75	6.734,51
136-4	8.661,15	8.312,65	136-4	8.603,21	8.292,61
240-4	9.166,02	8.385,48	240-4	8.851,49	8.171,86
041-4	10.025,81	9.079,66	041-4	9.654,05	8.962,59

Conversion to a price difference (=difference in reimbursements) per stay day (Table 3.45 and Figure 3.29) gives an idea about the current surplus financing of palliative care stays in a recognized palliative care unit.

Table 3.45: Average price increment per palliative stay day with pseudo-DRG financing

DRG-SOI	Stay count	Pseudo DRG total (A)	Source DRG total (B)	Difference A – B	Stay days C	NIHDI cost increment per stay day (€) (A-B)/C
041-4	17	186.537	194.785	-8.248	666	-12
240-4	43	471.828	470.351	1.478	1.629	1
136-4	26	285.292	267.610	17.682	1.098	16
281-4	30	329.183	279.844	49.338	1.091	45
041-3	83	910.739	680.919	229.819	2.935	78
136-3	239	2.622.488	1.309.620	1.312.869	6.173	213
240-3	199	2.183.578	1.123.005	1.060.573	4.959	214
281-3	136	1.492.295	777.131	715.163	3.156	227
041-2	96	1.053.384	456.397	596.987	2.541	235
041-1	21	230.428	75.077	155.351	627	248
240-1	15	164.591	34.120	130.471	456	286
281-2	111	1.217.976	413.582	804.393	2.221	362
136-2	206	2.260.387	693.470	1.566.917	3.697	424
240-2	151	1.656.886	491.765	1.165.121	2.489	468
281-1	14	153.619	35.060	118.559	230	515
136-1	7	76.809	15.343	61.467	76	809
Totals	1.394	15.509.121	7.318.081		34.044	241

Figure 3.29: Average price increment per palliative stay day with pseudo-DRG financing



Hence, acute hospitals receive larger NIHDI reimbursements for stays in the palliative care unit than hospitals without such a unit. The latter only receive 'normal' nursing day reimbursements. For chronic hospitals the opposite holds. Except for the rather rare APR-DRG-SOI 042-1 (N=80), 043-3 (N=26), 757-3 (N=80), 757-1 (N= 91) and 058-3 (N=75), chronic hospitals receive a higher reimbursement for palliative care stays as registered in the original APR-DRG-SOI (Table 3.46).

Table 3.46: Mean and median prices for palliative stays versus prices in source APR-DRG-SOI – chronic hospitals

DRG-SOI	N_obs	Median	Mean	Outl_2_INCL	rt_Mean
0433-C	26	2.433,15	9.506,72	28.572,92	6.448,63
0421-C	80	6.200,53	9.285,89	26.633,19	7.243,94
7573-C	80	7.838,23	10.676,81	25.380,77	8.126,21
7571-C	91	8.523,65	10.596,44	25.835,56	8.995,90
0583-C	75	8.865,49	11.808,16	25.372,55	8.915,54
PAL--C	**315**	**7.147,58**	**10.052,72**	**38.803,67**	**9.090,18**
0422-C	248	8.196,84	10.259,36	26.215,22	9.244,56
0423-C	133	9.614,84	11.286,36	30.296,23	10.513,26
8603-C	2.182	9.586,64	12.461,64	35.132,45	10.838,93
0584-C	16	11.069,61	11.370,46	30.534,10	11.370,46
0432-C	96	7.629,56	14.466,47	45.508,12	12.182,22
0424-C	12	11.794,35	12.364,52	28.168,63	12.364,52

Reference amounts

The system of reference amounts, as explained in section 3.4.3.3, includes 32 APR-DRGs (20 surgical APR-DRGs grouped into 22 diagnostic groups and 12 medical APR-DRGs). For 3 APR-DRG's (302, 313, 513) a subgroup split was introduced to meet possible risks of clinical heterogeneity.

- Criteria for APR-DRG 302 = major joint & limb reattachment procedures of lower extremity except for trauma

a. Rules provided by the reference amounts:

APR-DRG 302 is split into 3 subgroups based on NIHDI-codes: 302a (Hip joint replacement – THP), 302b (Knee joint replacement – TKP) and a rest group which consists of all other orthopedic surgery of the thigh bone.

b. Clinical logic

Analysis of rest-group 302 reveals that some special subgroup-types can be distinguished, such as the revisions of hip and knee joint replacements. Hence, one additional subgroup was formed out of the rest group (Table 3.47).

- Criteria for APR-DRG 313 = knee & lower leg procedures except foot

a. Rules provided by the reference amounts:

APR-DRG 313 is split into 2 subgroups based on NIHDI-codes: 313a (arthroscopic meniscectomy) and a rest group which contains all other orthopedic surgery.

b. Clinical logic

Same analysis as for APR-DRG 302.

- Criteria for APR-DRG 513 = uterine & adnexa procedures for CA in situ & non malignancy

a. Rules provided by the reference amounts:

APRDRG 513 is split into 3 subgroups based on NIHDI-codes: 513a (abdominal hysterectomy), 513b (vaginal hysterectomy) and a rest group which contains all other gynecological surgery.

b. Clinical logic:

Same analysis as for APR-DRG 302.

Table 3.47: Sub-group definitions for APR-DRGs 302, 313 and 513

APR-DRG	SOI	Sub group	Definition
302	1	a	THP
302	1	b	TKP
302	1	e	Revision THP & TKP
302	1	z	Residual group
302	2	a	THP
302	2	b	TKP
302	2	e	Revision THP & TKP
302	2	z	Residual group
302	3	a	THP
302	3	b	TKP
302	3	e	Revision THP & TKP
302	3	z	Residual group
302	4	-	No sub grouping
313	1	a	Arthroscopic menisectomy
313	1	b	Interventions on cruciate ligaments
313	1	z	Other interventions on knee
313	2	a	Arthroscopic menisectomy
313	2	b (*)	Interventions on cruciate ligaments
313	2	z	Other interventions on knee
313	3	-	No sub grouping (small cells cut off)
313	4	-	No sub grouping (small cells cut off)
513	1	a	Abdominal hysterectomy
513	1	b	Vaginal hysterectomy
513	1	d	Laparoscopic hysterectomy
513	1	z	Rest group
513	2	a	Abdominal hysterectomy
513	2	b	Vaginal hysterectomy
513	2	d	Laparoscopic hysterectomy
513	2	z	Rest group
513	3	-	No sub grouping (small cells cut off)
513	4	-	No sub grouping (small cells cut off)
(*) only 19 stays in 2005			

For all sub-groups defined above descriptive statistics were calculated, along with 95% en 99% confidence intervals (Table 3.48).

Table 3.48: Confidence intervals for mean and coefficient of variation in APR-DRG sub-groups

DRG-SOI / sub DRG	N obs	Mean	Std	Lower 99% CI	Higher 99% CI	p<0.01 (*)	CV	Lower 95% CI	Higher 95% CI	p<0.05 (*)
302-1	14.373	4.115,48	871,58	4.096,75	4.134,21	-	**21,18**	4.101,23	4.129,73	-
3021-z	472	2.700,91	1.242,87	2.552,95	2.848,87	1	46,02	2.588,49	2.813,32	1
3021-a	6.907	3.753,04	513,91	3.737,11	3.768,98	1	**13,69**	3.740,92	3.765,16	1
3021-b	6.609	4.553,83	805,26	4.528,30	4.579,35	1	**17,68**	4.534,41	4.573,24	1
3021-e	385	4.827,04	1.411,08	4.640,87	5.013,20	1	29,23	4.685,64	4.968,43	1
302-2	12.498	4.388,24	1.394,33	4.356,11	4.420,37	-	**31,77**	4.363,79	4.412,68	-
3022-z	261	2.587,79	1.712,43	2.312,74	2.862,83	1	66,17	2.379,06	2.796,51	1
3022-a	5.680	3.995,91	1.108,30	3.958,02	4.033,81	1	**27,74**	3.967,09	4.024,74	1
3022-b	5.542	4.788,58	1.285,49	4.744,08	4.833,07	1	**26,84**	4.754,73	4.822,43	1
302-2e	*1.015*	*4.860,78*	*2.122,14*	*4.688,88*	*5.032,68*	***0***	43,66	*4.730,07*	*4.991,48*	***0***
302-3	2.773	5.347,82	4.461,58	5.129,44	5.566,21	-	**83,43**	5.181,69	5.513,96	-
302-3z	186	3.798,30	3.181,41	3.191,17	4.405,43	1	83,76	3.338,08	4.258,51	1
302-3a	906	4.700,64	1.453,22	4.576,01	4.825,26	1	**30,92**	4.605,88	4.795,39	1
302-3b	777	5.988,38	6.802,96	5.358,19	6.618,57	1	113,60	5.509,30	6.467,47	1
302-3e	*904*	*5.764,69*	*3.962,66*	*5.424,49*	*6.104,90*	***0***	68,74	*5.506,03*	*6.023,36*	***0***
313-1	17.328	975,34	471,72	966,10	984,57	-	**48,37**	968,31	982,36	-
313-1a	3.816	657,85	193,06	649,80	665,90	1	**29,35**	651,72	663,98	1
313-1b	4.119	1.074,22	261,79	1.063,71	1.084,73	1	**24,37**	1.066,22	1.082,22	1
313-1z	*9.393*	*1.060,96*	*559,25*	*1.046,09*	*1.075,82*	***0***	*52,71*	*1.049,64*	*1.072,27*	***0***
313-2	3.870	1.348,56	970,68	1.308,35	1.388,77	-	71,98	1.317,97	1.379,15	-
313-2a	892	737,50	414,21	701,70	773,30	1	**56,16**	710,28	764,72	1
313-2b	19	1.220,58	778,20	760,72	1.680,45	0	**63,76**	870,67	1.570,50	1
313-2z	*2.978*	*1.531,59*	*1.013,80*	*1.483,71*	*1.579,48*	***0***	*66,19*	*1.495,17*	*1.568,02*	***0***
513-1	16.991	1.141,15	353,11	1.134,17	1.148,13	-	**30,94**	1.135,84	1.146,46	-
513-1z	8.523	1.718,96	775,92	1.697,31	1.740,62	1	45,14	1.702,49	1.735,44	1
513-1b	4.011	2.497,76	636,02	2.471,88	2.523,64	1	**25,46**	2.478,08	2.517,45	1
513-1d	1.520	2.632,30	535,19	2.596,90	2.667,71	1	**20,33**	2.605,38	2.659,23	1
513-1a	2.937	2.944,48	656,91	2.913,24	2.975,73	1	**22,31**	2.920,72	2.968,25	1
513-2	4.781	1.330,87	504,55	1.312,07	1.349,68	-	**37,91**	1.316,57	1.345,18	-
513-2z	1.984	2.321,33	1.444,37	2.237,73	2.404,94	1	62,22	2.257,74	2.384,93	1
513-2d	443	2.921,13	835,51	2.818,44	3.023,83	1	**28,60**	2.843,12	2.999,15	1
513-2b	1.200	3.080,49	1.187,51	2.992,05	3.168,94	0	38,55	3.013,24	3.147,75	1
513-2a	1.154	3.355,52	992,81	3.280,12	3.430,93	1	**29,59**	3.298,18	3.412,87	1
(*) 1 = p<0.01 resp. p<0.05										

With four exceptions (subgroups 302-2e, 302-3e, 313-1z and 313-2z) results confirm statistical 'soundness' of our sub-group definitions with significant 99% CI (95% CI for 313-2b and 513-2b) and often substantial reduction of the coefficient of variation compared to the 'parent' (not split) APR-DRG.

APR-DRG sub-groups 302e (revision of THP or TKP) are interesting: SOI 1 reaches statistical significance (p<0.01), but this is not the case for SOI 2 and 3 (4 being excluded because of small cell limits). This raises the question whether or not to abrogate the latter as a distinct sub-group.

From a statistical point of view such abrogation would seem logical in severities 2 and 3. However, from a strategic angle, we should consider the possibility of *'dumping'* of difficult revisions, by transferring such patients to 'more experienced' centres. With abrogated sub_groups 302e the latter would deal with 'heavier cases' at the same price of a primary THP or TKP.

Cancer versus no cancer

Criteria to mark a cancer (CA) with diagnostic and/or therapeutic involvement in MCD-HBD stay data are fourfold:

- principal diagnosis of the stay is a ICD-9-CM code for CA (MCD<stayxtra>);
- or at least one OP-room procedure or major non-OR procedure with registration of a relative diagnosis for a CA (MCD<procicd>; minor cancers, i.e. in situ CA and unaggressive skin CA, were excluded) ;
- or chemotherapy (based on ATC5-codes) in NIHDI billing records (HBD<pph>);
- or radiotherapy (HBD<prest>: N45 > 0 €).

Pre-assessment of raw data showed that in at least some APR-DRG-SOI a cancer condition could make a difference, in particular for surgical groups. For each entity having at least 500 stays with less then 75% and higher then 25% of them with involving cancer two sub groups were created:

- Sub-group a: cancer involved
- Sub-group b: no cancer involvement

Table 3.49 summarizes global stay counts in MCD-HBD for 2005, as well as the fractions with CA involvement.

Table 3.49: APR-DRG-SOI with important fraction involving cancer care (stay count > 500, CA fraction > 25% and < 75%)

DRG-SOI sub	Label APR-DRG / MDC	Stays_CA	Stays_all	Fraction_CA
510-2	**Pelvic evisceration, radical hysterectectomy & radical vulvectomy / 13-P**	**570**	**776**	**73,45%**
260-4	Pancreas, liver & shunt procedures / 7-P	397	585	67,86%
260-2	Pancreas, liver & shunt procedures / 7-P	346	517	66,92%
480-1	**Major male pelvic procedures / 12-P**	**1.828**	**2.749**	**66,50%**
694-2	**Other myeloprolif disorders & poorly diff neoplasm diagnosis / 17-M**	**427**	**644**	**66,30%**
260-3	Pancreas, liver & shunt procedures / 7-P	220	351	62,68%
694-3	Other myeloprolif disorders & poorly diff neoplasm diagnosis / 17-M	356	569	62,57%
221-3	**Major small & large bowel procedures / 6-P**	**2.886**	**4.907**	**58,81%**
484-1	**Other male reproductive system procedures / 12-P**	**614**	**1.106**	**55,52%**
121-2	Non-Major respiratory procedures / 4-P	895	1.626	55,04%
221-2	**Major small & large bowel procedures / 6-P**	**2.292**	**4.448**	**51,53%**
446-3	Urethral & transurethral procedures / 11-P	373	730	51,10%
361-2	Skin graft & wound debrid exc for skin ulcer & cellulitis / 9-P	425	832	51,08%
220-3	**Major stomach, esophageal & duodenal procedures / 6-P**	**602**	**1.193**	**50,46%**
510-1	**Pelvic evisceration, radical hysterectectomy & radical vulvectomy / 13-P**	**453**	**911**	**49,73%**
121-1	**Non-major respiratory procedures / 4-P**	**472**	**984**	**47,97%**
121-3	Non-major respiratory procedures / 4-P	417	912	45,72%
220-4	**Major stomach, esophageal & duodenal procedures / 6-P**	**339**	**759**	**44,66%**

DRG-SOI sub	Label APR-DRG / MDC	Stays_CA	Stays_all	Fraction_CA
518-1	Other female reproductive system procedures / 13-P	207	470	44,04%
221-4	Major small & large bowel procedures / 6-P	967	2.237	43,23%
229-2	Other digestive system procedures / 6-P	273	638	42,79%
446-1	Urethral & transurethral procedures / 11-P	3.497	8.232	42,48%
446-2	Urethral & transurethral procedures / 11-P	2.092	4.993	41,90%
361-1	Skin graft & wound debrid exc for skin ulcer & cellulitis / 9-P	907	2.265	40,04%
026-1	**Nervous syst proc for cranial nerv & oth nerv sys disord / 1-P**	**263**	**659**	**39,91%**
515-2	Vagina, cervix & vulva procedures / 13-P	148	373	39,68%
121-4	Non-major respiratory procedures / 4-P	183	479	38,20%
364-2	Other skin, subcutaneous tissue & breast procedures / 9-P	510	1.419	35,94%
517-2	D&c & conization / 13-P	168	513	32,75%
229-3	Other digestive system procedures / 6-P	132	406	32,51%
021-3	Craniotomy except for trauma / 1-P	230	732	31,42%
021-2	Craniotomy except for trauma / 1-P	417	1.336	31,21%
309-2	Hip & femur procedures except major joint for nontrauma / 8-P	192	647	29,68%
221-1	**Major small & large bowel procedures / 6-P**	**546**	**1.967**	**27,76%**
094-2	Mouth procedures / 3-P	118	448	26,34%
424-3	**Other endocrine disorders / 10-M**	**164**	**627**	**26,16%**
517-1	D&c & conization / 13-P	358	1.393	25,70%
482-3	Transurethral prostatectomy / 12-P	168	667	25,19%

Of those 38 APR-DRG-SOI sixteen (14 surgical and 2 medical) were selected for statistical analysis, along with 95% en 99% confidence intervals, and results are summarized in Table 3.50.

Table 3.50: Confidence intervals for mean and coefficient of variation in APR-DRG sub-groups

DRG-SOI / sub DRG	N obs	Mean	Std	Lower 99% CI	Higher 99% CI	p<0,01 (*)	CV	Lower 95% CI	Higher 95% CI	p<0,05 (*)
026-1b	396	3.219,95	3.535,27	2.760,12	3.679,78	1	109,79	2.870,69	3.569,22	1
026-1a	263	5.937,50	1.523,25	5.693,78	6.181,22		25,65	5.752,55	6.122,45	
094-2b	330	1.839,59	1.520,76	1.622,69	2.056,48	1	82,67	1.674,90	2.004,27	1
094-2a	118	3.898,13	3.671,99	3.012,99	4.783,28		94,20	3.228,67	4.567,59	
121-1a	472	2.816,54	2.424,10	2.527,96	3.105,11	1	86,07	2.597,29	3.035,79	1
121-1b	512	3.430,38	2.328,20	3.164,35	3.696,41		67,87	3.228,24	3.632,53	
220-3b	591	8.000,88	5.139,26	7.454,58	8.547,18	1	64,23	7.585,69	8.416,07	1
220-3a	602	11.982,62	5.458,07	11.407,79	12.557,45		45,55	11.545,74	12.419,50	
220-4b	420	20.768,63	15.313,44	18.835,11	22.702,14	1	73,73	19.299,86	22.237,39	1
220-4a	339	26.068,62	18.591,94	23.452,84	28.684,39		71,32	24.082,38	28.054,85	
221-1b	1.421	4.991,15	1.858,01	4.864,02	5.118,28	1	37,23	4.894,46	5.087,84	1
221-1a	546	6.177,68	2.334,96	5.919,38	6.435,98		37,80	5.981,39	6.373,97	
221-2b	2.156	6.346,12	2.813,67	6.189,90	6.502,35	1	44,34	6.227,29	6.464,96	1
221-2a	2.292	7.401,93	2.913,72	7.245,03	7.558,83		39,36	7.282,58	7.521,28	
221-3b	2.021	9.356,69	5.511,04	9.040,63	9.672,76	1	58,90	9.116,28	9.597,11	1
221-3a	2.886	10.156,15	5.178,47	9.907,69	10.404,62		50,99	9.967,14	10.345,16	

424-3a	164	3.824,66	5.019,23	2.803,15	4.846,18	1	131,23	3.050,74	4.598,59	1
424-3b	463	5.902,76	4.071,05	5.413,40	6.392,13		68,97	5.530,97	6.274,56	
480-1b	921	4.172,12	1.611,92	4.035,02	4.309,22	1	38,64	4.067,88	4.276,36	1
480-1a	1.828	4.805,05	1.111,03	4.738,04	4.872,06		23,12	4.754,08	4.856,02	
484-1a	614	936,66	903,21	842,48	1.030,84	1	96,43	865,08	1.008,24	1
484-1b	492	2.027,97	1.449,83	1.858,95	2.197,00		71,49	1.899,55	2.156,40	
510-1b	458	3.079,07	780,85	2.984,69	3.173,44	1	25,36	3.007,36	3.150,77	1
510-1a	453	4.583,85	1.391,03	4.414,79	4.752,91		30,35	4.455,41	4.712,29	
510-2b	206	3.952,95	1.859,26	3.616,14	4.289,76	1	47,03	3.697,55	4.208,35	1
510-2a	570	5.733,03	2.433,02	5.469,65	5.996,41		42,44	5.532,87	5.933,19	
515-2b	225	1.677,09	1.521,13	1.413,64	1.940,55	1	90,70	1.477,26	1.876,93	1
515-2a	148	3.104,56	2.410,45	2.587,49	3.621,64		77,64	2.713,00	3.496,13	
518-1b	263	1.753,50	1.237,70	1.555,48	1.951,53	1	70,58	1.603,23	1.903,78	1
518-1a	207	2.821,22	1.381,94	2.571,49	3.070,94		48,98	2.631,85	3.010,59	
694-2b	217	2.615,66	2.344,31	2.202,09	3.029,24	1	89,63	2.301,99	2.929,34	1
694-2a	427	3.935,91	5.325,02	3.269,15	4.602,68		135,29	3.429,40	4.442,43	
(*) 1 = p <0,01 resp. p<0,05										

We find in all of those 16 APR-DRG-SOIs a statistical significant ($p<0.01$) difference between paired sub-groups.

Renal dialysis vs. no dialysis

NIHDI nomenclature codes concerning chronic renal dialysis (either haemodialysis or peritoneal dialysis) are summarized in Table 3.51.

Table 3.51: NIHDI codes for renal dialysis reimbursements

N-group	NIHDI code	Labels
N81	470400	Installation and supervision of starting peritoneal dialysis, inclusive catether placements, first day
N81	470422	Installation and supervision of starting peritoneal dialysis, inclusive catether placements, following days, per diem; maximum 6 weeks
N81	470385	Intercurrent peritoneal dialysis in hospital for chronic renal failure with patient under peritoneal auto-dialysis, per diem
N81	470444	Peritoneal dialysis in hospital for chronic renal failure during teaching a patient for chronic peritoneal auto-dialysis, per diem; maximum 3 consecutive weeks
N81	470481	Extrarenal epuration for chronic renal failure in hospital, hemodialysis or intermittent hemofiltration
N81	474725	Extrarenal epuration for chronic renal failure in hospital, hemodialysis or intermittent hemofiltration, child < 14 yr
N81	761283	Lump sum for renal dialysis, other cases, per diem
N81	761526	Lump sum for renal dialysis in auto-dialysis centre

For each APR-DRG having at least 100 stays with at least 20% of them involving renal dialysis billing amounts two sub-groups were created:

- Sub-group a: renal dialysis involved
- Sub-group b: no renal dialysis involved

Table 3.52 summarizes global stay counts in linked MCD-HBD for 2005, as well as the fractions with renal dialysis.

Table 3.52: APR-DRG-SOI with important fraction involving renal dialysis (stay count > 200 and dialysis fraction > 20%)

ID_DRG	Label APR-DRG	All stays	Stays wo dialysis	Fraction dialysis
4442-A	**444-create, revise, remove renal access device**	**230**	**57**	**75,22%**
4473-A	**447-other kidney & urinary tract procedures**	**485**	**288**	**40,62%**
2064-A	206-malfunction, reaction & comp of cardiac or vasc device or proc	231	147	36,36%
4683-A	468-other kidney & urinary tract diagnoses	962	641	33,37%
4472-A	447-other kidney & urinary tract procedures	1.136	765	32,66%
4603-A	**460-renal failure**	**2.357**	**1.647**	**30,12%**
4663-A	466-malfunctions, reactions & comp of gu device, graft or transplant	462	332	28,14%
1803-A	180-other circulatory system procedures	280	206	26,43%
2063-A	206-malfunction, reaction & comp of cardiac or vasc device or proc	346	263	23,99%
4604-A	460-renal failure	693	527	23,95%
4471-A	447-other kidney & urinary tract procedures	584	451	22,77%
1634-A	163-cardiac valve procedures w/o cardiac catheterization	893	692	22,51%
1802-A	**180-other circulatory system procedures**	**370**	**288**	**22,16%**
2062-A	206-malfunction, reaction & comp of cardiac or vasc device or proc	499	394	21,04%
1624-A	162-cardiac valve procedures w cardiac catheterization	386	305	20,98%

Four out of those 15 were selected for sub-group price calculations (2 'high', 1 'middle' and 1 'low' dialysis fraction). Descriptive statistics are summarized in Table 3.53.

Table 3.53: Confidence intervals for mean and coefficient of variation in APR-DRG sub-groups

DRG-SOI / sub DRG	N obs	Mean	Std	Lower 99% CI	Higher 99% CI	p<0,01 (*)	CV	Lower 95% CI	Higher 95% CI	p<0,05 (*)
180-2	370	4.408,93	3.757,31	3.903,17	4.914,69	-	85,22	4.024,82	4.793,03	-
180-2a	82	2.728,32	1.702,26	2.232,44	3.224,20	1	**62,39**	2.354,30	3.102,35	1
180-2b	288	4.887,43	4.036,87	4.270,61	5.504,26	1	82,60	4.419,23	5.355,63	1
444-2	**230**	**2.794,44**	**2.363,56**	**2.389,62**	**3.199,25**	**-**	**84,58**	**2.487,36**	**3.101,52**	**-**
444-2b	57	1.394,69	515,89	1.212,48	1.576,89	1	**36,99**	1.257,80	1.531,57	1
444-2a	173	3.255,63	2.547,13	2.751,21	3.760,04	1	**78,24**	2.873,38	3.637,87	1
447-3	485	8.010,34	9.938,36	6.843,33	9.177,36	-	124,07	7.123,64	8.897,05	-
447-3b	288	6.664,64	7.570,32	5.507,91	7.821,37	0	113,59	5.786,63	7.542,66	1
447-3a	197	9.977,66	12.386,88	7.682,07	12.273,24	0	124,15	8.237,19	11.718,13	1
460-3	2.357	5.935,77	4.503,92	5.696,61	6.174,92	-	75,88	5.753,85	6.117,69	-
460-3a	1.647	5.901,91	4.047,88	5.644,69	6.159,13	0	**68,59**	5.706,42	6.097,40	**0**
460-3b	710	6.014,31	5.418,41	5.489,11	6.539,52	0	90,09	5.615,76	6.412,87	**0**
(*) 1 = p<0.01 resp. <0,05										

APR-DRG-SOI 180-1 (p<0.01), 444-2 (p<0.01) and 447-3 (p<0.05) sub-grouping proved to be statistically significant. This was not the case for APR-DRG-SOI 460-3 (p>0.05).

An intriguing case is APR-DRG-SOI 180-2 where the price parameters for sub-group a (dialysis) turn out to be lower than those for sub-group b (no dialysis). From the clinical background, however, this is explicable, since the former constitutes a particular sub-group of vascular access procedures for haemodialysis, procedures that usually are less invasive, whereas the latter contains all other sorts of vascular (and other) interventions (being in fact clinically quite heterogeneous - see Table 3.54).

Table 3.54: Frequency table of ICD-9-CM procedure codes in APR-DRG 180-2

DRG - sub	ICD-9-P	Label	Stay counts
1802a-A	3995	Hemodialysis	95
1802a-A	3942	Revision of arteriovenous shunt for renal dialysis	45
1802a-A	3927	Arteriovenostomy for renal dialysis	23
1802a-A	3895	Venous catheterization for renal dialysis	15
1802a-A	5498	Peritoneal dialysis	13
1802a-A	3943	Removal of arteriovenous shunt for renal dialysis	7
1802a-A	5493	Creation of cutaneoperitoneal fistula	6
1802a-A	3893	Venous catheterization, not elsewhere classified	3
1802a-A	8607	Insertion of totally implantable vascular access device [vad]	3
1802a-A	3993	Insertion of vessel-to-vessel cannula	3
1802a-A	8606	Insertion of totally implantable infusion pump	2
1802a-A	529	Other sympathectomy and ganglionectomy	1
1802b-A	8622	Excisional debridement of wound, infection, or burn	120
1802b-A	523	Lumbar sympathectomy	57
1802b-A	8669	Other skin graft to other sites	18
1802b-A	3942	Revision of arteriovenous shunt for renal dialysis	16
1802b-A	8848	Arteriography of femoral and other lower extremity arteries	13
1802b-A	863	Reconstruction of eyelid with hair follicle graft	12
1802b-A	3927	Arteriovenostomy for renal dialysis	10
1802b-A	8663	Full-thickness skin graft to other sites	10
1802b-A	8660	Free skin graft, not otherwise specified	9
1802b-A	8666	Homograft to skin	8
1802b-A	3943	Removal of arteriovenous shunt for renal dialysis	8
1802b-A	8853	Angiocardiography of left heart structures	8
1802b-A	8670	Pedicle or flap graft, not otherwise specified	6
1802b-A	8659	Closure of skin and subcutaneous tissue of other sites	6
1802b-A	8659	Closure of skin and subcutaneous tissue of other sites	6
1802b-A	8856	Coronary arteriography using two catheters	6
1802b-A	8691	Excision of skin for graft	5
1802b-A	8842	Aortography	5
1802b-A	529	Other sympathectomy and ganglionectomy	5
1802b-A	3722	Left heart cardiac catheterization	5
1802b-A	5411	Exploratory laparotomy	4
1802b-A	3998	Control of hemorrhage, not otherwise specified	4
1802b-A	8674	Attachment of pedicle or flap graft to other sites	4
1802b-A	3995	Hemodialysis	3
1802b-A	415	Total splenectomy	3
1802b-A	8628	Nonexcisional debridement of wound, infection or burn	3
1802b-A	3895	Venous catheterization for renal dialysis	3
1802b-A	4024	Excision of inguinal lymph node	2
1802b-A	3422	Mediastinoscopy	2
1802b-A	3421	Transpleural thoracoscopy	2
1802b-A	4029	Simple excision of other lymphatic structure	2
1802b-A	3328	Open biopsy of lung	2
1802b-A	3723	Combined right and left heart cardiac catheterization	2
1802b-A	8849	Arteriography of other specified sites	2
1802b-A	8607	Insertion of totally implantable vascular access device [vad]	2
1802b-A	9671	Continuous mechanical ventilation for less than 96 consecutive hours	2
1802b-A	8857	Other and unspecified coronary arteriography	2
1802b-A	5419	Other laparotomy	2
1802b-A	522	Cervical sympathectomy	1
1802b-A	2104	Control of epistaxis by ligation of ethmoidal arteries	1
1802b-A	8862	Phlebography of pulmonary veins using contrast material	1
1802b-A	8855	Coronary arteriography using a single catheter	1
1802b-A	8851	Angiocardiography of venae cavae	1
1802b-A	8605	Incision with removal of foreign body from skin and subcutaneous tissue	1
1802b-A	9672	Continuous mechanical ventilation for 96 consecutive hours or more	1
1802b-A	9910	Injection or infusion of thrombolytic agent	1
1802b-A	8843	Arteriography of pulmonary arteries	1
1802b-A	6551	Other removal of both ovaries at same operative episode	1

DRG - sub	ICD-9-P	Label	Stay counts
1802b-A	6449	Other repair of penis	1
1802b-A	5902	Other lysis of perirenal or periureteral adhesions	1
1802b-A	5719	Other cystotomy	1
1802b-A	684	Total abdominal hysterectomy	1
1802b-A	5122	Cholecystectomy	1
1802b-A	5421	Laparoscopy	1
1802b-A	6551	Other removal of both ovaries at same operative episode	1
1802b-A	253	Complete glossectomy	1
1802b-A	7791	Tot chest cage ostectomy	1
1802b-A	7787	Part ostect-tibia-fibula	1
1802b-A	7769	Loc exc bone lesion nec	1
1802b-A	8667	Dermal regenerative graft	1

High age as a sub-group criterion

We also looked at high age (> 75 year) as a potential discriminator for APR-DRG sub-grouping. Due to the high incidence of patient stays > 75 year in different APR-DRG-SOI groups (n = 1 110 in acute stays), strict criteria were applied for selection: only APR-DRG-SOIs with more than 500 stays globally, more than 150 stays in age group > 75 year and having a high age fraction greater than 35% were examined. APR-DRG-SOIs 861, 950, 952, 955 and 956 and those having had a sub-grouping for other parameters were discarded.

For the remaining entities (18 APR-DRG-SOI) two sub-goups were created:

- Sub-group h: high age group (> 75 yr)
- Sub-group l: lower age group (≤ 75 yr).

Descriptive statistics are summarized in Table 3.55.

Table 3.55: Confidence intervals for mean and coefficient of variation in APR-DRG sub-groups

DRG-SOI / sub DRG	N obs	Mean	Std	Lower 99% CI	Higher 99% CI	p<0,01 (*)	CV	Lower 95% CI	Higher 95% CI	p<0,05 (*)
042-2	4.906	4.253,27	5.183,29	5.026,82	5.339,77	-	82,06	5.064,25	5.302,34	-
042-2h	3.235	5.799,43	5.799,43	5.592,73	6.006,13		78,65	5.642,19	5.956,68	
						l				l
042-2l	1.671	3.990,46	3.990,46	3.784,29	4.196,64		81,90	3.833,65	4.147,28	
045-2	5.926	4.776,46	4.776,46	4.672,51	4.880,41	-	65,02	4.697,37	4.855,55	-
045-2h	3.037	5.141,59	5.141,59	4.974,38	5.308,79		69,53	5.014,39	5.268,79	
						l				l
045-2l	2.889	4.392,63	4.392,63	4.274,53	4.510,73		**56,07**	4.302,79	4.482,47	
047-2	4.444	3.447,66	3.447,66	3.360,24	3.535,07	-	65,59	3.381,15	3.514,16	-
047-2h	2.536	3.741,96	3.741,96	3.611,15	3.872,77		68,29	3.642,45	3.841,47	
						l				l
047-2l	1.908	3.056,49	3.056,49	2.954,84	3.158,13		**56,34**	2.979,17	3.133,80	
194-2	7.199	3.943,37	3.943,37	3.862,12	4.024,62	-	67,85	3.881,55	4.005,19	-
194-2h	5.007	4.147,50	4.147,50	4.043,38	4.251,63		68,94	4.068,28	4.226,72	
						l				l
194-2l	2.192	3.477,09	3.477,09	3.359,94	3.594,24		61,19	3.387,98	3.566,20	
194-3	8.095	5.750,90	5.750,90	5.636,20	5.865,60	-	69,65	5.663,64	5.838,17	-
194-3h	5.973	5.980,41	5.980,41	5.839,61	6.121,21		70,62	5.873,29	6.087,53	
						l				l
194-3l	2.122	5.104,89	5.104,89	4.924,06	5.285,72		63,29	4.967,34	5.242,44	
198-2	2.642	2.425,67	2.425,67	2.331,40	2.519,94	-	77,50	2.353,95	2.497,38	-
198-2h	1.058	2.704,73	2.704,73	2.534,20	2.875,27		79,48	2.575,06	2.834,41	
						l				l
198-2l	1.584	2.239,27	2.239,27	2.132,34	2.346,20		73,69	2.157,94	2.320,60	
199-2	1.896	2.917,76	2.917,76	2.802,09	3.033,44	-	66,95	2.829,78	3.005,75	-
199-2h	743	3.400,05	3.400,05	3.172,31	3.627,79	l	70,70	3.226,92	3.573,17	l

DRG-SOI / sub DRG	N obs	Mean	Std	Lower 99% CI	Higher 99% CI	p<0,01 (*)	CV	Lower 95% CI	Higher 95% CI	p<0,05 (*)
199-2l	1.153	2.606,98	2.606,98	2.491,51	2.722,44		58,29	2.519,17	2.694,78	
200-2	626	2.799,35	2.799,35	2.578,74	3.019,97	-	76,32	2.631,67	2.967,03	-
200-2h	347	3.193,71	3.193,71	2.893,07	3.494,34		**67,70**	2.965,41	3.422,00	
200-2l	279	2.308,88	2.308,88	1.998,06	2.619,71	l	86,70	2.072,97	2.544,80	l
201-2	8.637	2.338,61	2.338,61	2.287,20	2.390,03	-	79,30	2.299,50	2.377,73	-
201-2h	4.224	2.777,11	2.777,11	2.691,98	2.862,23		77,31	2.712,35	2.841,87	
201-2l	4.413	1.918,90	1.918,90	1.864,59	1.973,21	l	72,97	1.877,58	1.960,22	l
202-2	2.498	2.263,39	2.263,39	2.180,05	2.346,74	-	71,39	2.200,00	2.326,79	-
202-2h	1.054	2.647,96	2.647,96	2.498,02	2.797,90		71,24	2.533,95	2.761,98	
202-2l	1.444	1.982,69	1.982,69	1.893,30	2.072,09	l	**66,43**	1.914,70	2.050,68	l
204-2	3.472	2.438,43	2.438,43	2.346,95	2.529,92	-	85,78	2.368,84	2.508,03	-
204-2h	1.790	2.857,97	2.857,97	2.705,83	3.010,10		87,34	2.742,25	2.973,68	
204-2l	1.682	1.991,96	1.991,96	1.902,70	2.081,22	l	**71,26**	1.924,07	2.059,85	l
301-2	1.926	7.936,23	7.936,23	7.765,90	8.106,56	-	36,53	7.806,67	8.065,79	-
301-2h	1.416	8.078,94	8.078,94	7.880,08	8.277,80		35,91	7.927,70	8.230,18	
301-2l	510	7.540,01	7.540,01	7.212,66	7.867,37	l	37,92	7.291,27	7.788,76	l
306-1	942	4.233,00	4.233,00	4.050,31	4.415,69	-	51,32	4.094,09	4.371,90	-
306-1h	333	5.032,97	5.032,97	4.715,06	5.350,87		**44,49**	4.791,58	5.274,35	
306-1l	609	3.795,57	3.795,57	3.585,53	4.005,62	l	52,85	3.635,93	3.955,21	l
308-2	3.211	6.811,59	6.811,59	6.627,96	6.995,23	-	59,27	6.671,89	6.951,29	-
308-2h	2.229	7.271,33	7.271,33	7.032,65	7.510,02		60,11	7.089,78	7.452,89	
308-2l	982	5.768,05	5.768,05	5.529,69	6.006,41	l	**50,18**	5.586,81	5.949,29	l
341-2	1.312	5.009,90	5.009,90	4.675,95	5.343,85	-	93,60	4.755,93	5.263,87	-
341-2h	839	5.627,32	5.627,32	5.155,82	6.098,82		94,01	5.268,85	5.985,78	
341-2l	473	3.914,73	3.914,73	3.547,99	4.281,47	l	**78,78**	3.636,09	4.193,37	l
343-2	2.675	4.908,71	4.908,71	4.726,17	5.091,24	-	74,61	4.769,85	5.047,56	-
343-2h	1.583	5.618,99	5.618,99	5.371,00	5.866,98		**68,09**	5.430,37	5.807,60	
343-2l	1.092	3.879,06	3.879,06	3.633,88	4.124,23	l	80,94	3.692,62	4.065,49	l
348-2	1.783	3.357,70	3.357,70	3.201,48	3.513,92	-	76,19	3.238,87	3.476,53	-
348-2h	936	3.871,97	3.871,97	3.632,29	4.111,66		73,37	3.689,73	4.054,22	
348-2l	847	2.789,39	2.789,39	2.606,54	2.972,24	l	73,90	2.650,37	2.928,40	l
757-2	2.670	5.685,76	5.685,76	5.465,11	5.906,40	-	77,79	5.517,91	5.853,60	-
757-2h	2.015	6.319,38	6.319,38	6.058,70	6.580,06		71,82	6.121,09	6.517,66	
757-2l	655	3.736,52	3.736,52	3.396,25	4.076,79	l	90,22	3.477,88	3.995,16	l
(*) l = p <0,01 resp. p<0,05										

All of the studied entities showed statistical significance (p<0.01) between paired sub-groups.

APPENDIX 3.10 DISTORTING PRICE COMPONENTS

Appendix 3.10 is an appendix to section 5.3.12 in the main text.

Above percentile 99 pharmaceuticals

It is common knowledge that some pharmaceuticals are highly expensive, especially in the field of modern chemotherapy, pituitary hormone analogues and hematology. We calculated mean package price in the HBD for all in-hospital pharmaceuticals reimbursed in 2005. Descriptive statistics on average prices were calculated (Table 3.56) and a P99 exclusion list was made (Table 3.57).

Table 3.56: Descriptive statistics pharmaceutical prices – HBD 2005

Measure	Value
Q1	0.77
Q2	5.68
Q3	53.49
Outlier	132.58
P99	1 291.86

Note the remarkable difference between the P99 value and the outlier type II threshold.

Table 3.57: P99 exclusion list for pharmaceuticals

NIHDI CNK	Belgian specialty name	ATC5	ATC label	Billing amounts (€)	Packages	Average price
772160	Osigraft	M05BC02	Eptotermin alfa	335 255	86	3 898.31
770800	Replagal	A16AB03	Agalsidase alfa	16 197	8	2 024.60
768903	Cerezyme 400 U	A16AB02	Imiglucerase	8 892	5	1 778.41
762096	Sandostatine long acting repeatable 30 mg	H01CB02	Octreotide	577 437	394	1 465.58
763169	Mabthera 500 mg	L01XC02	Rituximab	5 870 641	4 116	1 426.30
778159	Advate 1500 IU	B02BD02	Coagulation factor VIII	1 424	1	1 423.67
778589	Foscan 4 mg/ml	L01XD05	Temoporfin	22 260	16	1 391.25
778670	Paxene 300 mg	L01CD01	Paclitaxel	3 998	3	1 332.80
771915	Somatuline Autogel Injectable 120 mg	H01CB03	Lanreotide	593 162	450	1 318.14
776146	Taxol 6 mg/ml	L01CD01	Paclitaxel	569 234	433	1 314.63

P99 totals per stay were calculated for P99 exclusion price calculations (2 613 stays with pharmaceutical exclusions)

Above percentile 99 radio-isotopes

Remunerations for radio-isotopes (RI) are categorized in NIHDI group N48. Some of those products are rather cheap, others are very expensive In-hospital reimbursements per NIHDI code in 2005 per NIHDI code and per stay are summarized in Table 3.58.

Table 3.58: Average reimbursement per N48 NIHDI code and per stay

NIHDI code	Labels	Stays involved	Remuneration total	Average remuneration
698025	Radio-isotopes. therapeutic use : Phosphor 32 (P 32)	36	261 092	7 252.57
698526	Radio-isotopes. therapeutic use : Iodium 125	1 223	7 752 845	6 339.20
698143	Radio-isotopes. therapeutic use : marked molecules Na-Iodide I 125 solution	216	991 988	4 592.54
698482	Radio-isotopes. therapeutic use : samarium 153 in solution	114	244 060	2 140.87
698460	Radio-isotopes. therapeutic use : marked molecules Strontium 85 or 85 + 89. in solution or pouder	33	43 648	1 322.67
698062	Radio-isotopes. therapeutic use : Iridium 192. grains (Ir 192)	266	332 727	1 250.85
698386	Radio-isotopes. therapeutic use : I 131 marked Lipiodol U F	7	7 843	1 120.38
698121	Radio-isotopes. therapeutic use : Tantalium 182. Iridium 192 and Gold 198 thread	479	490 864	1 024.77
698364	Radio-isotope marked molecules : Met I 131 marked Lipiodol F	3	2 747	915.80
698106	Radio-isotopes. therapeutic use : Yttrium 90. grains. bullets and needles (Y 90)	8	6 350	793.76
699241	Radio-isotopes. diagnostic use : I 123for exploration of uncertain Parkinson syndrome	741	562 077	758.54
698040	Radio-isotopes. therapeutic use : Grains d'or Au ^{198}	1	397	396.93
698165	Radio-isotope marked molecules : Na-Iodide I^{131} solution	424	151 412	357.10
698261	Radio-isotope marked molecules. therapeutic use : Na-phosphate P ^{32} solution	3	674	224.73
698180	Radio-isotope marked molecules. therapeutic use : Na-Iodide I ^{131} capsules	1 824	406 208	222.70
698401	Radio-isotope marked molecules. therapeutic use : Yttrium ^{90} in suspension	88	16 519	187.72
699226	Radio-isotopen with low atomic mass. therapeutic use	7 740	1 345 081	173.78
698202	Radio-isotope marked molecules. therapeutic use : colloïdal Au ^{198} solution	1	61	60.97
699182	Radio-isotopes. diagnostic use : I ^{123} for exploration of bile duct atresia (pediatry)	30	1 624	54.13
699204	Radio-isotopes. diagnostic use : In ^{111}. Ga ^{67} and Tl ^{201}	14 403	771 211	53.55
699145	Radio-isotopes. diagnostic use : I ^{123} for thyroid exploration	608	30 166	49.61
699160	Radio-isotopes. diagnostic use : I ^{123} for exploration of bile duct atresia (pediatry)	2	98	49.21
699123	Radio-isotopes. diagnostic use : Short lived organic or anorganic generator eluates	237 155	10 535 423	44.42
699101	Radio-isotopes. diagnostic use : Organic molecules 'ready to use'	7 902	237 912	30.11
699086	Radio-isotopes. diagnostic use : Autologeous blood cells or plasma proteins. extracorporally marked with anorganic molecules	1 372	33 748	24.60
699064	Radio-isotopes. diagnostic use : Short lived organic or anorganic generator eluates	29 047	537 431	18.50
699042	Radio-isotopes. diagnostic use : Anorganic molecules 'ready to use'	1 353	13 064	9.66
699020	Radio-isotopes. diagnostic use : NaI ^{131} and NaI ^{125}	423	1 965	4.64

Since especially radio-isotopes for therapeutic use are expensive and therapeutic doses can widely differ, we decided to evaluate the stays reimbursement total for therapeutic RI - irrespective NIHDI code(s) billed - as a marker for P99 demarcation. Results are summarized in Table 3.59.

Table 3.59: N48 reimbursements per stay (HBD 2005)

Stays	13 182
Mean	857.45
St dev	1 872.26
Min	8.54
Q1	173.16
Median	173.16
Q3	346.32
Outlier	**606.06**
P99	**6 890.00**
Max	50 625.60
CV	218.35

All stays in 2005 having a N48 therapeutic total > P99 = € 6 890.00 (302 stays) were labelled for P99 exclusion price calculations.

Above percentile 99 blood products and derivates

Remunerations for blood products and derivates (and conserved human milk) are bundled in NIHDI group N86. Some of those products are cheap, others are very expensive. Results are summarized in Table 3.60.

Table 3.60: Average remuneration per N86 NIHDI code and per stay

NIHDI code	Labels	Stays involved	Remuneration total	Average remuneration
752404	Leucytes concentrate. per unit	167	127 104	761.10
752522	Deleucocyted thrombocytes concentrate from one donor. per unit; inclusive filter	18 617	12 549 032	674.06
752500	Deleucocyted thrombocytes concentrate. per unit; inclusive filter	36 925	18 532 081	501.88
752441	Fresh frozen plasma. virus inactivated. per unit	33 015	11 753 040	355.99
752463	Deleucocyted packed red cells (PRC) . type "adult". per unit	219 657	51 013 482	232.24
752146	Packed red cells (PRC) . type "adult". per unit	113 893	18 334 485	160.98
752124	Full human blood. per unit	447	61 394	137.35
752220	CMV negative PRC. per unit	1 325	175 281	132.29
752544	Erytrocytenconcentraat. autologeous. per unit	896	115 233	128.61
752426	Fresh frozen plasma for programmed autologeous transfusions. per unit	578	53 405	92.40
695063	Mother milk (in ml)	1 340	92 782	69.24
752485	Deleucocyted packed red cells (PRC) . type "neonate". per unit	4 942	239 000	48.36
752161	Packed red cells (PRC). type "neonate". per unit	219	8 720	39.82

Since multiple coding is frequent, especially for blood products and derivates (remuneration per unit), we decided to evaluate the stays remuneration total - irrespective NIHDI code(s) billed - as a marker for P99 demarcation (Table 3.61)

Table 3.61: N86 reimbursements per stay (HBD 2005)

Stays	108 347
Mean	458.83
Sd	1 130.55
Min	0.98
Q1	184.84
Median	184.84
Q3	369.68
P99	**4 448.27**
Max	78 387.68
CV	246.40

All stays (n = 1 224) having a N86 total > P99 = € 4 448.27 were labelled for P99 exclusion price calculations.

Above percentile P99 implants

For implants the same methodology as for pharmaceuticals was applied. We calculated mean price in the HBD for all implants reimbursed in 2005. Descriptive statistics on average prices were calculated (Table 5.3.62) and a P99 exclusion list was made (Table 5.3.63)

Table 5.3.62: Descriptive statistics implant prices – HBD 2005

Statistic	Avg cost
Minimum	1.55
Maximum	49 712.23
Mean	1 007.95
1st Quartile	59.31
Median	240.29
3rd Quartile	656.71
Percentile 99	**11 597.80**

Table 3.63: P99 implant exclusion list

NIHDI code	Labels	Average unit cost
684725	Ventricle assist device for "bridge-to-transplant"	55 564.34
683701	Complete audio implant for intracochlear electrical stimulation with multiple electrodes	20 386.03
686302	Implantable heart defibrillator + accessories	17 579.78
687982	Heart defibrillator replacement + accessories	17 311.56
686921	Neurostimulator - bilateral system Kinetra	12 625.48
686346	Neurostimulator - bilateral system Kinetra	12 494.43
685344	Contra lateral cochlear implants. incl external microphone. speech processor and sound transmission system	11 660.00

P99 totals per stay were calculated for P99 exclusion price calculations (380 stays with implant remuneration exclusions).

Above percentile P99 organ transplantation remunerations

Transplantation related nomenclature codes are categorized in NIHDI-code group N33 (Table 3.64). They are invoiced for hospital remuneration claims, encompassing not only the transplantation procedure itself but also the transplant price and related expenses such as donor preparation, tissue typing, transport and insurance costs.

Table 3.64: NIHDI transplantation related codes (group N33)

RIZIVcode	Labels
269942	Art 14. m) 4de alinea : typering van potentiële donors in het buitenland
269964	Art 14. m) 5de alinea : vervoer en verzekering van buitenlandse donor van beenmerg
269986	De verzekeringstegemoetkoming voor de honoraria voor de verstrekkingen nummers 318135-318146 tot 318253-318264 alsmede de eventuele bijkomende tegemoetkoming voor onkosten in verband met het transport van een in het buitenland gepreleveerd orgaan naar het transplantatiecentrum. onkosten in verband met de selectie. het transport en de verzekering van een buitenlandse donor bij beenmergtransplantatie en onkosten in verband met het transport van een medische equipe die het donororgaan in een buitenlandse verzorgingsinstelling preleveert
270023	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : Corticospongieus bot. diepgevroren femurkop. volledig
270045	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : Corticospongieus bot. diepgevroren femurkop. fragment
270060	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : Corticospongieus bot. fragment (min 3 cm^3). niet gelyofiliseerd
270082	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : Corticospongieus bot. fragment (min 3 cm^3). gelyofiliseerd
270104	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : diaphyso-metaphysair segment (proximaal. distaal of intercalair); lengte -10 cm
270126	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : diaphyso-metaphysair segment (proximaal. distaal of intercalair); lengte van 10 tot 25 cm
270141	Orthopedische allogreffen van menselijke oorsprong - Bot-enten : diaphyso-metaphysair segment (proximaal. distaal of intercalair); lengte 25 cm of +
270163	Orthopedische allogreffen van menselijke oorsprong - bot-enten : bekkenbeen. hemi-pelvis
270185	Orthopedische allogreffen van menselijke oorsprong - bot-enten : bekkenbeen. darmbeen (imium)
270200	Orthopedische allogreffen van menselijke oorsprong - bot-enten : bot-ent van een anatomisch segment van voet of hand
270222	Orthopedische allogreffen van menselijke oorsprong - osteo-articulaire enten : volledig gewricht
270244	Orthopedische allogreffen van menselijke oorsprong - osteo-articulaire enten : half gewricht of deel van gewricht. lengte botsegment - 10 cm
270266	Orthopedische allogreffen van menselijke oorsprong - osteo-articulaire enten : half gewricht of deel van gewricht. lengte botsegment 10 cm of +
270281	Orthopedische allogreffen van menselijke oorsprong - osteo-articulaire enten : volledige osteo-articulaire ent van pols. hand of voet
270303	Orthopedische allogreffen van menselijke oorsprong : bindweefsel. pees of ligament. met of zonder beenaanhechting
270325	Orthopedische allogreffen van menselijke oorsprong - bindweefsel : geïsoleerde meniscus
270340	Orthopedische allogreffen van menselijke oorsprong : gehoorbeentje gemaakt uit corticaal bot
270406	Weefsels van menselijke oorsprong. weefsel van menselijke oorsprong afkomstig van een buitenlandse weefselbank en ingevoerd door een in België erkende weefselbank
270480	Arteriële allogreffen van menselijke oorsprong. weggenomen en geleverd in België. femoropopliteale arteries per eenheid met een lengte van 20 tot minder dan 25 cm
270502	Arteriële allogreffen van menselijke oorsprong. weggenomen en geleverd in België. femoropopliteale arteries per eenheid met een lengte van 25 tot minder dan 30 cm
270524	Arteriële allogreffen van menselijke oorsprong. weggenomen en geleverd in België. femoropopliteale arteries per eenheid met een lengte van 30 cm en meer
270546	Tandallogreffe van menselijke oorsprong. weggenomen en geleverd in België
318021	Niertransplantatie
318043	Beenmergtransplantatie met afname en voorbereiding van het transplantaat
318065	Harttransplantatie of van hart en longen in blok
318080	Totale hepatectomie gevolgd door een orthotope levertransplantatie
318102	Afnemen van een kadavernier en bewaring ervan met het oog op een transplantatie. per overgeplante nier : Methode : oplossing type Collins voor hypothermie
318124	Afnemen van een kadavernier en bewaring ervan met het oog op een transplantatie. per overgeplante nier : Methode : bewaringstoestel type Belzer
318146	Toezicht op en conditionering van een donor met het oog op prelevering van een orgaan bestemd voor transplantatie
318161	Post mortem prelevering en conservering van een nier met het oog op transplantatie
318183	Prelevering en conservering van een hart met het oog op transplantatie
318205	Prelevering en conservering van een lever met het oog op transplantatie
318220	Prelevering en conservering van een pancreas met het oog op transplantatie
318242	Prelevering en conservering van een hart en longen in blok met het oog op transplantatie
318264	Forfaitair honorarium voor de medische gesuperviseerde voorbereiding en organisatie van een orgaantransplantatie en coördinatie van de erop betrekking hebbende medische prestaties
318286	Pancreastransplantatie
318301	Nier- en pancreastransplantatie

318323	Transplantatie van dunne darm
318345	Transplantatie van dunne darm en lever
318360	Afnemen en bewaren van dunne darm met het oog op een transplantatie
318382	Afnemen en bewaren van dunne darm en lever met het oog op een transplantatie
318404	Laparoscopische videogeassisteerde nefrectomie voor niertransplantatie van uit een levende donor. met inbegrip van de bewaring. niet inbegrepen het endoscopisch verbruiksmateriaal

In 2005 only 7 943 properly linked MCD-HBD stays had a N33 code registration in the HBD. Since combined coding is the rule, we decided to evaluate the stays remuneration total - irrespective NIHDI code(s) billed - as a marker for P99 demarcation (Table 3.65).

Table 3.65: N33 reimbursements per stay (HBD 2005)

Stays	7 943
Mean	1 617.74
Sd	3 510.872
Min	0.73
Q1	272.69
Median	495.78
Q3	991.60
P99	13 008.43
Max	148 104.00
CV	217 %

All stays (n = 81) having a N33 total > € 13 008.43 (>P99) were labelled for P99 exclusion price calculations.

Relevance of above P99 exclusions

For all APR-DRG-SOI with above P99 billing amounts (n = 434) we calculated total stay count, number and fraction of stays with > P99 billing amounts (Table 3.66). APR-DRG-SOIs having a total stay count less than or equal to 250 and > P99 stay count less then 50 were aggregated.

Table 3.66: Distortive price components – APR-DRG-SOI selection for study

APrDRG-SOI	APrDRG & label	Stays > P99	All stays	Fraction > P99
091-1	**091-other major head & neck procedures**	**137**	**255**	**53.73%**
003-4	**003-bone marrow transplant**	**111**	**338**	**32.84%**
690-4	**690-acute leukemia**	**142**	**460**	**30.87%**
161-2	**161-cardiac defibrillator implant**	**103**	**356**	**28.93%**
484-2	**484-other male reproductive system procedures**	**250**	**1 167**	**21.42%**
691-3	**691-lymphoma & non-acute leukemia**	**118**	**967**	**12.20%**
693-4	**693-chemotherapy**	**103**	**866**	**11.89%**
691-2	**691-lymphoma & non-acute leukemia**	**144**	**1 248**	**11.54%**
021-2	021-craniotomy except for trauma	105	1 336	7.86%
320-2	320-other musculoskeletel system & connective tissue procedures	82	1 060	7.74%
004-4	004-tracheostomy except for face. mouth & neck diagnoses	125	1 785	7.00%
850-2	850-procedure w diagnoses of other contact w health services	55	847	6.49%
168-2	168-major thoracic vascular procedures	81	1 379	5.87%
693-1	693-chemotherapy	750	14 870	5.04%
693-2	693-chemotherapy	457	9 621	4.75%
693-3	693-chemotherapy	103	2 266	4.55%
310-2	310-back & neck procedures except dorsal & lumbar fusion	82	4 995	1.64%
Residual (n= 411)		2 889	608 985	0.47%

Eight of the APR-DRG-SOIs having a > P99 fraction greater then 10% were selected for differential APR-DRG-SOI price calculation on remuneration totals exclusive all > P99 billing amounts. Results were compared with base prices (inclusive prices without above P99 exclusions) and are summarized in Table 3.67.

Table 3.67: Distortive price components - price comparison

DRG-SOI	Billing data	N_obs	Mean	Lower 99%CI	Higher 99%CI	p<0.01 (*)	CV	Lower 95%CI	Higher 95%CI	p<0.05 (*)
003-4	Ex P99	338	34 970.27	31 423.32	38 517.22	0	71.98	32 276.98	37 663.55	0
	All	338	38 653.00	34 330.24	42 975.76		79.37	35 370.62	41 935.38	
091-1	Ex P99	255	2 934.07	2 761.70	3 106.43	**1**	**36.15**	2 803.28	3 064.86	**1**
	All	255	13 736.23	12 066.25	15 406.21		**74.80**	12 469.04	15 003.42	
161-2	Ex P99	356	4 947.42	4 386.36	5 508.48	**1**	82.62	4 521.35	5 373.49	**1**
	All	356	10 943.41	9 556.48	12 330.34		92.34	9 890.17	11 996.66	
690-4	Ex P99	460	23 083.93	21 244.49	24 923.36	0	66.07	21 686.42	24 481.43	0
	All	460	25 585.76	23 433.19	27 738.33		69.76	23 950.36	27 221.17	
691-1	Ex P99	779	2 783.11	2 537.63	3 028.58	0	95.34	2 596.49	2 969.72	0
	All	779	2 975.39	2 720.95	3 229.83		92.43	2 781.96	3 168.82	
691-2	Ex P99	1 248	4 100.81	3 853.05	4 348.56	0	82.73	3 912.39	4 289.22	0
	All	1 248	4 293.97	4 036.92	4 551.02		81.98	4 098.49	4 489.45	
691-3	Ex P99	967	6 745.25	6 310.64	7 179.86	0	77.63	6 414.79	7 075.71	0
	All	967	6 982.66	6 526.66	7 438.67		78.68	6 635.94	7 329.39	
693-4	Ex P99	866	10 677.93	9 692.72	11 663.14	0	105.18	9 928.89	11 426.97	0
	All	866	11 417.25	10 279.73	12 554.77		113.57	10 552.40	12 282.10	
484-2	Ex P99	1 167	4 941.45	4 709.38	5 173.52	**1**	62.18	4 764.97	5 117.93	**1**
	All	1 167	6 471.34	6 194.72	6 747.96		56.60	6 260.98	6 681.69	
(*) 1 = p<0.01 resp <0.05										
484-2a	*Cancer*	*888*	*7 293.08*	*6 984.44*	*7 601.73*	1	*48.85*	7 058.42	7 527.75	1
484-2b	*No CA*	*279*	*3 855.89*	*3 452.84*	*4 258.94*		*67.32*	3 549.98	4 161.80	

Only three of the studied APR-DRG-SOIs (091-1. 161-2 and 484-2) showed a statistically significant price difference, one of them however at the expense of a 9.8% increase in the coefficient of variation (CV 484-2). APR-DRG-SOI 693-4 (chemotherapy), 003-4 (bone marrow transplant), 691-1 and 2 (lymphoma) and 690-3 (acute leukemia) did not.

For APR-DRG-SOI 484-2 (Other male reproductive system procedures) it is interesting to compare the P99 inclusion-exclusion data with those from 484-2 sub-groups a (= cancer) and b (= no cancer). As expected, it appears that all P99 exclusions coincided with sub-group a (cancer), the 'cancer - no cancer' axis apparently being a better discriminator than the P99-exclusion (see CVs).

APPENDIX 4: COST MODEL

Table 4.1 APR-DRG-SOIs with <11 linked stays in 2002

MDC	APR-DRG	SOI	Medical/ surgical	Stays
p1	001	1	P	0
p1	001	2	P	0
p4	002	1	P	0
p4	002	2	P	4
p4	002	3	P	9
p3	004	1	P	7
p3	005	1	P	10
01	025	3	P	5
01	025	4	P	0
01	040	4	M	5
01	043	4	M	2
01	051	3	M	4
01	051	4	M	0
01	054	4	M	2
01	056	4	M	4
01	057	4	M	1
02	070	3	P	3
02	070	4	P	1
02	071	4	P	0
02	072	3	P	8
02	072	4	P	1
02	073	3	P	9
02	073	4	P	1
02	080	3	M	0
02	080	4	M	0
02	081	4	M	0
02	082	4	M	6
03	090	1	P	9
03	090	3	P	7
03	091	3	P	4
03	091	4	P	9
03	092	3	P	7
03	092	4	P	3
03	093	3	P	9
03	093	4	P	0
03	094	3	P	7
03	094	4	P	1
03	095	3	P	1
03	095	4	P	0
03	096	3	P	4
03	096	4	P	0
03	097	3	P	7
03	097	4	P	1
03	098	4	P	1
03	111	4	M	2
03	112	4	M	3
03	115	4	M	4
04	130	1	M	2
04	130	2	M	5
04	131	1	M	6
04	132	1	M	1

MDC	APR-DRG	SOI	Medical/ surgical	Stays
04	132	2	M	2
04	132	3	M	3
04	132	4	M	0
04	135	4	M	9
04	138	3	M	10
04	138	4	M	2
04	141	4	M	8
05	160	1	P	1
05	160	2	P	5
05	160	3	P	7
05	161	4	P	5
05	162	1	P	4
05	162	2	P	6
05	163	1	P	9
05	164	1	P	0
05	164	2	P	0
05	164	3	P	0
05	164	4	P	0
05	165	1	P	2
05	170	1	P	3
05	170	2	P	10
05	170	4	P	4
05	172	1	P	8
05	176	4	P	2
05	177	4	P	3
05	178	4	P	5
05	179	3	P	4
05	179	4	P	1
05	193	1	M	3
05	193	2	M	9
05	193	3	M	9
05	193	4	M	4
05	195	4	M	3
05	199	4	M	4
05	202	4	M	10
05	203	4	M	1
05	204	4	M	9
05	205	4	M	7
06	222	4	P	4
06	224	4	P	9
06	225	4	P	7
06	226	4	P	7
06	227	4	P	7
06	228	4	P	7
08	300	1	P	2
08	300	2	P	4
08	300	3	P	10
08	300	4	P	3
08	303	3	P	9
08	303	4	P	4
08	304	4	P	6
08	305	1	P	4
08	305	3	P	8
08	305	4	P	7
08	306	4	P	4

MDC	APR-DRG	SOI	Medical/ surgical	Stays
08	307	2	P	7
08	307	3	P	2
08	307	4	P	2
08	311	2	P	4
08	311	3	P	0
08	311	4	P	0
08	314	4	P	3
08	316	3	P	7
08	316	4	P	1
08	317	4	P	6
08	318	4	P	2
08	319	4	P	0
08	340	4	M	7
08	342	4	M	7
08	344	4	M	5
08	345	1	M	8
08	345	3	M	4
08	345	4	M	1
08	348	4	M	3
08	349	4	M	3
08	350	4	M	4
09	361	4	P	6
09	362	4	P	3
09	363	4	P	0
09	364	4	P	9
09	381	4	M	6
09	385	4	M	3
10	400	2	P	3
10	400	4	P	3
10	401	3	P	10
10	401	4	P	3
10	402	1	P	5
10	402	3	P	10
10	402	4	P	4
10	403	4	P	5
10	404	4	P	1
10	423	4	M	3
11	441	1	P	6
11	444	3	P	1
11	444	4	P	1
11	445	4	P	8
11	462	4	M	1
11	464	4	M	1
11	465	4	M	6
11	466	4	M	9
11	467	4	M	1
12	480	4	P	5
12	481	3	P	5
12	481	4	P	3
12	483	3	P	8
12	483	4	P	0
12	484	4	P	4
12	500	4	M	5
12	501	4	M	9
13	511	4	P	0

MDC	APR-DRG	SOI	Medical/ surgical	Stays
13	512	3	P	2
13	512	4	P	0
13	514	4	P	0
13	515	3	P	6
13	515	4	P	0
13	516	3	P	3
13	516	4	P	3
13	517	4	P	2
13	518	3	P	9
13	518	4	P	3
13	531	3	M	5
13	531	4	M	0
13	532	4	M	0
14	541	3	P	7
14	541	4	P	0
14	542	4	P	0
14	543	3	P	3
14	543	4	P	1
14	544	3	P	8
14	544	4	P	0
14	560	4	M	8
14	561	3	M	7
14	561	4	M	0
14	562	3	M	3
14	562	4	M	1
14	563	4	M	1
14	564	3	M	3
14	564	4	M	0
14	565	2	M	2
14	565	3	M	0
14	565	4	M	1
14	566	4	M	2
15	580	3	M	7
15	580	4	M	2
15	581	3	M	8
15	581	4	M	0
15	582	1	P	0
15	582	2	P	0
15	582	3	P	0
15	582	4	P	0
15	583	1	P	0
15	583	2	P	0
15	583	3	P	0
15	583	4	P	2
15	590	1	P	0
15	590	2	P	0
15	590	3	P	0
15	590	4	P	8
15	591	2	M	3
15	591	3	M	7
15	592	1	P	0
15	592	2	P	0
15	592	3	P	0
15	592	4	P	9
15	593	2	M	7

MDC	APR-DRG	SOI	Medical/ surgical	Stays
15	593	3	M	10
15	600	1	P	0
15	600	2	P	0
15	600	3	P	0
15	601	1	M	3
15	601	2	M	9
15	602	1	M	1
15	602	2	M	7
15	603	4	M	8
15	610	1	P	0
15	610	2	P	0
15	610	3	P	1
15	611	1	M	9
15	611	4	M	6
15	612	1	M	10
15	612	2	M	9
15	613	1	M	1
15	613	2	M	7
15	613	3	M	5
15	613	4	M	4
15	614	4	M	4
15	620	1	P	0
15	620	2	P	1
15	620	3	P	2
15	620	4	P	4
15	621	4	M	8
15	622	1	M	9
15	622	2	M	4
15	622	3	M	10
15	622	4	M	7
15	623	1	M	9
15	623	2	M	7
15	623	3	M	9
15	623	4	M	1
15	624	3	M	8
15	624	4	M	0
15	625	4	M	5
15	626	4	M	0
15	630	1	P	0
15	630	2	P	3
15	631	1	P	0
15	632	2	P	10
15	632	3	P	6
15	632	4	P	5
15	634	1	M	9
15	634	4	M	8
15	635	3	M	4
15	635	4	M	2
15	636	4	M	6
15	637	4	M	6
15	638	4	M	2
15	639	4	M	5
15	640	4	M	0
16	650	2	P	8
16	650	4	P	10

MDC	APR-DRG	SOI	Medical/ surgical	Stays
16	651	3	P	7
16	651	4	P	1
16	661	4	M	9
16	662	2	M	10
16	662	3	M	6
16	662	4	M	1
17	692	4	M	6
19	750	3	M	5
19	750	4	M	0
19	752	4	M	1
19	753	3	M	8
19	753	4	M	2
19	754	4	M	3
19	755	3	M	6
19	755	4	M	0
19	758	3	M	7
19	758	4	M	0
19	759	3	M	5
19	759	4	M	1
19	760	4	M	1
20	770	3	M	7
20	770	4	M	4
20	771	3	M	7
20	771	4	M	0
20	772	1	M	0
20	772	2	M	3
20	772	3	M	1
20	772	4	M	0
20	773	3	M	1
20	773	4	M	3
20	774	1	M	5
20	774	2	M	1
20	774	3	M	0
20	774	4	M	0
20	776	4	M	1
21	790	4	P	3
21	792	3	P	8
21	810	3	M	9
21	810	4	M	3
21	811	3	M	6
21	811	4	M	2
21	814	1	M	7
21	814	3	M	5
21	814	4	M	1
22	830	1	M	3
22	830	2	M	2
22	830	3	M	1
22	830	4	M	2
22	831	1	P	0
22	831	2	P	0
22	831	3	P	1
22	831	4	P	2
22	832	4	P	6
22	833	1	P	10
22	833	2	P	0

MDC	APR-DRG	SOI	Medical/ surgical	Stays
22	833	3	P	1
22	833	4	P	0
22	840	3	M	5
22	840	4	M	1
23	861	4	M	8
24	870	1	P	0
24	870	2	P	0
24	870	3	P	0
24	870	4	P	0
24	871	1	P	0
24	871	2	P	0
24	871	3	P	1
24	871	4	P	0
24	872	1	P	0
24	872	2	P	0
24	872	3	P	1
24	872	4	P	3
24	873	1	P	2
24	873	2	P	2
24	873	3	P	0
24	873	4	P	0
24	890	1	M	0
24	890	2	M	1
24	890	3	M	3
24	890	4	M	3
24	891	1	M	0
24	891	2	M	10
24	891	3	M	5
24	891	4	M	4
24	892	1	M	5
24	892	2	M	6
24	892	3	M	5
24	892	4	M	0
24	893	3	M	6
24	893	4	M	0
24	894	2	M	9
24	894	3	M	2
24	894	4	M	0
25	910	1	P	8
25	910	2	P	8
25	911	1	P	1
25	930	1	M	2
25	931	1	M	0
25	931	2	M	8
25	931	3	M	3
25	931	4	M	1

APPENDIX 5: HOSPITAL TYPOLOGIES

Table 5.1: Selection of hospital characteristics

variable	description
HOSP_AN	anonymous hospital id
TYPE_HOSP	Hospital type, GH=general hospital, GHu=general hospital with university character, UH=university hospital
STAYS	Number of hospital stays
CMI_3M	calculated *case mix index* based on 3M weight per APR-DRG and severity of illness (="relative cost weight/stay") e.g. the cost weight for 002 HART &/OF LONGTRANSPLANTATIE and severity 4 = 21,35 / the cost weight for 225 APPENDECTOMIE and severity 1 = 0,795.
PATHOLOGY DIVERSITY	this measure indicates to what extent the hospital stays are scattered over the 351 APR-DRG (a standardized Theil index is used to synthesize the nominal distribution over the 351 DRG) calculation: $1 - \left\{ \frac{\ln(n) - \sum_{i=1}^{n} x_i \ln\left(\frac{1}{x_i}\right)}{\ln(n)} \right\}$ (n = number of classes)
FARMEXF_ABS	absolute amount of "pharmaceuticals on the exclusion list"
FARMEXF_REL	relative amount of "pharmaceuticals on the exclusion list" on total amount of pharmaceuticals
HOSP_SEV_POINTS_ABS	absolute number of hospital severity points[m]
HOSP_SEV_POINTS_REL	relative number of hospital severity points on total number of hospitals stays
VAR_POINTS_COST_ABS	absolute number of variability points measured on the basis of the "relative skewness" cost model
VAR_POINTS_COST_REL	relative number of variability points measured on the basis of the "relative skewness" cost model on total number of hospitals stays
VAR_POINTS_PRICE_ABS	absolute number of variability points measured on the basis of the "relative skewness" price model
VAR_POINTS_PRICE_REL	relative number of variability points measured on the basis of the "relative skewness" price model on total number of hospitals stays
PRICE_OUTL_ABS	absolute number of price outliers calculated on HBD
PRICE_OUTL_REL	relative number of price outliers on total number of hospital stays
LOS_OUTL_ABS	absolute number of length of stay outliers
LOS_OUTL_REL	relative number of length of stay outliers on total number of hospital stays
LOS_IC_ABS	absolute number of patient days on intensive care[n]
LOS_IC_REL	relative number of patient days on intensive care on total number of patient days[o]
N12_ABS	absolute amount (in €) of CPR interventions[p]
N12_REL	relative amount (in €) of CPR interventions on total amount (in €) of medical interventions[q]
IMPL_ABS	absolute amount (in €) of expensive implants
IMPL_REL	relative amount (in €) of expensive implants on total amount (in €) of

[m] The calculation methodology of hospital severity points is described in Chapter 5. Hospital severity points are determined by an APR-DRG weight based on the number of stays in severity levels 3 and 4 compared to the total number of stays per APR-DRG.

[n f g h] The characteristics "los_ic_rel" and "n12_rel" naturally reflect the "medical practice" of the concerned hospitals, whether or not "evidence based".

	medical interventions
C_STAYS_ABS	absolute number of chronic hospital stays
C_STAYS_REL	relative number of chronic hospital stays on total number of hospital stays
P_STAYS_ABS	absolute number of palliative hospital stays on total number of hospital stays
P_STAYS_REL	relative number of palliative hospital stays on total number of hospital stays
LOS_SP_ABS	absolute number of patient days in specialized (chonic, palliative) departments
LOS_SP_REL	relative number of patient days in specialized (chonic, palliative) departments on total number of patient days
LOS_ABS	absolute number of patient days
BFM_REL	fraction of the BFM share on total budget of hospital (BFM + HBD)

METHODOLOGY OF VARIABILITY CALCULATION

The variability for both price and cost is measured by variability points. It is calculated in three steps:

Step 1: Calculation of variability per DRG, severity over all acute hospitals

Step 2: Calculation of variability points per hospital

Step 3: Calculation of variability score per hospital

Step 1: Calculation of variability per DRG, severity

Variability is measured by the "relative skewness" measure. The "**relative skewness**" measure is the ratio of P99 minus P50 per DRG, severity versus P50 – P1 over all DRG-severity. While the coefficient of variation does not take into account the order of magnitude of costs or expenses, the relative skewness measure does.

Each DRG, severity receives a '**DRG/Severity variability score'** according to its relative skewness in relation to all DRG, severity combinations:

measure < Q1 => score 1
measure < Q2 => score 2
measure < Q3 => score 3
measure >= Q4 => score 4

Step 2: Calculation of variability points per hospital

For every hospital and DRG-severity combination variability points are computed by multiplying the number of stays per hospital/DRG/Severity by the DRG/Severity variability score per DRG/Severity calculated in step 1. Summing up the variability points per hospital/DRG/Severity gives a total of **variability points per hospital**.

Step 3: Calculation of variability score per hospital

The total of variability points per hospital is standardized for the number of stays by dividing the variability points by the number of stays per hospital. This results in an average number of variability points per stay. To each hospital a '**hospital variability score**' is assigned according to its average number of variability points per stay in relation to the average number of variability points per stay of all hospitals:

measure < Q1 => score 1
measure < Q2 => score 2
measure < Q3 => score 3
measure < P99 => score 4
measure >= P99 => score 5

For each hospital 2 variability scores are calculated:

- variability score based on prices and relative skewness
- variability score based on costs and relative skewness

Appendices with Chapter 6

Table 6.1: Included and excluded components of the BFM 2005 (acute hospitals n=116)

Part	description (FR)	description (NL)	IN/OUT	€ acute	€ burns	€ Sp	€ G	€ Pal
Total				**€ 4.207.874.456**	**€ 14.660.277**	**€ 155.491.671**	**€ 0**	**€ 38.202.533**
IN				**€ 3.490.727.224**	**€ 0**	**€ 142.008.732**	**€ 0**	**€ 36.709.608**
% IN				**83%**	**0%**	**91%**		**96%**
A1	0100 Immeuble-A1	0100 Onroerend-A1	OUT	€ 53.553.280	€ 202.543	€ 2.202.052		€ 348.402
	0200 Gros Travaux d'entretien-A1	0200 Groot onderhoud-A1	OUT	€ 29.344.091	€ 18.275	€ 714.834		€ 200.394
	0300 Charges financières-A1	0300 Financiële lasten-A1	OUT	€ 61.169.901	€ 104.705	€ 2.002.400		€ 420.786
	0400 1ère installation-A1	0400 Eerste inrichting-A1	OUT	€ 1.327.290	€ 281	€ 33.979		€ 8.593
	0500 Matériel médical-A1	0500 Medisch materiaal-A1	IN	€ 31.509.029	€ 42.379			
	0560 Matériel médical supplément-A1	0560 Medisch materiaal supplement-A1	IN	€ 7.032.033				
	0700 Matériel non médical-A1	0700 Niet medisch materiaal-A1	IN	€ 37.028.291	€ 47.614			
	0760 Matériel non médical supplément-A1	0760 Niet medisch materiaal supplement-A1	IN	€ 6.739.593				
	0850 Matériel médical et non médical (Sp et Psychiatrique)-A1	0850 Medisch en niet medisch materiaal (Sp en Psychiatrie) - A1	IN			€ 1.663.334		€ 207.302
	0860 Matériel médical et non médical (Sp et Psychiatrique) supplément-A1	0860 Medisch en niet medisch materiaal (Sp en Psychiatrie) supplement - A1	IN			€ 202.952		€ 24.008
	0900 Matériel roulant-A1	0900 Rollend materiaal-A1	OUT	€ 236.134	€ 231	€ 11.763		€ 1.035
A2	0200 Forfait A2-A2	0200 forfait A2 -A2	IN	€ 43.322.254	€ 141.686	€ 1.628.214		€ 384.527
A3	0200 RMN : Immeuble-A3	0200 NMR: Onroerend-A3	OUT	€ 536.698	€ 0	€ 0		€ 0
	0400 RMN : Charges Financières-A3	0400 NMR: Finaciële lasten-A3	OUT	€ 407.302		€ 0		€ 0
	0600 Forfait RMN AR 26/2/1991 (RMN < 1 tesla)-A3	0600 Forfait NMR KB 26/2/91 (<1 Tesla)-A3	OUT	€ 8.924.167		€ 0		€ 0
	1200 Radiothérapie : Immeuble-A3	1200 Radiotherapie: Onroerend -A3	OUT	€ 332.012				
	1400 Radiothérapie : Charges financières-A3	1400 Radiotherapie: Financiële lasten-A3	OUT	€ 300.778				
	1600 Radiothérapie : Forfait-A3	1600 Radiotherapie: Forfait-A3	OUT	€ 4.950.000				

	2600 Petscan : Forfait-A3	2600 Petscan: Forfait - A3	OUT	€ 3.673.780				
B1	0200 Budget B1-B1	0200 Budget B1 - B1	IN	€ 1.041.938.573	€ 3.936.355	€ 48.658.557		€ 6.310.112
	0600 Financement du transport des patients K-B1	0600 Financiering van het transport van K-patiënten-B1	OUT	€ 123.854				
	0650 Hôpital de jour chirurgical art 33 § 1 et 2-B1	0650 Heelkundige dagziekenhuis art.33 § 1 en 2 - B1	OUT	€ 27.082.430				
	0700 Service Social lits G-B1	0700 Sociale dienst G-bedden -B1	OUT	€ 2.870.124				
	0750 Service social lits G isolé-B1	0750 Sociale dienst geïsoleerde G-bedden - B1	OUT					
	0800 Financement du Service Social-B1	0800 Financiering van de Sociale Dienst - B1	OUT	€ 3.982.425				
	1000 Dispositions particulères au 01/07/2005 Psy-B1		OUT					
B2	0200 Budget B2-B2	0200 Budget B2 - B2	IN	€ 1.992.744.961	€ 9.434.031	€ 81.248.342		€ 26.887.967
	0600 Supplément par lit (Sp)-B2	0600 Supplement per bed (SP) -B2	OUT			€ 132.936		
	1000 Dispositions particulières au 01/07/2005 Psy-B2		OUT			€ 2.432.410		
B3	0200 RMN AR 26/2/1991 (RMN < 1 tesla)-B3	0200 NMR KB 26/2/1991 (<1 Tesla) - B3	OUT	€ 14.665.634				
	0600 Radiothérapie-B3	0600 Radiotherapie - B3	OUT	€ 18.859.513				
	0800 Petscan-B3	0800 Petscan - B3	OUT	€ 2.817.141				
B4	0100 Recyclage-B4	0100 Recyclage - B4	OUT	€ 73.725.042		€ 375.573		
	0200 Plateforme de concertation en santé mentale-B4	0200 Overlegplatformen - B4	OUT	€ 77.123				
	0300 Accord social 1989-B4	0300 Sociaal akkoord 1989 -B4	OUT	€ 164.808		€ 18		€ 7.494
	0400 Réviseur d'entreprises-B4	0400 Bedrijfsrevisor -B4	IN	€ 2.175.840	€ 2.031	€ 63.209		€ 69.220
	0500 Médecin Chef-B4	0500 Hoofdgeneesheer -B4	IN	€ 10.238.979	€ 9.555	€ 584.759		€ 3.712
	0600 Infirmière hygiéniste-B4	0600 Verpleegster ziekenhuishygiëne - B4	IN	€ 6.330.080	€ 7.692	€ 31.380		€ 2.417
	0700 Médecin hygiéniste-B4	0700 Geneesheer ziekenhuishygiëne - B4	IN	€ 4.122.071	€ 5.009	€ 20.434		€ 942.444
	0800 RCM - RIM - RPM (Hôpitaux généraux)-B4	0800 MVG-MKG-MPG (Algemene ziekenhuizen) -B4	IN	€ 9.895.514	€ 105.913	€ 1.759.514		
	0900 RPM en psychiatrie-B4	0900 MPG en psychiatrie - B4	OUT					
	1000 SMUR-B4	1000 MUG -B4	OUT	€ 19.323.622				

1100 Prime d'intégration-B4	1100 Integratiepremie -B4	OUT	€ 6.661.898		€ 60.872		€ 8.595
1200 Colloqués-B4	1200 Gecollokeerden -B4	OUT	€ 226.061				
1300 Transport interne-B4	1300 Intern transport -B4	OUT	€ 15.122.339		€ 701.020		€ 38.468
1500 Formation permanente-B4	1500 Permanente vorming -B4	IN	€ 4.478.926	€ 144.681	€ 2.138.450		€ 1.558.230
1600 Formation permanente hôpitaux publics-B4	1600 Permanente vorming PU - B4	OUT	€ 155.047	€ 236	€ 12.389		€ 1.093
1700 Conventions de 1er emploi (ex stagiaires ONEM)-B4	1700 Eerste tewerkstelling (ex RVA stagiairs- -B4	OUT	€ 47.924.665	€ 93.987	€ 839.895		€ 63.562
1800 Absence de longue durée-B4	1800 Langdurige afwezigheid -B4	OUT	€ 5.130.601		€ 348.808		€ 14.730
1900 Cotisation patronale de pensions (hôpitaux publics)-B4	1900 Patronale bijdragen PU - B4	OUT	€ 29.028.336		€ 406.667		€ 53.848
2200 Fonction palliative : équipe mobile-B4	2200 Palliatieve functie: mobiele equipe - B4	OUT	€ 10.548.293		€ 0		
2300 Protocole médecins généralistes - hôpitaux-B4	2300 Relatie huisdokters-ziekenhuis - B4	OUT	€ 916.952		€ 0		
2400 Infections nosocomiales-B4	2400 Nosocomiale infecties - B4	OUT	€ 442.098				
2500 Contractuels subventionnés-B4	2500 Gesubsidieerde contractuelen - B4	OUT	€ 10.463.227		€ 94.639		
2600 RPM pour les MSP-B4	2600 MPG van de RVT - B4	OUT					
2700 Emplois T1/T2-B4	2700 Tewerkstelling T1/t2 - B4	OUT					
2800 Prime syndicale et frais d'affiliation-B4	2800 Syndicale premie en aansluiting - B4	IN	€ 1.983.418	€ 1.788	€ 103.522		€ 12.947
3000 Enregistrement SMUR et Urgences-B4	3000 Registratie MUG en Spoed -B4	OUT	€ 2.788.734				
3100 Financement fin de carrière (45+)-B4	3100 Eindeloopbaan (45+) -B4	IN	€ 69.772.966		€ 111.950		€ 0
3500 Financement Personnel accompagnant-B4	3500 Begeleider intreders en herintreders -B4	IN	€ 4.429.266		€ 148.212		€ 36.902
3600 Financement Equipe mobile (Sp, Sp pal, Psy)-B4	3600 Mobiele equipe (Sp,Sp pal, Psy) - B4	OUT		€ 59.935	€ 2.513.504		€ 323.776
3700 Activites ludiques et soutien psycho-social (provenant du B2)-B4	3700 Ludieke activiteiten en psy.soc.Beg. (uit B2) - B4	OUT	€ 4.643.282		€ 179.892		
3800 Personnel supplémentaire (provenant du B2)-B4	3800 Bijkomend personeel (uit B2) - B4	IN	€ 137.383.763		€ 1.381.200		
3900 Oncologie pédiatrique (provenant du B2)-B4	3900 Kinderoncologie (uit B2) - B4	OUT	€ 3.608.973				
4000 Transplantations-B4	4000 Transplantaties - B4	OUT	€ 1.141.177				
4100 Article 74-B4	4100 Artikel 74 -B4	OUT	€ 6.463.790				

	4200 Fécondation in vitro-B4	4200 In vitro fertilisatie -B4	OUT	€ 15.856.931				
	4300 Fonction de médiation-B4	4300 Bemiddelings functie -B4	OUT	€ 2.463.195		€ 0		€ 0
	4400 Coordination et encadrement psychologique des grands brûlés-B4	4400 Coördinatie en psychologische begeleiding van zwaar verbranden -B4	OUT		€ 242.863			
B5	0200 Masse B5-B5	0200 Massa B5 - B5	IN	€ 79.601.665	€ 58.487	€ 2.264.703		€ 269.819
	0400 Gestion antibiothérapie-B5	0400 Antibiotherapiebeheer - B5	IN					
B6	0200 Masse B6-B6	0200 Massa B6 - B6	OUT	€ 72.931.042		€ 419.285		€ 2.149
B7	0250 Différence points B2-B7	0250 Verschil punten B2 - B7	OUT	€ 7.032.507				
	0300 Diminution B2-B7	0300 Vermindering B2 - B7	OUT	-€ 896.370				
	0600 Masse C-B7	0600 Massa C - B7	OUT	€ 6.086.615				
	0800 Masse D-B7	0800 Massa D - B7	OUT	€ 4.707.381				
	0900 Sous partie B7 A-B7	0900 Onderdeel B7A - B7	OUT	€ 115.855.822				
	0999 Adaptations-B7	0999 Aanpassingen - B7	OUT	€ 0				
B8	0200 Masse article 78, 1° a)-B8	0200 Massa art.78, 1° a)-B8	OUT	€ 18.398.529				
	0400 Masse médiation interculturelle-B8	0400 Massa interculturele bemiddeling - B8	OUT	€ 998.961				

APPENDIX 6: RESULTS OF THE MACRO SIMULATIONS

APPENDIX 6.1: ADDING THE EXCLUDED BUDGET

In the following graphs the excluded budget was added again to both "old" (without case-based all-in) and "new" (with case-based all-in) budget parts. Equal results can be observed as without adding the excluded budget parts, although extremes are less pronounced.

Figure 6.1: Relative budget deviation per hospital – mixed price model, all-inclusive - excluded budget parts added

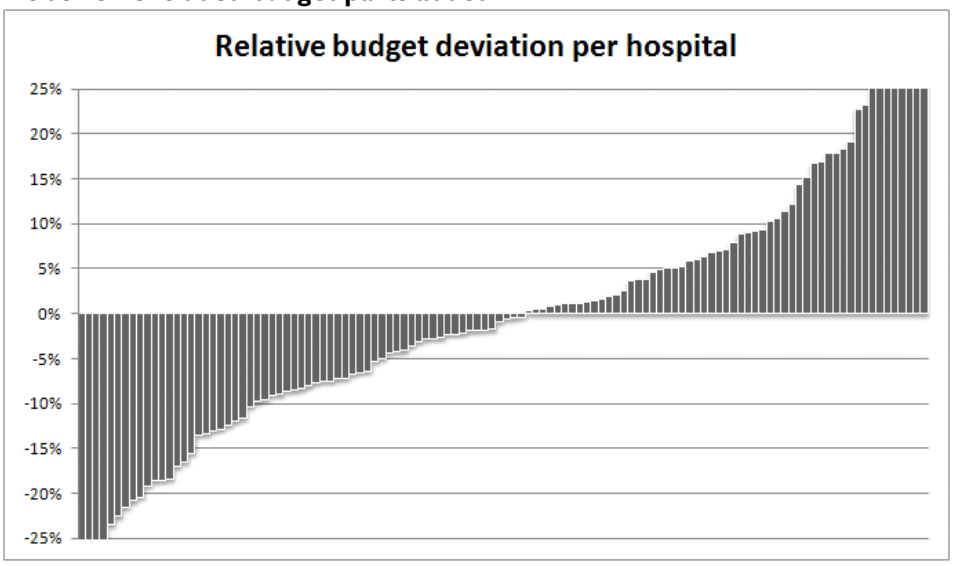


Figure 6.2: Relative budget deviation per hospital – cost model, all-inclusive - excluded budget parts added

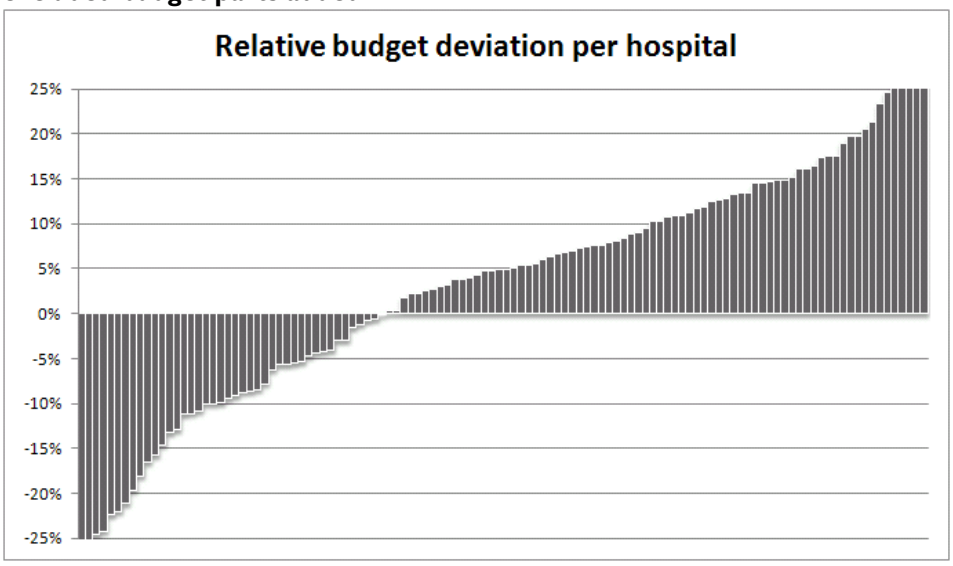


Figure 6.3: Relative budget deviation per hospital – mixed price model, scenario 1 - excluded budget parts added

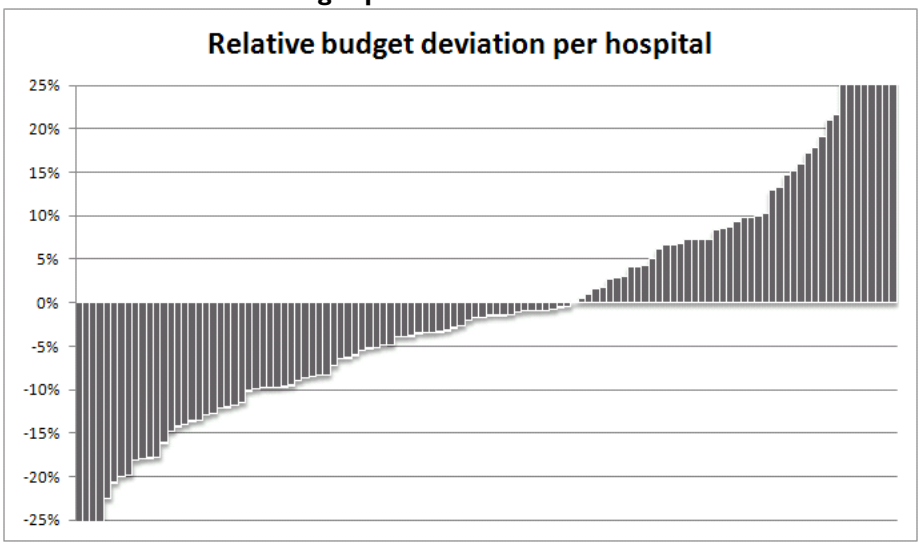


Figure 6.4: Relative budget deviation per hospital – cost model, scenario 1 - excluded budget parts added

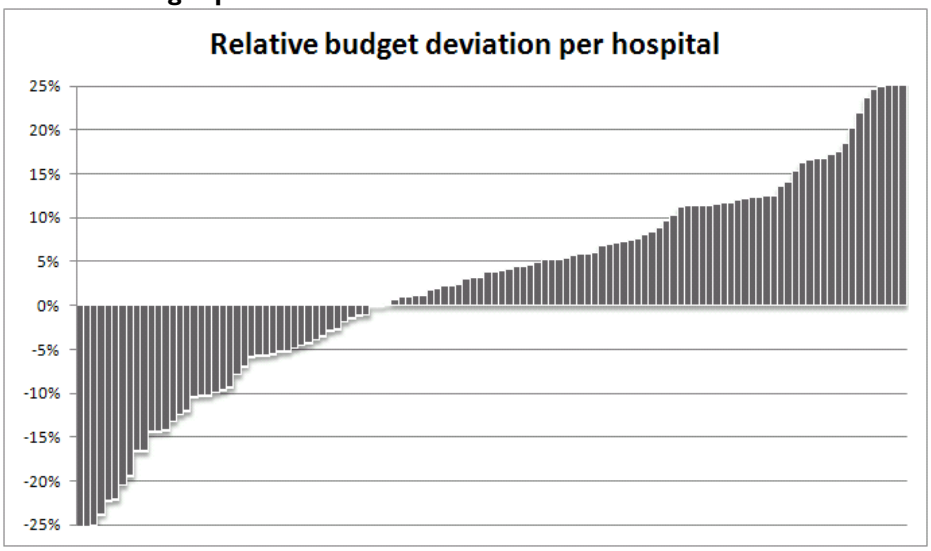


Figure 6.5: Relative budget deviation per hospital – mixed price model, scenario 2 - excluded budget parts added

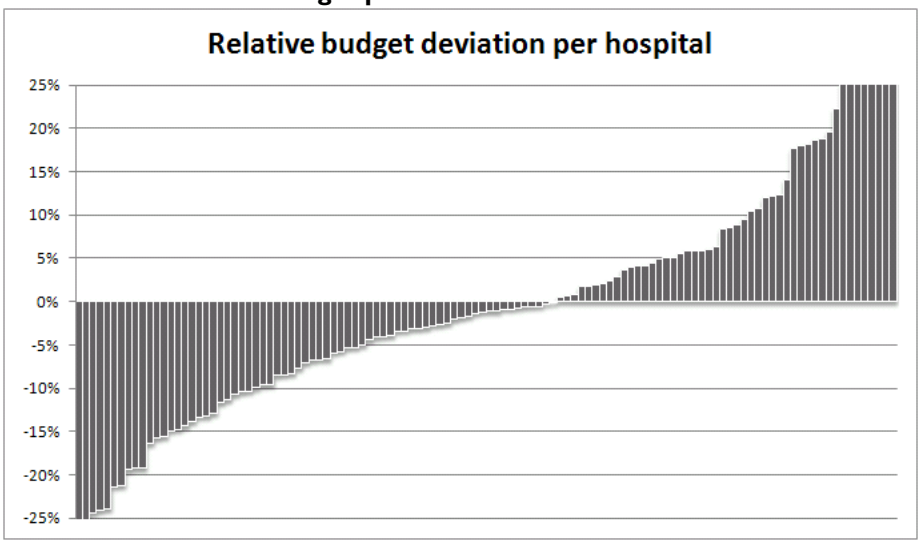
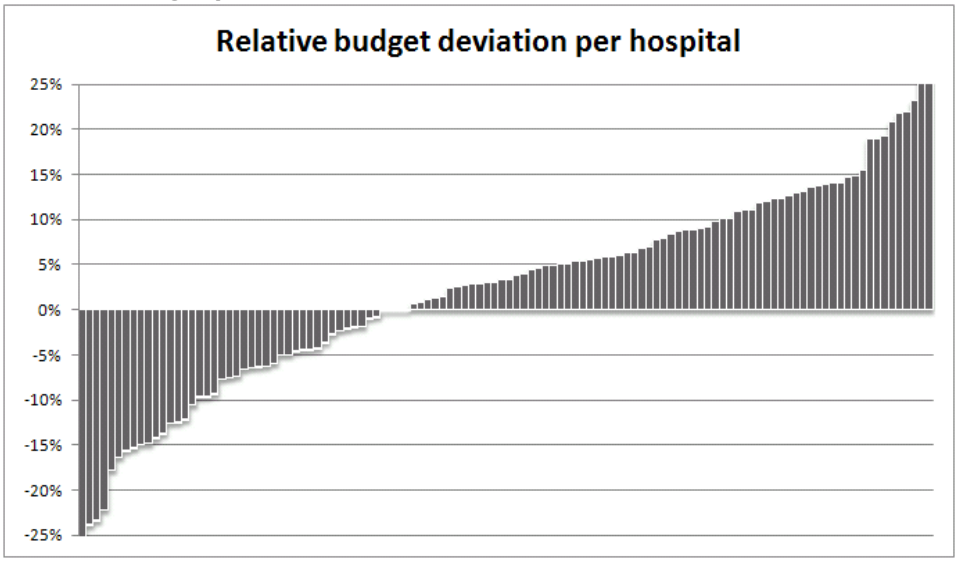


Figure 6.6: Relative budget deviation per hospital – cost model, scenario 2 - excluded budget parts added



APPENDIX 6.2: RESULTS PER BUDGET COMPONENT

The results are split by budget component (HBD, BFM, TOTAL). This way of presenting clarifies the impact of the results on each specific budget component.

Figure 6.7: Relative budget deviation per hospital – mixed price model, all-inclusive - HBD budget

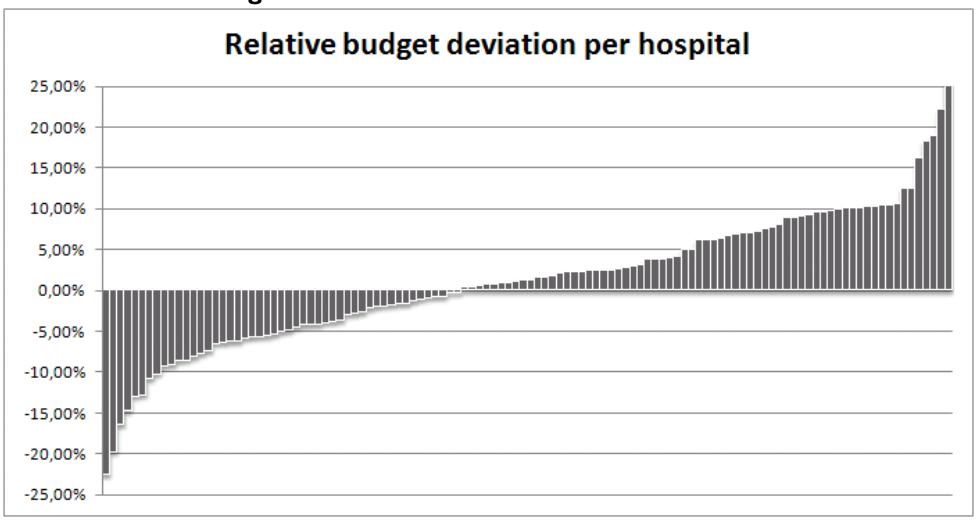


Figure 6.8: Relative budget deviation per hospital – mixed price model, all-inclusive – BFM budget

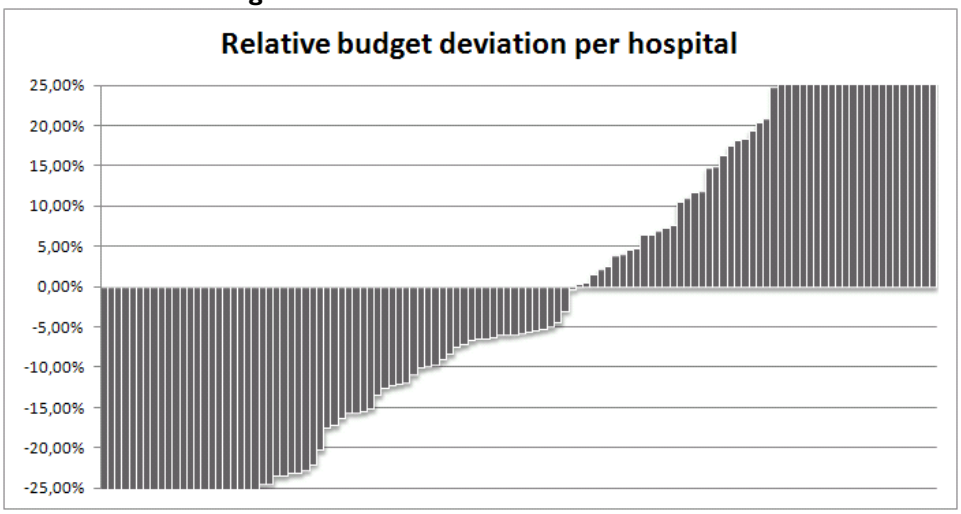


Figure 6.9: Budget deviation per stay per budget component – mixed price model, all-inclusive (MFG=HBD)

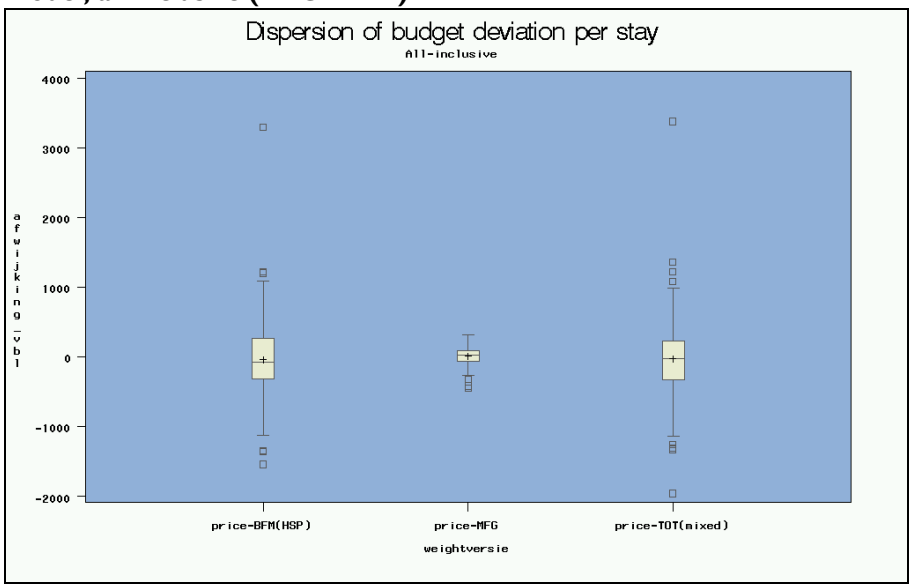


Figure 6.10: Relative budget deviation per hospital – cost model, all-inclusive – HBD budget

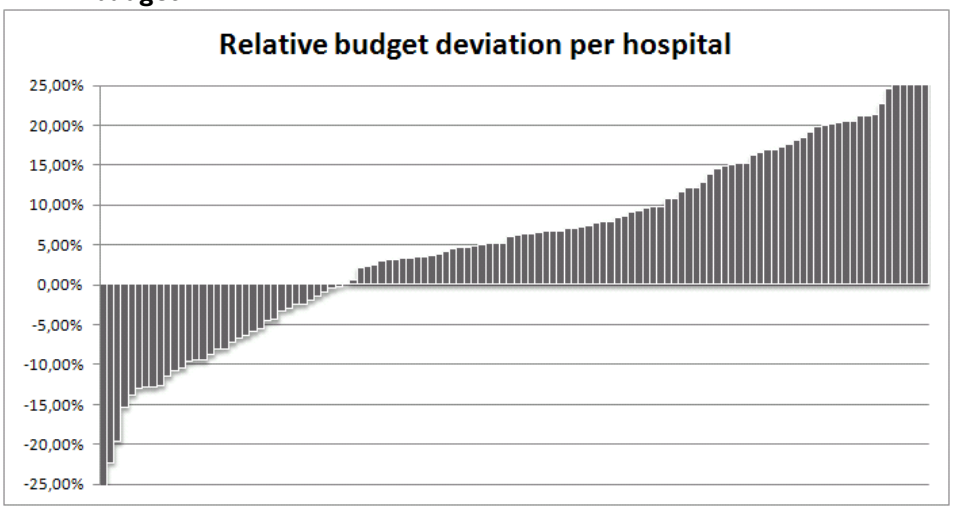


Figure 6.11: Relative budget deviation per hospital – cost model, all-inclusive – BFM budget

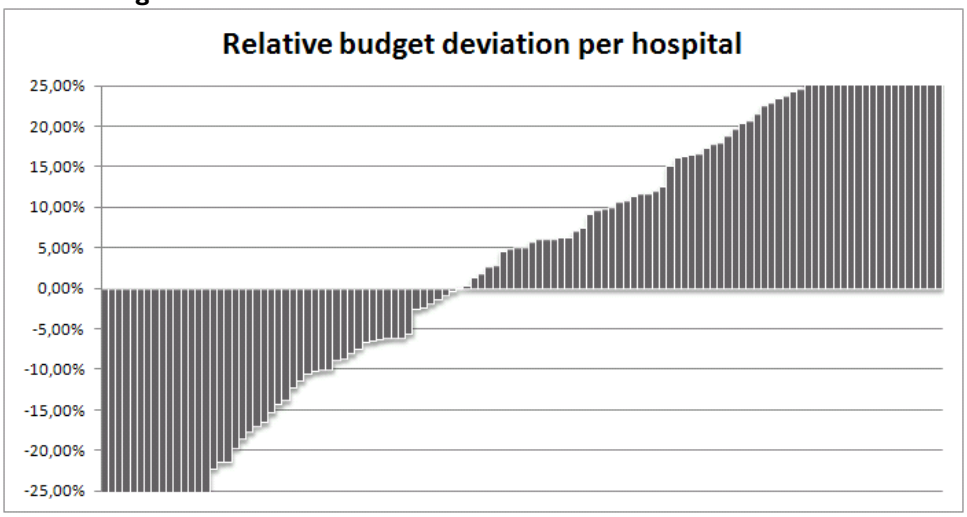


Figure 6.12: Budget deviation per stay per budget component – cost model, all-inclusive (MFG=HBD)

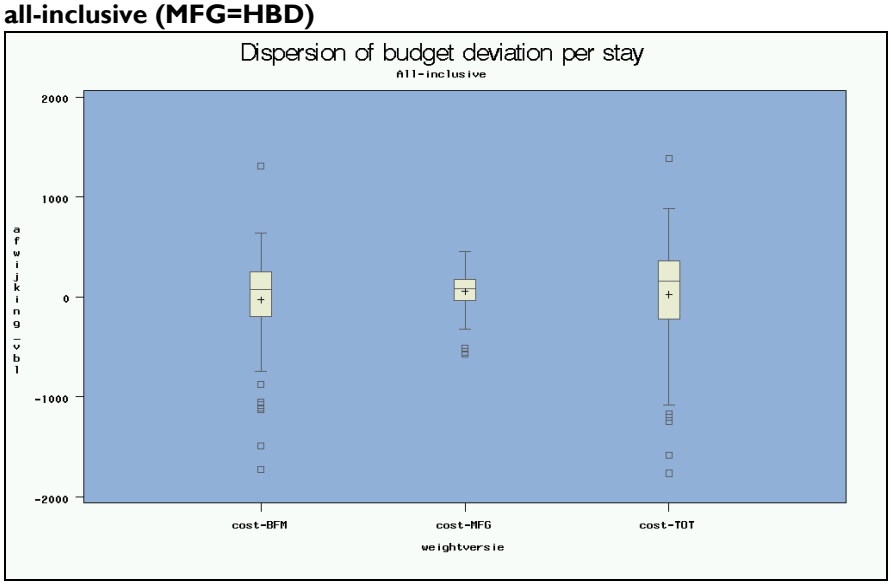


Figure 6.13: Relative budget deviation per hospital – mixed price model, scenario 1 – HBD budget

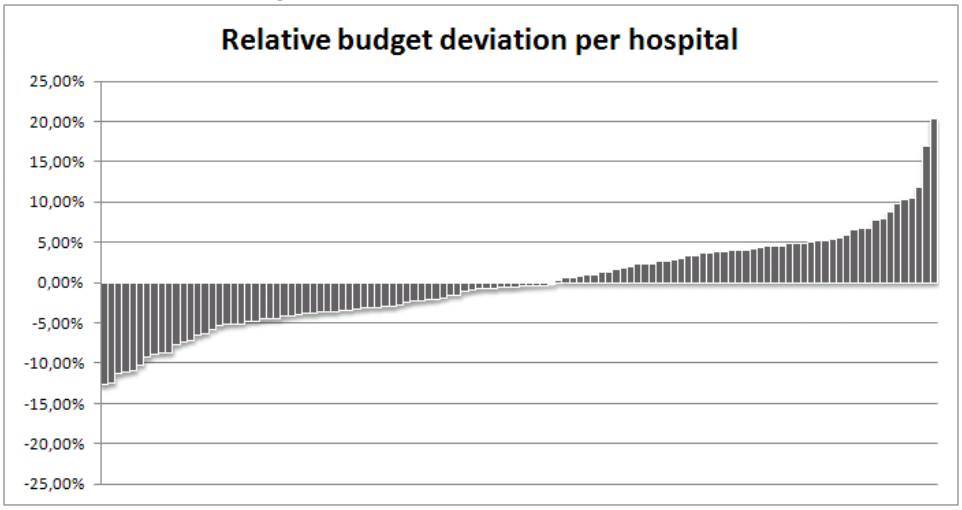


Figure 6.14: Relative budget deviation per hospital – mixed price model, scenario 1 – BFM budget

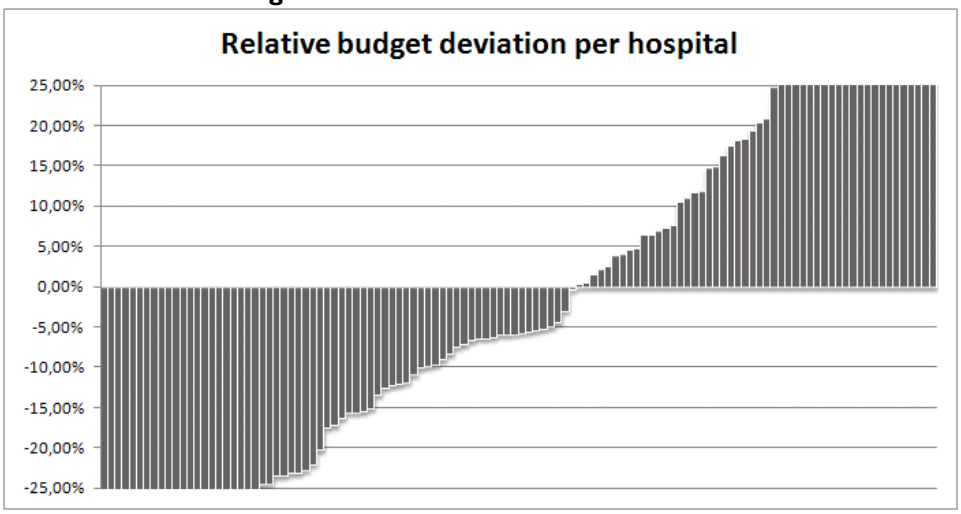


Figure 6.15: Budget deviation per stay per budget component – mixed price model, all-inclusive (MFG=HBD)

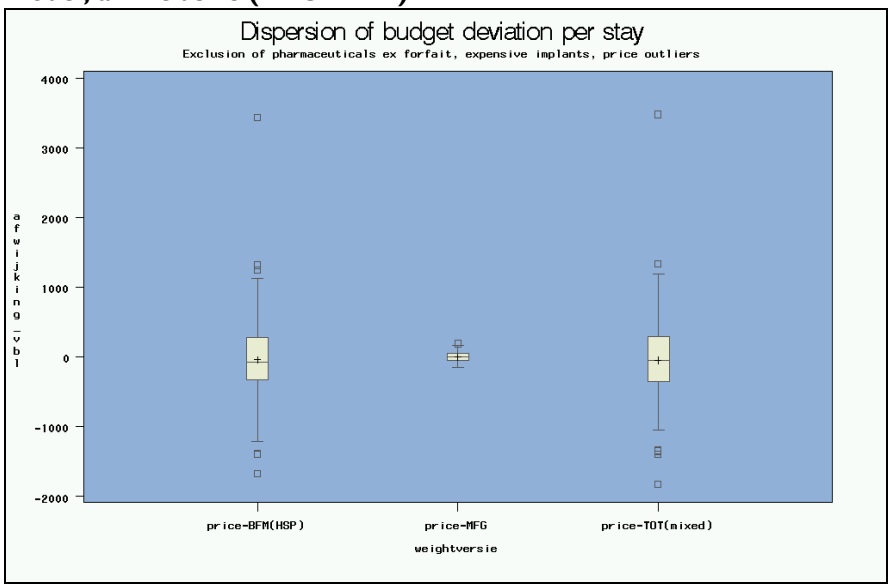


Figure 6.16: Relative budget deviation per hospital – cost model, scenario 1 – HBD budget

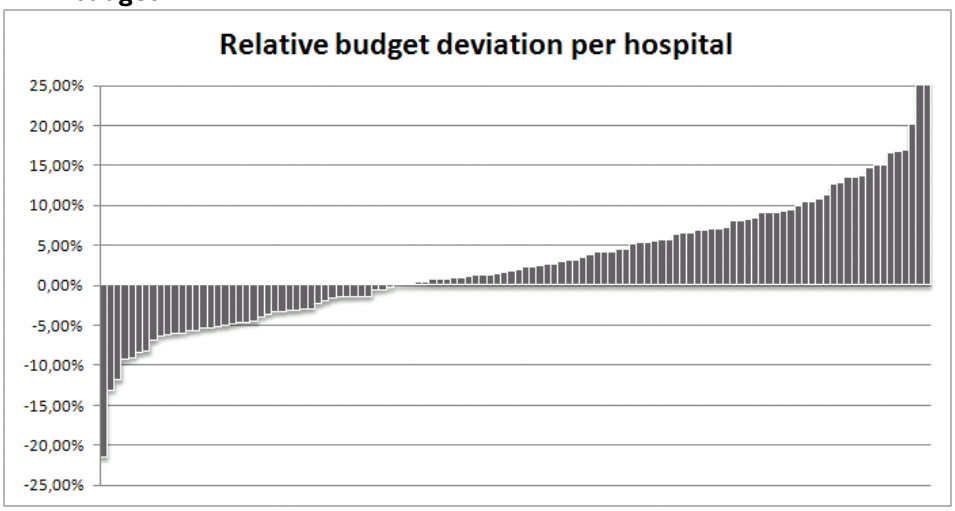


Figure 6.17: Relative budget deviation per hospital – cost model, scenario 1 – BFM budget

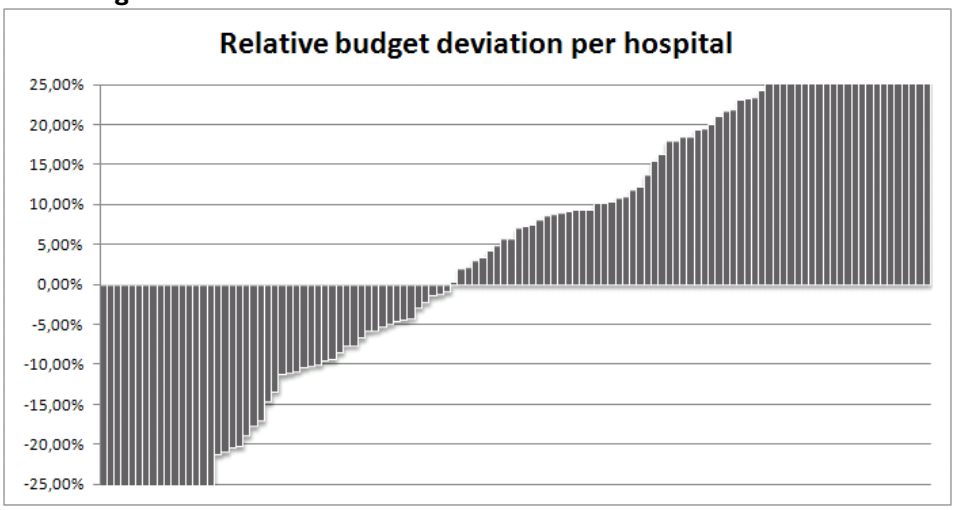
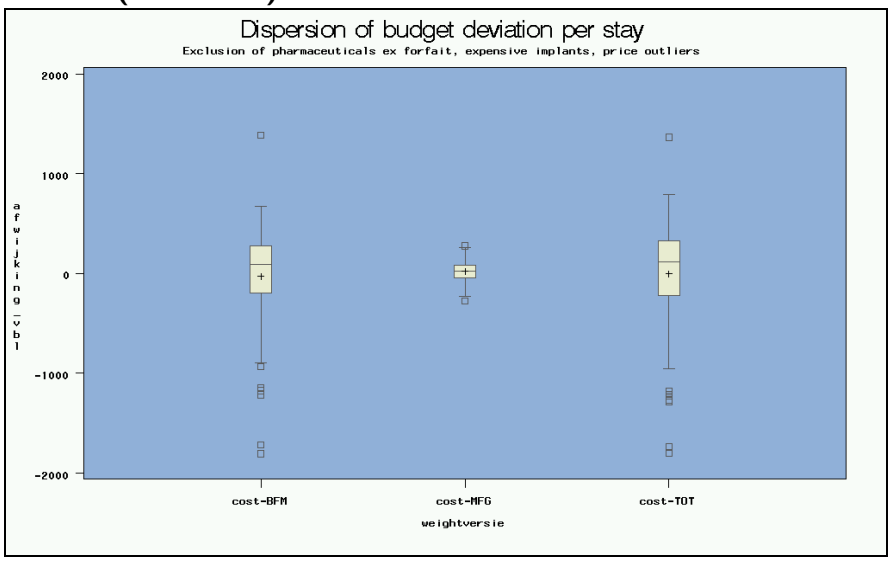


Figure 6.18: Budget deviation per stay per budget component – cost, all-inclusive (MFG=HBD)



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