KCE REPORT 192C

Federaal Kenniscentrum voor de Gezondheidszorg
Centre Fédéral d'Expertise des Soins de Santé
Belgian Health Care Knowledge Centre

EVOLUTION OF DAY-CARE: IMPACT OF FINANCING AND REGULATION





Belgian Health Care Knowledge Centre

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HEALTH SERVICES RESEARCH

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EVOLUTION OF DAY-CARE: IMPACT OF FINANCING AND REGULATION

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FORWORD

The advances in health care do not always have to be spectacular. Many small improvements in surgical technique, endoscopic equipment, anesthesia methods,... but also in the framework for organization, infrastructure, nursing and aftercare have brought about a slow revolution. What was unthinkable fifteen or twenty years ago in many cases – surgery and going home on the same day - became common nowadays. The increase in day-care is nothing less than spectacular.

But today are we where we should be? In other words, is the potential of the day hospital fully realized? Or remain interventions for some reason, such as wrongly targeted financial incentives, in inpatient care? And should everything currently financed as day-care be done in day-care? Are there any (legitimate or not) shifts from what was previously ambulatory to day-care? Not all these questions will receive a final, unambiguous answer. The case mix is diversified in such a way that general propositions have little meaning.

Other hand, much can be learned from a systematic and critical analysis of the successive reforms of the financial system, especially in the light of the financing schemes used for day-care abroad. Or how complexity and incoherence sometimes lead to inefficiency and paralysis.

It has become a complex story, but for many players on the field and in policy, this complexity is their daily bread. With this study, we hope to provide them with a somewhat structured insight in how this all has evolved. And especially useful insights on how it should be adjusted in the future.

Raf MERTENS
General director

SUMMARY

BACKGROUND

A hospital stay is usually a profound experience. If possible day-care is preferred over inpatient care. This is true not only for the patient but also for the financing authority, which assumes a lower cost for day-care compared to inpatient care.

The choice of the place of care, however, is determined by several factors. Medical practice and technology play an important role here. But the legal framework and the financing of ambulatory care and in hospital care play a role not to be underestimated. Furthermore, other factors such as the social situation or patient preferences come into play.

Both in Belgium and internationally, we find an increase in the share of day-care in in hospital care.

AIM

We studied the impact of the Belgian regulatory and financing of day-care.

The study tries to answers the following research questions:

- What is the evolution of the number day-care hospitalizations compared to the total number of hospitalizations and associated costs for the health insurance?
- Is the increase in the number of day-care hospitlizations compensated by a decrease in the number of inpatient hospitalizations? Are there (also) shifts between ambulatory care and day-care?
- What is the impact of regulation and financing on the developments and possible shifts?

METHODS

Regarding the regulation and financing of day-care, we examined legal texts and official documents of the responsible authorities (RIZIV/INAMI and Federal Public Service of Public Health).

For the analysis of the evolution of the number of stays and expenditure and the shifts between ambulatory care, day-care, and inpatient care, we relied on data from RIZIV/INAMI and Federal Public Service of Public Health. For sixteen groups of interventions, we analyzed the shifts in more detail. Data analysis on these data was descriptive in nature.

We looked at other countries on the basis of international gray literature.

RESULTS

Regulation and financing

The current organization and financing of day-care is the result of several reforms since the introduction of a plaster lump sum in 1985. The two main reforms were in 2002 and in 2007. In 2002, the financing of surgery in day-care was reformed. In 2007 there was a major reform of the day-care lump sums. The current organization and financing contain some inconsistencies such as multiple forms of financing for surgical interventions. The day-care lump sums are a fee for service and hence not actual lump sums.

Overall trend in expenditure and volume

The total expenditure of the health insurance for day-care and inpatient care together rose by an average of 4.1% per year from 4.13 billion in 2004 to 5.25 billion in 2010. Day-care expenses increased by an average of 4.5% per year from 307 million euros in 2004 to 398 million in 2010. For the number of admissions in day-care we found an increase of 53% between 2004 and 2010.

This increase in day-care spending was not offset by a decrease in spending for inpatient care. On the contrary, expenditure for inpatient care increased by an average of 4.1% per year from 3.82 billion in 2004 to 4.85 billion in 2010.

Shifts from inpatient care to day-care

We found that almost all of the sixteen studied groups of interventions showed one of two patterns:

- A shift in which the increase in day-care was offset by a more or less similar decrease in inpatient care. Of the studied intervention groups, the following showed this pattern: meniscectomy of the knee joint, inguinal hernia repair, tonsillectomy by dissection and related ORL surgery, varicose vein surgery and removal of osteosynthesis.
- A growth in day-care greater than the decrease in inpatient care. Of the studied intervention groups, the following showed this pattern: surgery of the eye lens, dental surgery, surgical circumcision, carpal tunnel release, total hysteroscopic endometrial resection and extracorporeal shock wave lithotripsy (kindey stone crusher).

Shifts between amubulatory care and day-care

In the studied intervention groups we found shifts from ambulatory care to day-care for dental surgery between 2004 and 2005, for follicle aspiration through laparoscopy or transvaginal under ultrasound guidance in 2002, for extracorporeal shock wave lithotripsy from 2007 onwards, for the insertion of tympanostomy tubes, for implanted subcutaneous portal system for the administration of medication, for therapeutic peridural infiltration, and for moderately severe varicose vein surgery.

A shift from day-care to ambulatory care was observed for single cataract surgery and dental surgery.

Surgery in day-ware in other countries

The day-care rate in Belgium is similar to the rate for similar interventions in France, England, the Netherlands and Denmark. A major exception is laparoscopic cholecystectomy where Belgium, together with France and the Netherlands, has a very low percentage of day-care.

Financing of day-care in other countries

England and Denmark apply the same tariff for day-care and inpatient care. This tariff is calculated as the average of the costs of both types of hospitalizations, weighted for national day-care rate. France uses a similar system for a selection of pathology groups. The selection is based on the presence of sufficient homogeneity within the pathology group and a positive scientific advice of medical experts.

England takes it one step further and since 2010 pays a higher tariff for day-care than for inpatient care for a selection of interventions.

CONCLUSION

We observed a solid growth in both the number and the cost for the health insurance of day-care admissions. This growth is explained both by shifts from inpatient and ambulatory care, and by the growth of medical practice. Technological innovation and regulatory and financing changes underlie this growth. Contrary to expectations, this growth is not offset by a decrease in the number or the costs for the health insurance of inpatient care.

The 2002 reform has been associated with some shifts of inpatient care to day-care. The 2007 reform had an impact both by a price effect as well as by an increase in the volume of dag-care admissions.

The current financing is not necessarily coherent and mainly due to successive political choices and agreements between stakeholders at different levels. The intention was to create financial incentives for hospitals to choose day-care where possible. However, the current financing structure is complex and not very coherent. The choice of interventions eligible for day-care was rarely argued scientifically. The international trend towards more pathology financing appears to be followed only to a small extent.

RECOMMENDATIONS[a]

To the Minister, after advice of the competent authorities

- **Before a new reform of the organization and financing of day-care is implemented, an overall plan with clear goals and strategies to support and facilitate the expansion of day-care should be available.**
  - **The plan should include a clear framework defining for each type of care where it is preferentially provided: ambulatory, day-care, or inpatient.**
  - **A list of procedures and interventions with a scientifically justified indication for day-care should be prepared by an advisory board. This board should be composed of representatives of the medical specialties involved.**
  - **Where feasible and advisable, a concrete target (%) for day-care should be provided based on scientific advice, international trends and hospital benchmarking.**
- **For a future integrated financing of day-care and inpatient care, it is recommended:**
  - **to finanince the list of procedures and interventions above by a single source;**
  - **based on a closed hospital budget to be determined yearly;**
  - **for more transparency, consistency and efficiency, a more comprehensive pathology financing of day-care and inpatient care must be envisaged;**
  - **for relatively homogeneous pathologies, the same tarriff for day-care and inpatient care should be considered.**

[a] KCE is the sole responsible for the recommendations to the government.

- **Pending a comprehensive reform, following short-term recommendations can be formulated:**
  - **The nomenclature, lists A and B and / or the application rules should be adapted more speedily to the emersion of new procedures or techniques, or new indications for existing procedures or techniques, taking into account scientific findings and standards of safety and quality of care. This requires a change to the current legal framework.**
  - **The criteria for adding an intervention to list B should be more transparent, and the algorithm for applying the financing of it needs to be simplified.**
  - **One intervention in day-care may confer entitlement to only one type of lump sum.**
  - **Charging the Mini lump sum should be further limited by stricter application rules, eg by clearly defining what is excluded from the lump sum.**
  - **Nomenclature codes that today lead to misinterpretation and misuse should be clarified.**
  - **Similar nomenclature codes should get similar prices to avoid optimization strategies.**

RESEARCH AGENDA

- **There is a need for additional research into other factors that determine the choice between inpatient care, day-care, and ambulatory care, aside from financing and regulation:**
  - **Medical practice and technology;**
  - **Sociodemographic evolutions (eg aging population);**
  - **Socio-economic factors (eg availability of informal care, patient preferences, cost to the patient);**
  - **Organisation of care (eg aftercare, availability of personnel, available beds).**
- **Prior to a pathology financing, the homogeneity of the pathology groups must be studied.**

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
A-code	Ambulatory or day-care billing code (nomenclature)
ACPG	Angiocardio-pneumography
ADH – HJA	Anonieme daghospitalisatie – Hospitalisation de jour anonyme
AP-DRG	All Patient Diagnosis Related Groups
APR-DRG	All Patient Refined Diagnosis Related Groups
ASA	American Society of Anesthesiologists
ASA score	ASA physical status classification system
ATC	Anatomical Therapeutic Chemical
AZV – SHA	Anonieme ziekenhuisverblijven – Séjours hospitaliers anonymes
BADS	British Association of Day Surgery
BFM – BMF	Budget van financiële middelen – budget des moyens financiers
CP	Chronic pain
CT	Computed tomography
CTR	Carpal tunnel release
CTS	Carpal tunnel syndrome
DAGS	Danish Ambulatory Grouping System
DC	Day care
DGEC – SECM	Dienst voor Geneeskundige Evaluatie en controle – Service d'Evaluation et de Contrôle Médicaux
DRG	Diagnosis Related Group
EDV	End-diastolic volumes
EF	Ejection fraction
ER	Emergency room
ESWL	Extracorporeal shock wave lithotripsy
ESV	End-systolic volumes
FPS	Federal Public Service
GI	Gastrointestinal
GP	General Practitioner
HBR	Hospital Billing Record: comprises both ADH – HJA and AZV – SHA

HC	Health care
H-code	Inpatient care billing code (nomenclature)
HGR	Health Resource Groups (UK)
IAAS	International Association for Ambulatory Surgery
ICD-9-CM	International Classification of Diseases (ninth revision), Clinical Modification
IVF	In vitro fertilisation
KVO	Keep vein open
LIHR	Laparoscopic Inguinal Hernia Repair
LOS	Length of stay
MKG-RCM	Minimale Klinische Gegevens – Résumé Clinique Minimum
NCSP	NOMESKO Classification of Surgical Procedures
NHS	National Health Service (UK)
OECD	Organisation for Economic Co-operation and Development
OIHR	Open Inguinal Hernia Repair
OR	Operating room
ORL	Otolaryngology
PAL – NAL-DJP – DJN)	Positief aantal ligdagen en negatief aantal ligdagen – différence de journées positive et de différence de journée négative
PRT	Peri-radicular therapy
PVI	Paravertebral infiltration
RD	Royal Decree
RIZIV – INAMI	Rijksinstituut voor ziekte- en invaliditeitsverzekering – Institut national d'assurance maladie-invalidité
SOI	Severity of illness
TCT	Technische cel – cellule technique
THER	Total hysteroscopic endometrial resection
TIVAS	Totally implantable venous access system
US	Ultrasound
U.S.A.	United States of America

SYNTHESIS

1 BACKGROUND

The decision to diagnose and treat a patient in an ambulatory or hospital setting is influenced by many factors that can be grouped in three categories (see Figure 1):

- Factors originating in medical practice;
- Factors related to regulations and financing (e.g. legal boundaries of medical practice);
- Factors related to socio-demographic and socio-economic issues. For example, in some cases, the social situation of the patient, or simply the patient's preference is taken into account when deciding to hospitalise a patient or not.

These factors are not constant over time. Advances in medical technology and procedures have opened opportunities to perform health care in more settings than previously possible. Similarly, legislation and especially financing mechanisms have changed significantly over time, favouring day-care over inpatient care.

The main argument for financially stimulating day-care is that hospital services delivered on a same-day basis are cheaper for society. Of course, this argument only takes effect if same-day hospital care is a substitute for inpatient care and not if the financing scheme induces same-day care or when ambulatory services are transferred to the one-day hospital setting. Moreover, inducement and substitution of ambulatory services for day-care also raise questions about the appropriateness of services delivered.

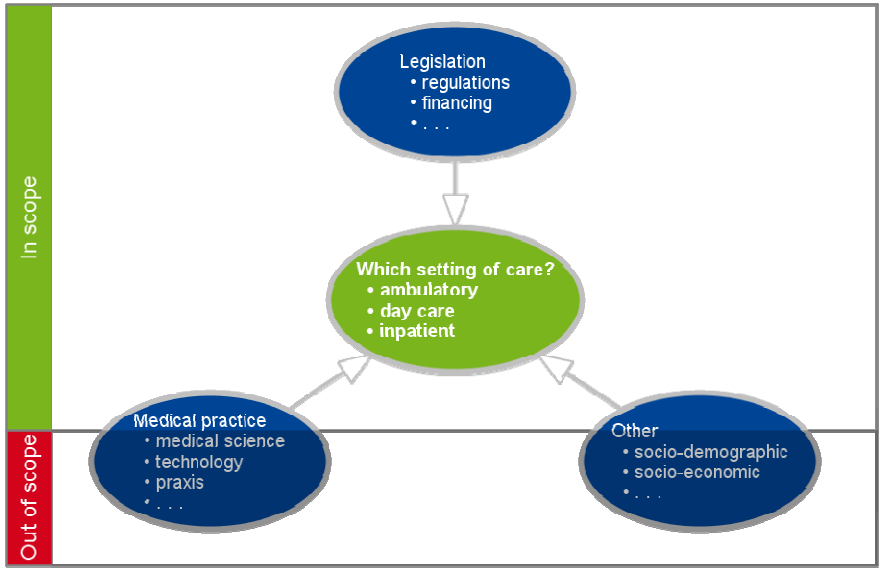
In the last decades shifts in the setting of care have been noted. For example, a study in Flemish acute hospitals covering 1999 to 2007 demonstrates an overall increase in the proportion of day-care to the total number of stays from 34.0% to 47.5%. In the same period, inpatient stays increased only marginally (5.1% increase for surgical stays, 6.0% for non-surgical stays) compared to day-care stays (62.5% increase for surgical stays, 103.3% for non-surgical stays).

The results for Belgium are in line with an international trend towards an increasing share of hospital day-care interventions versus inpatient interventions.

KCE was asked by the National Institute for Health and Disability Insurance (RIZIV – INAMI) and by the Christian and Socialist Sickness Funds to evaluate the impact of the current financing system and regulation on day-care.

This study is the first to conduct a comprehensive analysis of possible cost-shifting or cost-inducing effects of the regulation and the financing rules on the different care settings in Belgium.

Figure 1 – Research scope: factors influencing the choice for a specific setting of care



2 FINANCING OF DAY-CARE HOSPITAL IN BELGIUM

2.1 What are the different care settings?

The concepts used to describe the settings in which health care is delivered, are often overlapping, both in the scientific literature and in legislation. Different taxonomies exist based on physical location, type of care provided, type of care provider, and type of financing.

In this report, we chose the following concepts and definitions.

- **Ambulatory care**: care provided in a private practice or policlinic or other non-institutional facility or freestanding centre, including at the home of the patient.
- **Day-care**: In Belgium, day-care is legally defined as care in an institution with established procedures for selection of patients, safety, quality control, continuity, reporting and cooperation with various medico-technical services. The conditions for reimbursement indicate the criteria a day-care admission must meet:
  - the provided care does not give rise to a hospital overnight stay;
  - and it does not take place in a consultation ward (for ambulatory patients) of the institution;
  - and it is not immediately followed by a scheduled hospitalisation in the same institution;
  - and "(...) a procedure (...) is established for monitoring the patient after his discharge".
- **Inpatient care**: all care for a patient who occupies a bed for at least one night in a hospital for treatment, examination or observation.

2.2 General principles of the Belgian Hospital Financing System

The bulk of hospital financing[a] in Belgium originates from two sources:

- **Budget of financial means (BFM – BMF)**: global allowances to the hospital (see Box 1).
- **Reimbursements of per patient charged fees for services** delivered by health care providers in the hospital, both for inpatient and day-care stays. These fees are to be distributed among the health care providers with the exception of:
  - health care providers' contributions to the operating costs (space occupied, equipment, staff, overhead services) of their medical activities;
  - any costs not covered by the BFM – BMF.

  The RIZIV – INAMI is responsible for this part of hospital financing.

Box 1 – The Budget of Financial Means

The Budget of Financial Means (BFM – BMF) consists of

- a fixed part directly paid to the hospitals on a monthly base, without charging per patient;
- a variable part disbursed by means of 2 per patient lump sums (per admission and per diem).

These payments cover medical and non-medical investments, commodities and equipment, administration, paramedical and other non-medical staff, part of costs of a hospital admission and stay, etc. The focus in this closed end financing is on the activity in terms of treated pathologies and justified beds activity rather than on the number of recognised beds.

The Federal Public Service (FPS) for Health, Food Chain Safety and Environment is responsible for the calculation of individual hospital allowances. Both parts – fixed and variable – are largely paid by the National Institute for Health and Disability Insurance (RIZIV – INAMI).

[a] A small part of hospital financing comes from regional and community sources or from private insurance reimbursement and patients' out-of-pocket payments.

2.3 Financing of Day-care in Belgium

2.3.1 Historical overview

A first step to finance day-care activity was taken in 1985 with the plaster ward lump sum: a fixed price to reimburse hospital costs for plaster ward facilities and personnel.

However, the current financing of day-care is the result of several reforms since 1985 (see Figure 2, Figure 4).

In 1987, four lump sums were created: Mini, Maxi, Super, and haemodialysis. The prices for the first three were hospital specific and determined by the "costs of clinical services" part (B2) of the BFM – BMF. Each of these lump sums was linked to a "nominative" list, a restrictive list of health care interventions. When the hospital provided services from one of those lists, it was entitled to the corresponding lump sum.

In 2002, two instruments were created in the BFM – BMF to finance day-care surgery:

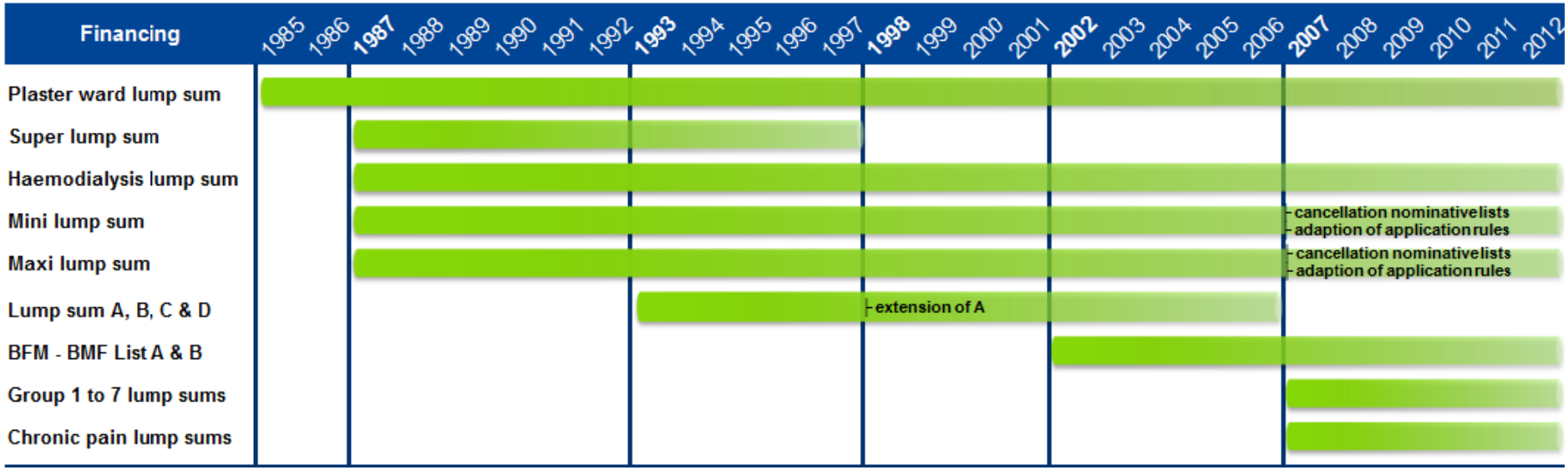
- List A: a list of surgical interventions for which the hospital received additional BFM – BMF financial means when performed in day-care.
- List B: a list of surgical interventions for which the hospital received exactly the same BFM – BMF financial means irrespective of being performed in day-care or inpatient. In other words, a hospital could be financially penalised for performing an intervention of List B in inpatient.

The initial selection of surgical interventions on List A in 2002 was based on three criteria:

- interventions present on nominative lists of earlier lump sums;
- interventions present on an existing list of surgical interventions where prophylactic use of antibiotics was required;
- for each intervention, at least 60% of all day-care and ambulatory services must have been performed in a hospital setting.

Since 2002, the List A changed only slightly, mostly reflecting changes in reimbursement codes rather than new interventions.

Figure 2 – Overview of major reforms in day-care financing



2007 brought a major overhaul of the lump sum categories. Price scaling for the seven groups of non-surgical and chronic pain lump sums was based on a survey of the actual costs in 95 hospitals. The composition of the nominative lists for the seven groups of non-surgical lump sums was based on pre-existent nominative lists of Mini, Maxi and the cancelled A to D lump sums. A further 33 codes were added.

In between these major changes, the nominative lists changed substantially. Most of these changes involve shifts of reimbursed services from one nominative list to another.

2.3.2 Current situation

Today, day-care in Belgium is mainly financed by a mix of the above described sources:

- BFM – BMF for day-care surgery;
- Hospital–independent lump sums: plaster ward lump sum, lump sums 1 to 7 for non-surgical day-care and lump sums 1 to 3 for chronic pain treatments. All have a fixed price;
- Hospital–dependent lump sums: Maxi and Mini lump sums, priced according to previously allocated B2 part of the hospital's BFM – BMF.

It is important to note that when a day-care stay includes different services, listed in different nominative lists, the hospital is free to charge the "highest priced lump sum".

3 AVAILABLE HEALTH CARE DATA ON VOLUME AND EXPENDITURES

To study the evolution of volume and expenditure, as well as shifts between settings of care, we had multiple data sources at our disposal (see Table 1). However, each of these individual sources only contains part of the information needed for our analysis. We make extensive use of comparison between these sources to overcome this limitation.

Table 1 – Overview of most important data sources

Name	Maintainer	Contents
Doc N **1995 → 2010**	RIZIV – INAMI	Expenditures and number of all health services reimbursed by the compulsory health insurance per year. Each health service can be represented by two nomenclature codes: • A-codes: health services performed in an ambulatory or a day-care setting • H-codes: health services performed in an inpatient setting
Doc FH **2000 → 2010**	RIZIV – INAMI	Expenditures and number of day-care lump sums per year and per hospital. In case a nominative list is tied to the lump sum, the hospital must provide a nomenclature code to justify the lump sum. The hospital chooses the best fitting nomenclature code if multiple health services were provided.
ADH – HJA **2004 → 2009**	RIZIV – INAMI	Expenditures and number of day-care health services - per nomenclature code - reimbursed by the compulsory health insurance detailed per patient stay.

For the calculation of the total budget of inpatient or day-care stays, we have extrapolated the per diem lump sums to reflect both fixed and variable parts of the BFM – BMF allocations (see earlier description of BFM – BMF). This was necessary, as in the data sources only the part reimbursed per patient is recorded.

To research shifts between inpatient and day-care settings or between ambulatory and day-care settings, we preferred comparing Doc N A-codes data with Doc FH data because of the large available time frame. However, as Doc FH contains only one justifying health service nomenclature code per day-care lump sum, we risk underestimating the number of interventions associated with a particular day-care lump sum. ADH – HJA does contain all related nomenclature codes per day-care lump sum. For each day-care lump sum, we compared Doc FH and ADH – HJA on the number of interventions relative to Doc N. We chose Doc FH when they were comparable and ADH – HJA when not. For example, for eye lens surgery (codes 246610 – 246621) Doc FH differs by 17.19% from Doc N A-codes, while ADH – HJA differs only by 2.93%. In this case, Doc FH underestimates the number of interventions.

4 EVOLUTION OF DAY-CARE AND INPATIENT STAY VOLUME AND EXPENDITURES

4.1 Global evolution

Between 2004 and 2010, total (extrapolated) **expenditures** for day-care and inpatient hospital stays combined, increased on average 4.1% per year from 4.13 billion euros to 5.25 billion euros. The total spent on day-care increased by on average 4.5% per year from 307 million euros to 398 million euros.

The increase in day-care spending was not compensated by a decrease in inpatient spending. In fact, total inpatient expenditures followed the global rate of growth and increased on average 4.1% per year from 3.82 billion euro in 2004 to 4.85 billion euros in 2010.

Growth in expenditures can be explained by a price effect: national weighted average per diem prices rose by 34.3% from €288.94 to €388.14 in the same period.

In terms of **volume**, we observe a small drop of 0.7% of combined total of day-care and inpatient days from 15.2 million days in 2003 to 15.1 million days in 2010. The number of day-care days, including plaster ward and Mini services, increased by 52.94% from 1.7 million days in 2003 to 2.6 million days in 2010. The number of inpatient days decreased by 7.41% from 13.5 million days in 2003 to 12.5 million days in 2010. This is entirely due to a reduction of the inpatient average length of stay from 7.8 days in 2003 to 7.5 days in 2009.

4.2 Evolution of day-care

4.2.1 Global evolution of RIZIV – INAMI reimbursements for day-care lump sums

We observe a global continuous growth in RIZIV – INAMI expenditures from 1995 to 2010, with a boost effect in 2007 following the introduction of new lump sums (see Figure 3). Most of the day-care lump sum groups show a growth. The only exception is the Maxi lump sum. The 2007 reform, with the repeal of the Maxi nominative list, has stopped further growth between 2007 and 2010. More recent data are not available to verify the stability of this effect. Chemotherapy services in particular, which are covered by the Maxi lump sum and which have grown steadily over the years, could lead to further growth caused by changes in oncology practice.

Figure 3 – Evolution of RIZIV – INAMI reimbursements for day-care per type of lump sum between 1995 and 2010

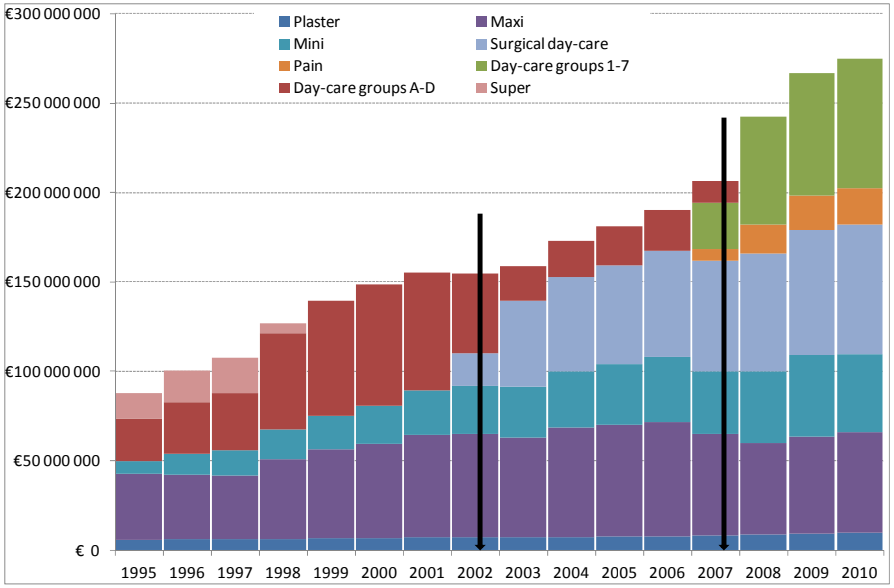
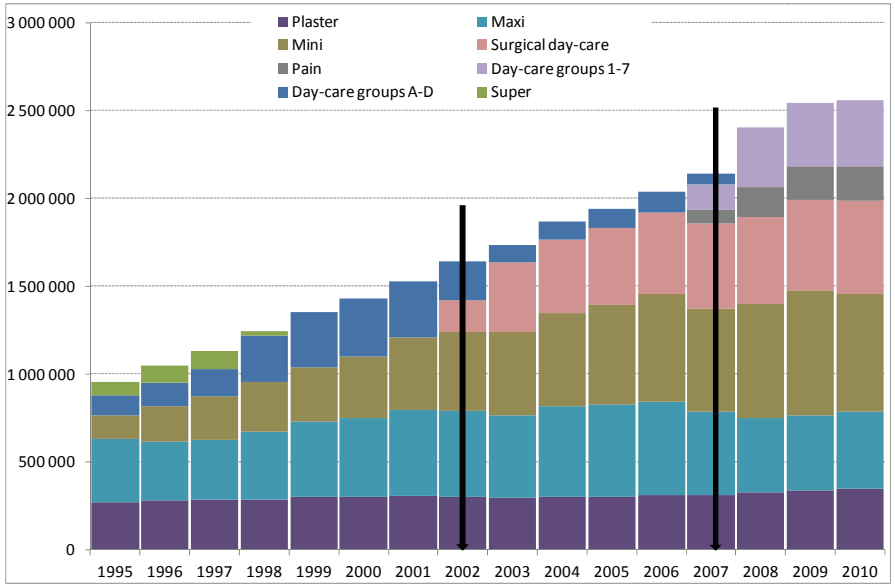


Figure 4 shows that the number of day-care stays entitled to a lump sum reimbursement has also been increasing. Hence, the growth of expenditures can only partially be explained by a price effect. Here too, Maxi lump sum counts are an exception to the rule of growth. In the following sections, day-care surgery and non-surgical day-care lump sums 1 to 7 are discussed in more detail.

Figure 4 – Evolution of national stay counts for day-care per type of lump sum between 1995 and 2010



4.2.2 Day-care surgery

There is on average an increase of 5.8% per year of day-care surgery stays from 397 000 in 2003 to 527 000 in 2010. This cannot be explained by a significant extension over the years of the related nominative List A, as very few new interventions have been added to List A since 2002.

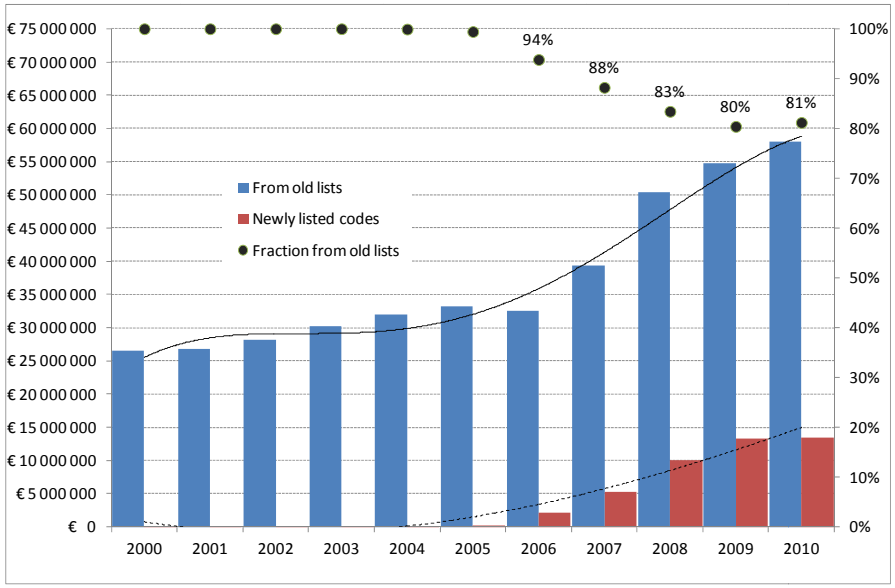
The rapid growth of day-care surgery was to be expected, as the 2002 reform intensified a deliberate policy to stimulate day-care surgery, previously started with a bonus-malus-like financing (PAL-NAL – DJP-DJN system which financially rewarded hospitals when length of stays were shorter than on average, and penalised when longer).

4.2.3 Non-surgical day-care lump sums 1 to 7

Expenditures rose between 2000 and 2010, with a boost in 2007 from the introduction of the non-surgical lump sums 1 to 7, including both new codes and codes recovered from previous nominative lists (see Figure 5). While the expenditures rose by 30.8% between 2000 and 2006, they almost doubled between 2007 and 2010.

Part of this sharp increase can be explained by the fact that prices of the new lump sums in 2007 are higher than the pre-2007 lump sums. However, the number of day-care stays for the non-surgical lump sums shows a significant growth from 2007 onwards as well: an increase of 30.8% between 2000 and 2006, but of 49.1% between 2006 and 2010.

Figure 5 – RIZIV – INAMI reimbursements for non-surgical day-care lump sums 1 to 7 between 2000 and 2010 (solid and dotted line show trends)



Possible explanations of this 2007 increase in numbers are shifts from inpatient to day-care, shifts from ambulatory to day-care, or an overall market growth potentially induced by the introduction of new lump sums. These various hypotheses are explored in the next section.

5 SHIFTS BETWEEN SETTINGS OF CARE

5.1 Selection of interventions

For a detailed study of shifts between the different settings of care, we chose to focus on a selection of 16 (groups of) interventions generating large expenditures (average annual A-code total of at least one million euros), and also showing an annual increase in the day-care to inpatient ratio.

5.2 Overview of shifts

Table 2 summarises per selected intervention group the changes in number of inpatient and day-care stays. A general appraisal of three types of shifts is shown as well. Following the table, we present some examples for each type of shift. For a detailed account per intervention group, we refer the reader to the scientific report (see section 6) accompanying this synthesis.

Table 2 – Overview of shifts for sixteen selected intervention groups

	Changes from 2010 to 2000[a]			% day-care stays of total stays			Appraisal of shifts		
Clinical group	Inpatient stays	Day-care stays	Total	2000[a]		2010	Inpatient → day-care	Ambulatory → day-care	Day-care → ambulatory
Eye lens surgery	-10 856	+62 543	+51 687	71.7%	→	94.0%	Day-care growth larger than shift	No shift	Tendency to shift from 2009 onwards
Lower gastrointestinal fiber optic endoscopy	+2 170	+87 047	+89 217	68.3%	→	81.9%	Prior to 2005: day-care growth without shift From 2005: day-care growth with shift	No shift	No shift
Dental surgery	-12 054	+93 777	+81 723	86.6%	→	98.0%	Day-care growth larger than shift	Shift in 2004-2005 (rescinding of 3 codes pairs for surgical tooth extractions by dentists)	Tendency to shift from 2009 onwards
Surgical circumcision	-1 691	+9 638	+7 947	81.7%	→	94.7%	Day-care growth larger than shift	No shift	No shift
Carpal tunnel release	-1 804	+13 894	+12 090	81.3%	→	93.3%	Day-care growth larger than shift	No shift	No shift
Meniscectomy of the knee joint	-9 315	+15 053	+5 738	63.0%	→	90.9%	Shift: day-care growth ≈ inpatient decrease	No shift	No shift
Inguinal hernia repair	-4 568	+7 213	+2 645	13.0%	→	32.4%	Shift: day-care growth ≈ inpatient decrease	No shift	No shift
Follicle aspiration by laparoscopy or trans-vaginally under ultrasonographic guidance	-749	+9 083	+8 334	89.3%	→	99.7%	Global growth. From 2002 onwards, quasi total replacement by day-care	Shift in 2002 (IVF centres → intramural)	No shift
Total hysteroscopic endometrial resection	-916	+2 928	+2 012	45.3%	→	78.8%	Day-care growth larger than shift	No shift	No shift
Extracorporeal shock wave lithotripsy	-1 236	+3 275	+2 039	65.3%	→	79.8%	Day-care growth larger than shift	Shift from 2007 onwards	No shift

Clinical group	Changes from 2010 to 2000[a]			% day-care stays of total stays			Appraisal of shifts		
	Inpatient stays	Day-care stays	Total	2000[a]		2010	Inpatient → day-care	Ambulatory → day-care	Day-care → ambulatory
Tonsillectomy by dissection and related ORL interventions	-7 140	+15 961	+8 821	70.5%	→	83.1%	Shift: day-care growth ≈ inpatient decrease	No shift except for tympanostomy	No shift
Subcutaneous portal system implant for administration of medication	+1 855	+6 995	+8 850	40.4%	→	57.7%	Global growth. From 2007 onwards day-care growth larger than shift	Shift in 2002	No shift
Therapeutic epidural infiltration	+5 557	+104 144	+109 701	94.5%	→	94.9%	Insufficient data (only 3.5 years of data available)	Shift (paravertebral infiltration to periradicular therapy)	No shift
Varicose vein surgery	-9 594	+13 747	+4 153	50.2%	→	88.2%	Shift prior to 2009: day-care growth ≈ inpatient decrease From 2009: day-care growth larger than shift	Tendency to shift for medium grade surgery	No shift
Removal of intra-corporeal osteosynthesis material	-4 254	+5 967	+1 713	67.9%	→	79.3%	Shift: day-care growth ≈ inpatient decrease	No shift	No shift
Cardiac angiography	+40 858	+415	+41 273	5.0%	→	7.0%	No shift	No shift	No shift

[a] *For "therapeutic epidural infiltration", the first year is 2007 instead of 2000*

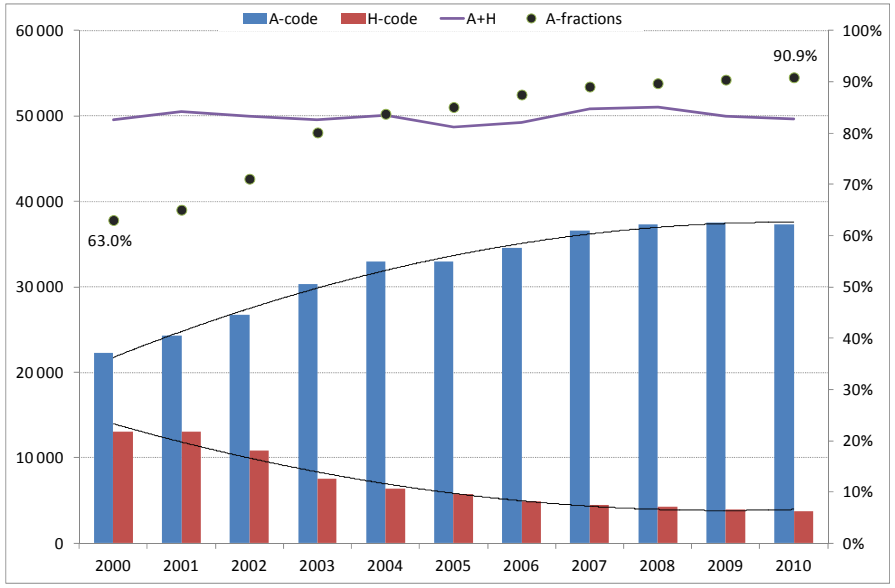
5.3 Shifts from inpatient to day-care

We found that the interventions studied fall into one of two patterns:

- A shift where the increase in day-care stays approximately corresponds to the decrease in inpatient stays;
- Day-care growth larger than the shift from inpatient to day-care stays.

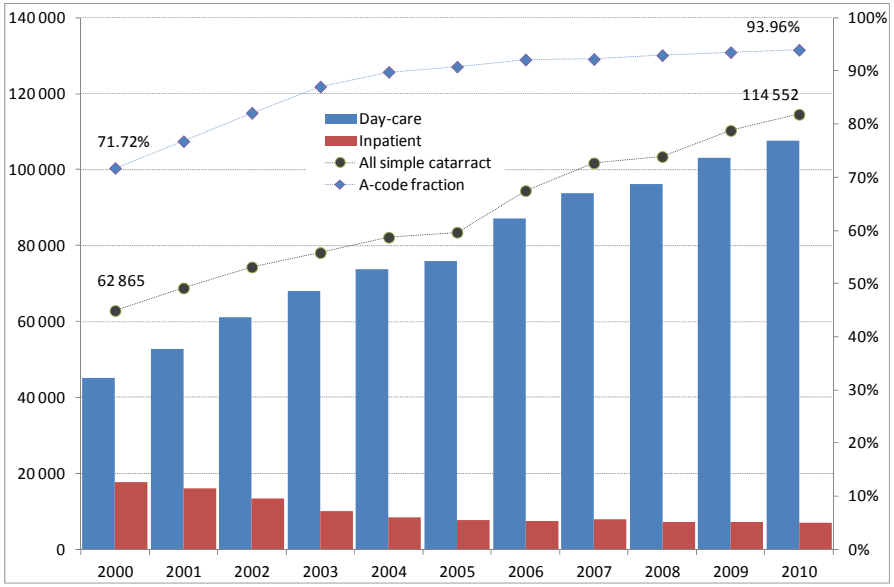
An example of the first is arthroscopic meniscectomy (predominant intervention in the group meniscectomy of the knee). The number of interventions remains stable with approximately 50 000 per year between 2000 and 2010 (see Figure 6). We observe a steady increase of interventions performed in day-care (67.6% rise) compensated by an equivalent decrease in inpatient care (-73.3%).

Figure 6 – Number of day-care (A-code) and inpatient (H-code) stays for arthroscopic meniscectomy between 2000 and 2010



Simple cataract surgery (combining 4 codes for eye lens surgery), is an example of the second pattern. Between 2000 and 2010, simple cataract in day-care has increased by 138.7%, while inpatient stays decreased only by 61.1% (see Figure 7).

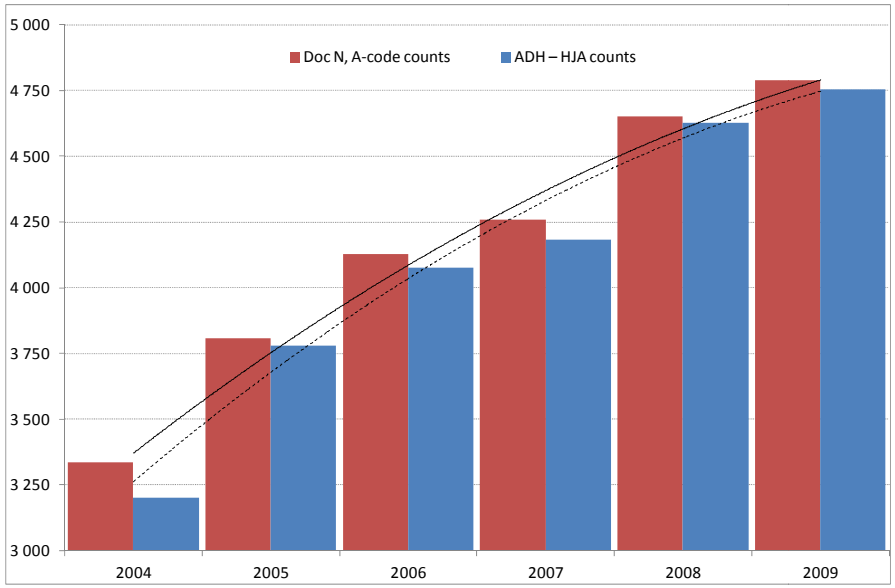
Figure 7 – Number of day-care (A-code) and inpatient (H-code) stays for simple cataract surgery between 2000 and 2010



5.4 Shifts from ambulatory to day-care

Therapeutic hysteroscopic endometrial resection (THER) is an example of a shift from ambulatory care to day-care. As explained previously, assessing a shift from ambulatory to day-care requires comparing RIZIV – INAMI Doc N counts for A-codes with either ADH – HJA counts or Doc FH counts (both day-care only). The results in Figure 8 illustrate that for therapeutic hysteroscopic endometrial resection the difference between these two counts diminishes over time. In other words, the number of ambulatory THER has relatively decreased, indicating a shift from ambulatory to day-care.

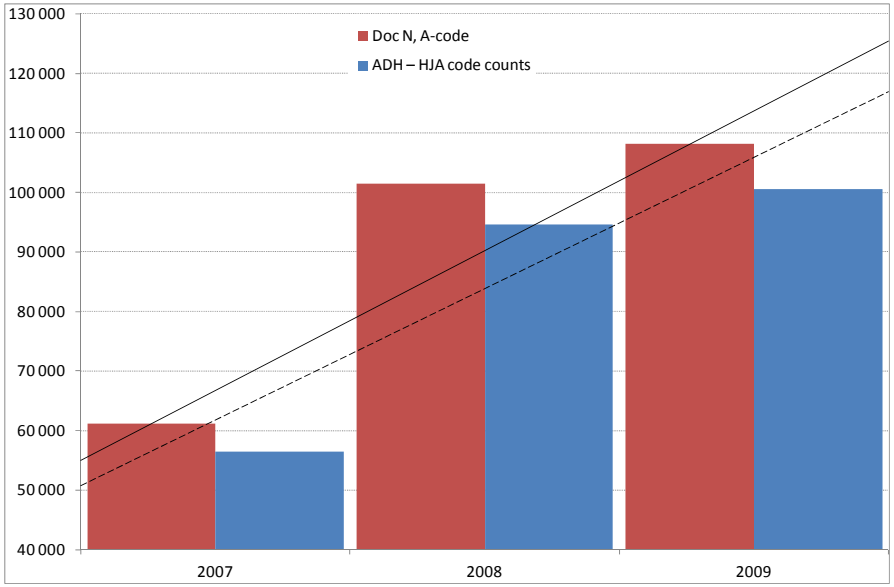
Figure 8 – A-code (ambulatory + day-care) and ADH – HJA (day-care) counts for THER between 2000 and 2010



5.5 Shifts from day-care to ambulatory care

Simple cataract surgery by laser or ultrasound is an example of a tendency from day-care to ambulatory care. Annual numbers of stays in Doc N (day-care + ambulatory) for this particular intervention compared to those in ADH – HJA (day-care) suggest that the difference between these two counts enlarges (Figure 9).

Figure 9 – A-code (ambulatory + day-care) and ADH – HJA (day-care) counts for cataract surgery by laser or ultrasound from 2007 to 2009



6 DAY-CARE ACTIVITY AND FINANCING IN OTHER COUNTRIES

6.1 International comparison of day-surgery rates

The International Association for Ambulatory Surgery (IAAS) conducts every two years an international survey on the prevalence of day-surgery. For a basket of 37 interventions, the numbers of day-care and inpatient procedures are collected and the proportion performed in day-care is computed (day-surgery rate).

The results of this international comparison need to be interpreted with caution because the database and definitions used for calculation vary among countries. Moreover, although the procedures are specified by their common names and by their international classification codes, some codes cover heterogeneous procedures with diverging day-surgery rates. We therefore limited the comparison to relatively homogenous procedures (Table 3).

On average, Belgium shows day-surgery rates comparable to other countries. Nevertheless, the day-surgery rate for laparoscopic cholecystectomy is far below the rate of England, Denmark and U.S.A. It should be noticed that this procedure is not part of List A and gives no entitlement to any kind of day-care lump sum. There is therefore no clear incentive for day-surgery for this procedure.

Table 3 – International comparison of day-surgery rates, 2009

Procedure	Belgium	France	England	Netherlands	Denmark	U.S.A. (2007)
Myringotomy (transtympanic prosthetic drainage)	96%	96%	87%	98%(2007)	75%	98%
Tonsillectomy	74%	63%	30%	32%	38%	90%
Cataract surgery	93%	78%	97%	99%	99%	99%
Squint correction	93%	33%	92%	97%	84%	84%
Endoscopic female sterilisation	75%	57%	85%	94%	91%	92%
Dilatation + curettage	85%	63%	85%	70%	94%	86%
Arthroscopic meniscectomy	90%	74%	81%	93%	96%	98%
Carpal tunnel release	95%	84%	95%	94%	93%	98%
Laparoscopic cholecystectomy	3%	1%	20%	6%	58%	53%
Inguinal hernia repair	35%	20%	59%	67%	81%	86%
Pilonidal cyst excision	45%	19%	58%	91%	92%	91%
Circumcision	95%	90%	83%	95%	94%	91%
IAAS basket*	78%	45%	77%	68%	86%	85%

** List of 37 procedures*

6.2 Day-care financing

England and Denmark have implemented a single tariff for day-care and inpatient care, which, manifestly, introduces a strong incentive for day-care. This tariff is calculated as an average of the day-care and inpatient costs, weighted by the national proportion of each type of hospitalisation (case-based system).

France applies a similar system for a selection of Diagnosis Related Groups (DRGs). The selection of DRGs is based on two criteria: a) a certain homogeneity within DRG between day-care and inpatient stays and b) a positive advice of medical experts of scientific associations.

Since 2010, the National Health Service (NHS) of England has introduced "best day-care practice tariffs" for a selection of procedures. The tariff for these procedures is higher for day-care than for inpatient stays. The selection of procedures was based on recommendations of the British Association of Day Surgery (BADS). BADS publishes every year a directory of procedures that are amenable to day-care along with rates that they believe are achievable in most cases. These day-care rates are obtained following consultation with hospitals recognised as leaders in day-surgery.

7 CONCLUSION AND DISCUSSION

For a growing number of surgical and non-surgical treatments it is medically no longer needed to keep a patient in hospital for a number of days. Moreover, hospital services delivered on a same-day basis are cheaper for society. Hence, from these two observations, we would expect significant savings in hospital reimbursements for public authorities in the last decade. However, the results of the global analyses and of the case studies contradict this prediction. The increase in day-care expenditures was not compensated by a decrease in inpatient expenditures. Although the number of inpatient days decreased due to a general and continuing trend towards lower lengths of stay for inpatient stays, the number of inpatient stays and inpatient expenditure did not drop.

From a theoretical point of view the increase in hospital day-care spending can be the result of shifts between care settings, an overall medical practice growth, or price inflation. Indeed, those three factors can work separately or in combination and are the result of technological innovation, medical practice evolution, but also of health care policy decisions.

We also want to note that although Belgian legislation uses the term "lump sum", it is a form of fee-for-service. Each lump sum requires a specific health service or package of services to be performed. But to conform to legislation use, we use the term "lump sum" in this report.

7.1 Evolution of day-care services: a mixed picture of shifts and growth

Three patterns of day-care activity can be observed.

A first typical pattern is when day-care activity rises "at the expense" of inpatient care and, consequently, the number of stays remains virtually stable so that one can assume that **a shift from inpatient to day-care** is taking place. In some cases, like arthroscopic meniscectomy, tonsillectomy and removal of deep osteosynthesis material, technology remained basically unchanged and shifts have a regulatory footing. In other cases, new technology for a similar cure acted as a driver: mesh grafts for inguinal hernia repair and new, less aggressive techniques for vein eradication. In one studied case, the shift was not within a similar

intervention type, but from invasive uterine extirpations to organ-saving techniques.

In the majority of cases the reduction of inpatient care is accompanied by a larger rise in day-care services. **The increase of day-care can only partially be explained by a shift from inpatient care**. For some interventions a clear shift from ambulatory to day-care was observed, e.g. for medium–grade varicose vein surgery (isolated) and ultrasound-guided or laparoscopic follicle aspiration (before 2002). For other interventions no clear shift between care settings was found, e.g. for eye lens surgery, lower gastrointestinal fibre optic endoscopy, carpal tunnel surgery, extracorporeal shock wave lithotripsy (ESWL), circumcision and cardiac angiography. A widening of indications (e.g. due to demographic changes) or a move from “non-interventional care” to “interventional care”, whether or not enhanced by changes in the financing system, are the most plausible explanations.

Finally, besides rising day-care services, inpatient services can rise as well, reflecting **overall practice growth**. An example is subcutaneous portal system implant for administration of medication (until 2005).

If all previous cases implied shifts towards hospital day-care, shifts can occur in the other direction: away from hospital care. Such shifts from hospital day-care to ambulatory care are more difficult to document and reflect even more subtle interactions between both medical market, technological innovation as well as evolving clinical practice and hospital–related public health policies with possible conflicts of interests between hospital managers and medical specialists. Two examples were found: eye lens surgery and dental surgery, both only very recently (since 2009). From a purely budgetary point of view, there is undeniably much to say in favour of such evolutions. From a public health managerial and socio-political position, on the contrary, there are concerns about the quality of care provided and equity for underprivileged patients.

7.2 Impact of the financing system and regulation

Since financing of health care services is not implemented in a controlled environment, it is difficult to isolate its effect from other policies which were introduced concomitantly. In addition to the financial incentives, regulation can also facilitate (or block) the development of surgical and non-surgical day-care activities. Of course, regulation and financial incentives are often intertwined. For example, List A and List B, for day-surgery interventions, combine regulation and financial incentives as drivers for day-care activities. Hospital choice between inpatient and day-care treatment is guided by financial incentives for interventions on List A and financial disincentives for interventions on List B. The content of both lists is primarily determined by regulation.

The 2002 reform induced some shifts from inpatient to day-care for a number of interventions, such as ultrasound-guided or laparoscopic follicle aspiration, inguinal hernia repair and subcutaneous portal system. For the first example, the reform also induced a shift from ambulatory to day-care with an intramural migration of IVF centres.

The effect of the 2007 reform, introducing 7 new groups of lump sums (and barring others) is visible in the global analyses as well as in some of the case studies. Globally speaking, the effect consists of a price effect (on average around 15% rise for the 7 groups, over 34% for surgical day-care) and a volume effect (near 24% increase overall) from 2007 on. As for the case studies, examples are lower gastrointestinal fibre optic endoscopy, extracorporeal shock wave lithotripsy and therapeutic epidural infiltration. The sudden explosion of therapeutic epidural infiltrations, with a huge shift from the former paravertebral infiltration (PVI) to modern peri-radicular therapy (PRT), is a perfect example of a voluntarily induced shift from mostly ambulatory infiltrations to pin-pointed techniques under well-equipped medical imaging guidance in an intramural setting. The picture is quite similar for lithotripsy.

7.3 Limitations of the study

Electronic records of hospital admissions have evolved from a monitoring tool for tracking hospital activity to a tool for conducting research. Yet, some publications warn of their potential inaccuracy.

Next, all our analyses were descriptive and the shift effects were not quantifiable, rendering any statistical testing difficult and causal inference somewhat speculative.

Furthermore, we did not study effects of other, surrounding factors. Broader organisational issues, such as communication with home care (community nurses, general practitioners) for one, were scarcely brought up. Socio-economic status (underprivileged population groups), patient-to-hospital distance, geographical spread and availability of hospital beds are other pertinent examples. Further in-depth analysis of explanatory factors of increasing volume or expenditures for day-care should take account of all factors summarized in Figure 1.

7.4 Evaluation of current day-care financing

7.4.1 Lack of transparency

Day-care financing in Belgium is mainly the result of successive political choices and stakeholder agreements to provide financial incentives for hospitals to endorse day-care activity. Its structure is complex and lacks coherence.

One can indeed observe a double dichotomy in Belgian day-care financing:

- A part of the financing (i.e. surgical day-care) is included in the BFM - BMF which is a closed budget. The other part is financed by means of a series of lump sums, which are in fact “per service remuneration” of hospitals, with less stringent budgetary control.
- A part of the financing is hospital dependant: surgical day-care, Mini and Maxi lump sums, all related to the B2 part of the BFM – BMF. The other part is hospital independent (e.g. fixed lump sums 1 to 7 for non-surgical day-care and lump sums 1 to 3 for chronic pain treatments, all introduced in 2007).

The logic of this double dichotomy is not clear. For example, day-care surgical interventions are mostly financed through the BFM – BMF, yet some are through lump sums.

Complexity and incoherence may lead to confusion when applying the rules. For instance, the nominative list associated with group 7 includes a considerable number of interventions that normally are performed under general or loco-regional anaesthesia and, hence, fall under the Maxi lump sum ruling. It took the hospitals some time to realise that the group 7 fixed lump sum offered better reimbursement than the traditional Maxi lump sum they were used to claim.

Another example of the lack of clarity of the current system, concerns insufficiently discriminating nomenclature code labelling. For example, general descriptions such as “any condition requiring intravenous infusion” (1993) or “any keep vein open (KVO) infusion for therapeutic reasons” (2007) resulted in maximizing KVO instructions for day-care services.

7.4.2 Lack of scientific evidence supporting choice of care setting

Although the world of medical technology is rapidly evolving, the initial selection of interventions in List A dates from 2002 with – except for the year 2007 – hardly any new interventions added to the list.

The distinction between surgical and non-surgical day-care continues to be based on historical and meanwhile obsolete listings, and no formalised efforts were made to produce an overall listing of day-care approved interventions based on scientific evidence, irrespective of their classification as surgical or non-surgical. Currently, the obsolete nature of List A has a restraining effect on day-care surgery activities. For example, the percentage day-surgery for laparoscopic cholecystectomy equals 3% in Belgium, while it exceeds 50% in some other countries. Cholecystectomy is not on List A and, hence, hospitals have no financial incentives for switching it to day-care.

Since 2007, new interventions are financed by attributing them to one of the 7 groups of fixed lump sums. We have found no published rationale for the choice of which new interventions to add.

7.5 Possible directions for the future

7.5.1 A global plan for hospital activities

Since the end of the eighties of the previous century, day-care activities have been stimulated in Belgium, but without an explicit, global plan for the development of day-care activities or their financing. A first step in such plan would consist of drawing up a list of scientifically approved day-care interventions by a scientific committee, as was done in the National Health Service system of England. This step should be taken, whatever the financing system of day-care activities.

A second step concerns the financing of the selected interventions. Since there are no rational arguments to finance part of hospital activities within and part outside the hospital budget (BFM – BMF), all hospital activities should be financed by the same source. For budgetary control reasons, the hospital budget seems to be the most adequate financing source. Thirdly, the financing should be adapted regularly to take account of medical and technological progress.

7.5.2 Following the international trends in day-care financing

One of the major reforms in the hospital sector since the beginning of the 1990s is the worldwide implementation of prospective payment systems where hospitals are paid a fixed amount per case, regardless of the actual costs of the provided services. In most countries some variant of the Diagnosis Related Group (DRG) method is used as a measure of the hospital case-mix. In an increasing number of countries, day-care and even ambulatory activities are financed by DRG-based payments. Moreover, many of them apply a single tariff for inpatient and day-care, at least in selected DRGs. Proponents argue that by creating incentives for day-care it will increase efficiency and reduce costs. Opponents will emphasise a possible danger of cream-skimming the healthier patients. In any case, the advantages and disadvantages of different systems should be carefully weighed against each other to incentivise providers in line with social objectives.

Of course, a case-based payment system is not the only way to increase coherence, transparency and efficiency in the current hospital financing system. But the current way of financing with different sources (BFM –BMF and lump sums) is certainly not the way to proceed.

If a hospital case-based payment system were to be introduced in Belgium, it would be important to determine if an equal price setting for day-care and inpatient cases, as seen in other countries, is advisable. It would also be necessary to decide whether a single tariff would be implemented for all DRGs or only for a selection. Simulations on Belgian data should therefore assess cost and clinical heterogeneity, both within each DRG and between day-care and inpatient stays.

SCIENTIFIC REPORT

1 INTRODUCTION

1.1 General background

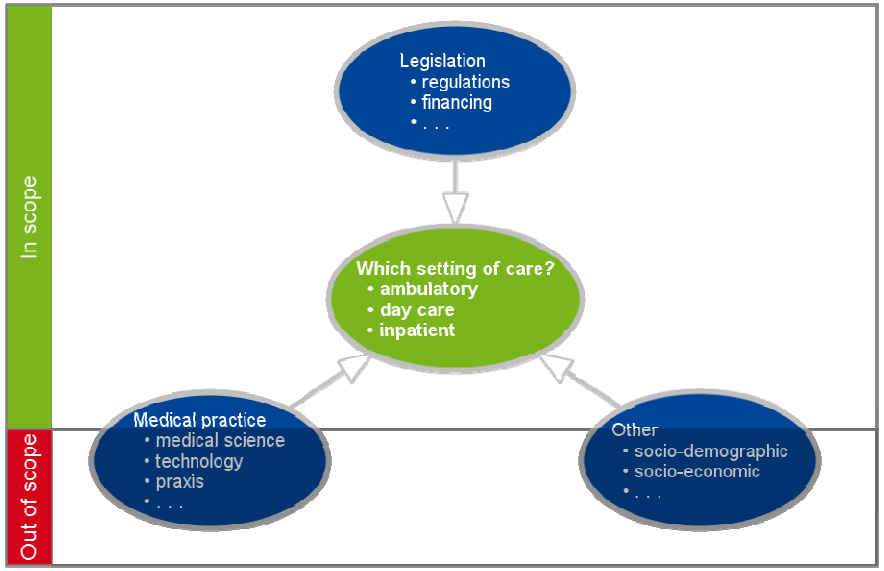
The decision to diagnose and treat a patient in an ambulatory or hospital setting is influenced by many factors that can be grouped into three categories (see Figure 1). A first set of factors originates in medical practice. The symptoms, urgency and severity of the illness a patient presents to a health care provider determine in large part the setting in which health care will be provided. This decision is guided by the current state of medical science and technology as well as by the established praxis. For example, innovations in surgical and anaesthetic techniques were an important driver for improved rates of day-surgery.

The second set concerns socio-demographic and socio-economic factors. For example, the social situation of the patient might require an overnight stay. Or patient preferences may determine the setting of care.

Finally, health care providers are also bound by a legal framework. Regulations prescribe what health care providers can or should do in a certain setting of care: e.g., they are not allowed to perform certain care in an ambulatory[b] setting. Equally, there are financial incentives to administer certain health care in an ambulatory or day-care setting. These financial incentives can complement regulations, but not necessarily do so. This third category also includes health care organisation: e.g., number of inpatient hospital beds, availability of home nurses, medical staff availability.

[b] In this introduction, we intentionally use the terms ambulatory, day-care and inpatient without defining them explicitly. The definition is given in Chapter 2.

Figure 1 – Research scope: factors influencing the choice for a specific setting of care



These factors are not constant over time. Advances in medical technology and procedures have opened opportunities to perform health care in more settings than previously possible. Similarly, legislation and especially financing mechanisms have changed significantly over time, favouring day care over inpatient care. Concerns about the increase in health care costs, resulted in supply restrictions in the hospital sector in the early 1980ies. The Belgian government pursued a policy of reduction of the total number of hospital beds. Day-care was one solution to provide medical care for the same number of patients using fewer beds.

The combination of factors in Figure 1 led to changes in the setting of care. For example, a study in Flemish acute hospitals[1] covering 1999 to 2007 demonstrates an overall increase in the proportion of day care to total stays from 34.0% to 47.5%. In the same period, the number of inpatient stays increased only marginally (5.1% increase for surgical stays, 6.0% for non-surgical stays) compared to day-care stays (62.5% increase for surgical stays, 103.3% for non-surgical stays). The results for Belgium are in line with an international trend towards an increasing share of hospital day-care interventions versus inpatient interventions[2]. There is, however, a large variation between countries ranging from less than 10% share to more than 40%.

Belgian policy makers have stimulated day-care by setting in place financial incentives for hospitals. The main argument for financially stimulating day-care is that hospital services delivered on a same-day basis are cheaper for society. Of course, this argument only takes effect if same-day hospital care is a substitute for inpatient care and not if the financing scheme induces same-day care or when ambulatory services are transferred to the one-day hospital setting.

1.2 Research questions and scope of the study

1.2.1 Scope of the study

KCE was asked by the National Institute for Health and Disability Insurance (RIZIV – INAMI) and by the Christian and Socialist Sickness Funds to **evaluate the impact of the current financing system and regulation on day-care.**

Limitation of scope is threefold. First, all results (e.g. day-care expenditures) are interpreted from the perspective of the public payer. Second, among the factors influencing the choice of the setting of care (see Figure 1), the focus is on financing mechanisms and (accompanying) regulation. Influence of medical practice and socio-demographic or socio-economic patient characteristics was considered only as a secondary explanation to enlighten some shifts in the choice of care setting. A further limitation concerns the type of outcome measures. Clinical outcomes (e.g., infection rates, pain levels) and patient satisfaction with inpatient or day-care interventions were not included in the analysis. Only volume and expenditures were considered.

This study is the first to conduct a comprehensive analysis of possible cost-shifting or cost-inducing effects of the financing mechanisms and regulation of the different care settings in Belgium. The analysis is mainly data-driven. We refer the interested reader to Chapter 2 in a previous KCE study[3] for a typology of hospital financing systems and their theoretical incentives.

1.2.2 Research questions

Definition and regulation

Prior to addressing the main research questions, we need to answer two preliminary questions:

1. How are different settings of care defined, both internationally and in Belgium?
2. What legislative changes have occurred in day-care regulations and financing?

Evolution of settings of care and relation with regulation and financing

3. How have day-care and inpatient hospital stays evolved over time in terms of volume as well as expenditures?
   - How has the relation between the different care settings evolved?
   - Is there a shift from inpatient to day-care setting of care?
   - Is there a shift from ambulatory to day-care setting of care and vice versa?
4. Can the evolution of day-care volume and expenditures be related to reforms in day-care regulation and financing?

Day-care financing and day-care volume in other countries

5. How is day-care financed in other countries?
6. How does Belgium compare to other countries' day-care activity?

Alternative approaches of day-care financing

7. To what extent is day-care financing in other countries applicable to Belgian hospitals?

1.3 Methods

The main purpose of the study is to make recommendations for day-care financing in Belgium. The recommendations will be based on an assessment of the current system of day-care financing in Belgium and systems introduced in other countries.

Research questions on definition and regulation will be studied by a review of the legislative framework for day-care regulations and financing and relevant grey literature.

The research questions on the relation between different care settings form the core of the study. An extensive analysis of available administrative data will be performed both at a national level and at the level of selected interventions or intervention groups.

More details on the methods and data will be provided in the following chapters.

Information on day-care activity and financing in other countries was obtained from grey literature on the selected countries.

A full Diagnosis Related Groups (DRG)-based day-care financing, similar to other countries, was applied to Belgian hospital data in a simulation exercise.

1.4 Content of the report

The report is organized as follows.

Chapter 2 provides an overview of international definitions on settings of care and patients receiving care. In Chapter 3 we describe the way hospitals in general and day-care activity in particular are financed. Data sources and their constraints are the topic of Chapter 4. Next, we show the results of the data analysis at the national level (Chapter 5) and at the level of selected interventions (Chapter 6). Day-care activity and financing in other countries is described in Chapter 7. Chapter 8 explores DRG-based day-care financing applied to Belgian hospitals. Chapter 9 concludes.

2 INTERNATIONAL DEFINITIONS

For a good understanding in the present project it is essential to distinctively mark out some basic concepts about health care and patients receiving it. The following section gives a non-exhaustive overview of international definitions.

2.1 Intramural versus extramural health care

Health care organisations in different countries use different ways to define the nature of care provided as extramural versus intramural or other types of care such as transmural trajectory care, the interface between both. Extramural care is defined as the care given outside the walls, boundaries, or enclosing units of a health care institution, whereas intramural care is within a health care institution.

Sites where extramural care can be delivered include:

- Doctor's offices (also referred to as doctor's surgeries in the UK): this is the most common site for the delivery of extramural care in many countries, and usually consists of a patient consulting a physician in his/her office (“raadpleging” in Dutch, ”consultation” in French). Many specialists deliver extramural care. They typically include specialists in family medicine, internal medicine, obstetrics, gynecology, pediatrics, cardiology, gastroenterology, endocrinology, ophthalmology, and dermatology (non limitative list).
- Clinics, i.e. medical establishments run by several specialists working in cooperation and sharing the same usually extramural facilities. Included are ambulatory care clinics, polyclinics, ambulatory surgery centers, and extramural urgent care centers (free standing centers).

Sites where intramural care can be delivered include:

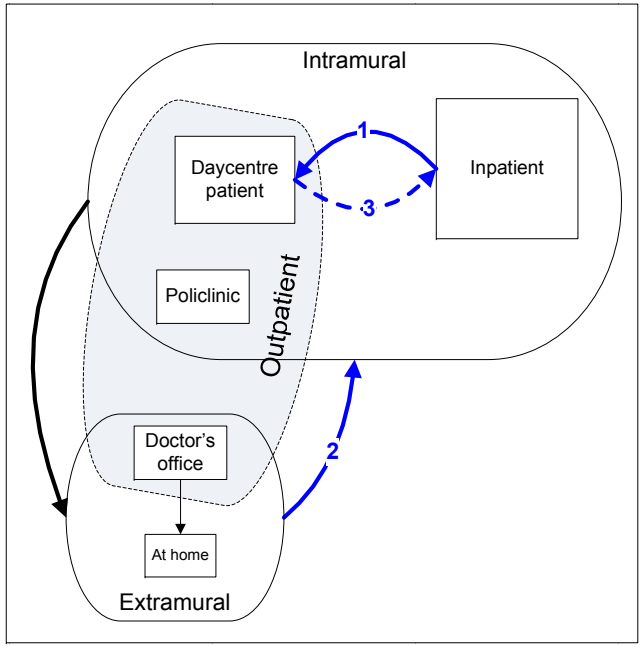
- Hospitals, including emergency departments and other hospital-based services such as day-surgery services.
- Polyclinics inside the boundaries of hospitals.

2.2 Patients seeking health care

Patients seeking health care or advice can be classified as (Figure 2):

- Inpatient: a patient who occupies a bed for at least one night in a hospital for treatment, examination, or observation.
- Daycentre patient or day-care patient: a patient who is admitted to a hospital or clinic for diagnosis or treatment using advanced medical technology, procedures or facilities but not requiring an overnight stay.
- Ambulatory patient: any patient seen or treated outside the scope of institutional care (private praxis, policlinic or other non-institutional facility or free standing centre).
- Patient at home: any patient visited or treated by any health care professional at home or other domicile.

Figure 2 – Definitions and concepts



Traditionally and to mark out the difference with inpatients, the term outpatient was used as an antonym for inpatients, i.e. as an umbrella term for both ambulatory and hospital day-care. However, there is considerable lack of uniformity around the latter definition, greatly depending on the national health care system implicated. The Medterms medical dictionary[4] defines outpatient as “a patient who is not hospitalised, but instead comes to a physician’s office, clinic or day-surgery office for treatment”, whereas the American Heritage® Stedman's Medical Dictionary restricts the definition to “a patient who is admitted to a hospital or clinic for treatment that does not require an overnight stay”. This excludes patients coming to a private physician’s office. Similar to this is the Merriam-Webster Dictionary (an Encyclopedia Britannica company) definition: “a patient who is not hospitalised overnight but who visits a hospital, clinic, or associated facility for diagnosis or treatment”[5].

Since there seems to be international disparity on the terms “outpatient” versus “ambulatory” and both are frequently interchanged depending on the national or international viewpoint, we avoid using the term outpatient. The only terms used in this report will thus be: inpatient care, day-care and ambulatory care or patients.

In conclusion, and in the context of the present report, inpatient and day-care belong to the domain of intramural care, whereas ambulatory patients and patients at home categorise under extramural care. In the Belgian context we need to underline that many hospitals do also include – besides inpatient and day-care facilities – leased premises (doctor’s offices and polyclinics) for extramural care, i.e. for ambulatory patients.

2.3 Day-care

The OECD issued a generic definition of day-care: “day-care comprises medical and paramedical services delivered to patients that are formally admitted for diagnosis, treatment or other types of health care with the intention of discharging the patient on the same day”.

3 FINANCING OF HOSPITAL DAY-CARE IN BELGIUM

3.1 Hospital day-care in Belgium

The most comprehensive specification of a ”day-care hospital” in Belgium is laid down in article 2 of the National Agreement between hospitals and sickness funds effective since 1 July 2007[6]: “an organised and integrated function of institution confined day-care with established procedures for selection of patients, safety, quality control, continuity, reporting and cooperation with various medical-technical services”. By institutional integration we understand (1) the function (non-surgical) day-care run by the institution under the direction of a resident specialist, and / or (2) the function day-care surgery, recognised on the basis of the provisions laid down by the Royal Decree (RD) of 25 November 1997 concerning the standards to which the latter must meet to be officially recognised. The conditions for reimbursement claims indicate what criteria a day-care admission must meet:

- the care given does not give rise to a hospital overnight stay (i.e. an admission that takes place before midnight and ends after 8 o'clock the next day), regardless its length of stay;
- and it does not take place in the waiting room or in a consultation ward (for ambulatory patients) of the institution;
- and it is not immediately followed by a scheduled hospitalisation in the same institution;
- and “(...) a procedure (...) is established for monitoring the patient after his discharge."

At present different day-care hospital types are to be distinguished in Belgium:

- Day-care surgery centre with architectonic and staffing standards outlined by the Royal Decree of 25 November 2007;
- Non-surgical day-care centre: all day-care services not reimbursed as surgical day-care. Standards were laid down by the Royal Decree of 10 February 2008;

- Day-care pain clinic, separately financed since 1 July 2007;
- Day-care haemodialysis, regulated by the Royal Decree of 23 June 2003 executing Article 71bis, §§ 1 and 2 of the coordinated Health Care Act of 14 July 1994 adapted by the Royal Decree of 24 March 2006. Dialysis allowance in this Royal Decree is subject to indexation;
- Pediatric day-care, a particular care program with standards outlined by Royal Decree of 13 July 2006;
- Geriatric day-care centre; its mission is to organise multidisciplinary diagnostic evaluation, treatment and rehabilitation of patients above the age of 75 sent by a family doctor or a specialist or a consulting geriatrist (Royal Decree of 29 January 2007);
- Oncology day-care centre, promoted by several Belgian hospitals and till present under evaluation for public financing by RIZIV – INAMI.

All of them are financed differently, but first we will give a short general overview of hospital financing in Belgium. For a more elaborate overview we refer to KCE report "Feasibility study of the introduction of an all-inclusive case-based hospital financing system in Belgium"[3], especially with regard to the different components of the Budget of Financial Means.

3.2 General perspective on hospital financing in Belgium

Federal[c] hospital financing in Belgium rests on two major pillars:

- Global allowances to the hospital: cover medical and non-medical investments, commodities and equipment, administration, paramedical and other non-medical staff, costs of a hospital admission and stay, etc. Replacing the first Hospital Act of 23 December 1963, a "budget of financial means" (Budget Financiële Middelen – BFM in Dutch; Budget des Moyens Financiers – BMF in French) was introduced by a Ministerial Order dated 2 August 1986 and was fundamentally reformed per 1 July 2002 with more focus on the activity of the hospital expressed in terms of treated pathologies and justified beds, instead of the structure of the hospital expressed in the number of recognised beds.
- Reimbursements of per patient charged fees for all kinds of deliveries (e.g. pharmaceuticals, disposables, implants, orthoses, bandages, plaster) or medical acts performed by health care providers in the hospital (honoraria): irrespective of their remuneration regime a central collection[d] of fees – by the hospital or by the medical board – is compulsory for all inpatient and day-care services. This central collection is not compulsory for ambulatory patients. Most specialists in a hospital operate as self-employed worker under a fee-for-service system; in some hospitals specialists are salaried, e.g. in university hospitals.

Historically, two gateways of financing were added (Figure 3):

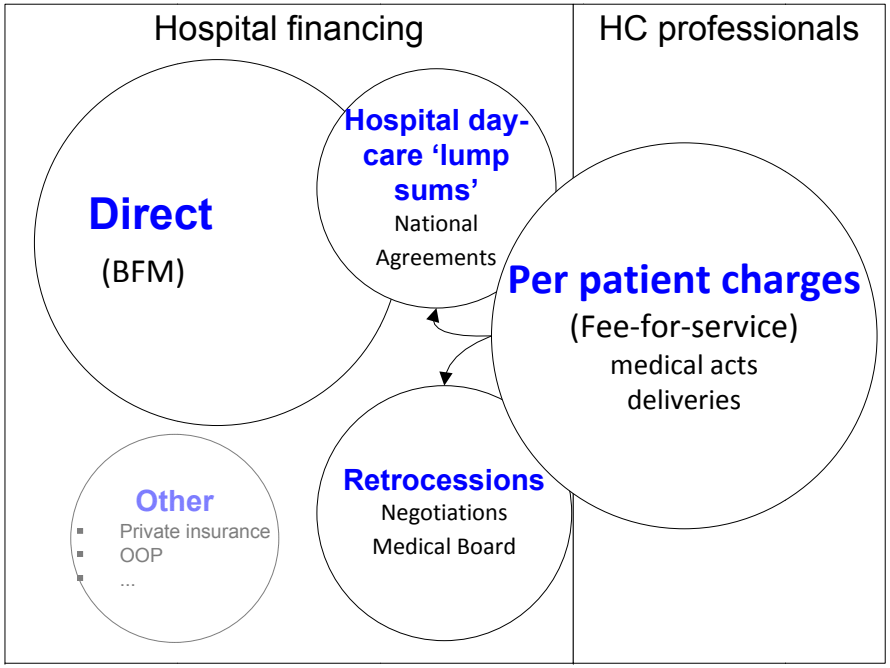
- A system of lump sum[e] reimbursement for hospital day-care services, charged per patient: starting in 1985 and governed by National Agreements between sickness funds and hospitals' representatives.
- The retrocession principle: in 1997 an art. 139bis was added to the Hospital Act stipulating that fees, collected centrally or not, had to cover all costs directly or indirectly associated with the implementation of medical services, including costs of medical, paramedical, nursing, technical, administrative, maintenance and other support staff, costs associated with use of the premises, costs of acquisition, renovation, major repairs and maintenance of the required equipment, costs of medical equipment and consumables and costs of goods and third-party services related to common hospital services, not covered by the allocated hospital budget. Only five years later the principle was explicitly included in Art. 140 § 1, 3° giving the central collection staff a legal base for the application of such retrocessions.

c Some (lesser) hospital financing comes from regional/community sources or from private insurers, patients' out-of-pocket shares, gifts, etc.

d Art. 133 of the Hospital Act[7]

e See discussion on semantics of the term "lump sums" in the concluding section.

Figure 3 – Pillars in hospital financing



3.3 Historical perspective on financing of hospital day-care

3.3.1 1985-1987

Shortening of inpatient stays has been stimulated by health care legislation already starting in the late eighties of previous century. Mainly driven by arguments of cost-effectiveness a Ministerial Order, dated 2 August 1986 and reforming a pre-existing "archaic" hospital financing system, introduced a so called PAL-NAL – DJP-DJN system to retroactively correct BFM – BMF allocations (parts B1 and B2) based on length of stay performance of the hospital. Mandatory clinical data registrations for inpatient stays were grouped in AP-DRGs (all patient-diagnosis related groups; older classification system than the all patient refined-diagnosis related groups or APR-DRGs). For each of those DRGs, the national average length of stay (LOS) was calculated and compared with the corresponding average LOS of the hospital. If positive (lower hospital DRG LOS average = NAL) bonus points were awarded, if negative (higher hospital DRG LOS average = PAL) malus points ensued. Added up, hospital allowances were either increased (positive total) or diminished (penalisations in case of negative total).

The first step in actual remuneration of hospital services to day-care patients was introduced on 1 April 1985: a lump sum, identical for all hospitals (fixed price) aimed at refunding hospital costs incurred by the use of plaster room facilities and their assigned personnel. It is at present still valid under the following conditions:

- for treatment of fracture or dislocation;
- or other orthopaedic treatment;
- or for plaster moldings above price coefficient N66 (see below).

All of the above mentioned interventions classify under nomenclature group N 32 (orthopaedic surgery). They are listed under art. 14,k of the RD on RIZIV – INAMI nomenclature, issued in September 1984 and effective from 1 January 1985.

On 1 January 1987 four lump sums were introduced to finance day-care[f]: a Mini lump sum, a Maxi lump sum, a Super lump sum as well as a lump sum for haemodialysis[8]. The prices of the former three lump sums were hospital specific since they were determined by the B2 part of the particular hospital budget. The price of the Mini lump sum equalled half of the B2-part of the hospital, the price of the Maxi lump sum was equal to the B2-part and the Super lump sum was twice the B2-part. Prices for Mini and Maxi lump sums have however not changed between 1 November 1998 and 2007. Each lump sum was linked to a restricted number of nomenclature codes, so-called *"nominative list"* (see section 3.6 for a description). When the hospital provided services from one of those lists, it was entitled to the corresponding lump sum, claimed by means of its specific billing code (see Appendix 1). Since those lump sums are hospital specific, large inter-hospital price variations exist for equivalent services.

Four new lump sums were introduced in 1993, as part of a pilot initiative aiming at encouraging and at the same time exploring existing Belgian day-care practices and needs. These lump sums, called A, B, C and D, were fixed and were again linked to nominative lists of services, that were adapted over the years (see following section). At the same time remuneration of Maxi and Super interventions was extended to cases of day-care services for patients sojourning in another (geriatric, psychiatric,…) institution. In April 1998 the Super lump sum was abolished and was (largely) replaced by the A-lump sum, be it with adaptations to the corresponding nominative list.

3.3.2 2002 reform

Since 1 July 2002 the financing of the day-care surgery is included in the hospital budget[9]. The general costs are included in part B1 of the BFM – BMF and costs specific to the day-care surgery and its activity in the operating room are included in part B2. Reimbursement of activities in a day-care surgery considers two types of stays: justified stays in day-care for which at least one surgical nomenclature code from a specified list (List A) was recorded and, on the other hand, unjustified inpatient stays. The last category consists of stays for which at least one nomenclature code from a specified list (List B) was recorded[9]. List A was composed of nomenclature codes that formerly gave entitlement to a Maxi or Super lump sum or to lump sums A-B-C-D and met two additional criteria. They involved an invasive surgical intervention and of these interventions billed with an ambulatory or day-care code, at least 60% had to have been performed in a recognised hospital setting (in day-care or in a hospital polyclinic facility). For the unjustified inpatient stays comparable criteria had to be met. List B contains codes that give entitlement to a Maxi or Super lump sum or to lump sums A-B-C-D and fulfil two additional criteria. They involve an invasive surgical intervention and the substitution level of the inpatient stays by day-care stays has to be at least 10% during the reference period (Minimal Clinical Data of the last three registration years). For a detailed description of List A and B, see Appendix 7.

A stay is defined as an unjustified inpatient stay if it meets all of the following criteria at the same time:

- it involves one of 32 selected APR-DRGs;
- it is an inpatient stay;
- it concerns a scheduled admission;
- the length of stay is at maximum three days;
- the stay has a severity of illness[g] rate of 1 (= minor);
- the patient did not decease during the stay;
- the stay has a mortality risk index of 1 (= low);
- the patient is under 75 years of age.

The total number of justified stays in day-care surgery is the sum of stays in day-care surgery and the unjustified overnight(s) stays. Each justified stay in day-care surgery receives a justified length of stay of 0.81 days. This is the basis for calculating the number of justified beds for day-care surgery. The justified beds of day-care surgery are taken up as C-beds (see Table 1) in the B2-calculation of the hospital budget.

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f Article 4 of the 1986 national agreement between sickness funds and hospitals

g Severity of illness (SOI) and mortality risk index are typical output values of the 3M Grouper® software used to classify patient stays into APR-DRGs.

Table 1 – Common hospital bed types

Bed type	Denomination
C	Surgical beds
D	Diagnosis and medical treatment
E	Paediatrics
M	Maternity
NIC	Neonatal intensive care
Br	Burns unit
G	Geriatrics and rehabilitation

3.3.3 2007 reform

A profoundly redrawn national convention between hospitals and sickness funds introduced, starting from 1 July 2007[h], new lump sums for day-care as well as changes in applicability rules for the existing Mini and Maxi lump sums:

- Mini lump sum: a hospital specific lump sum remuneration with an associated nominative list that was rescinded on 1 July 2007. From then on following conditions have to be fulfilled to rightfully charge the Mini lump sum:
  - emergency bed occupation or
  - any condition requiring an effective medical surveillance because of the administration, by intravenous infusion, of a drug, blood or unstable blood derivate, under prescription by a physician (most recent denomination).
- Maxi lump sum: analogous hospital specificity and abolition of its nominative list as of 1 July 2007. Still following conditions have to be fulfilled in order to rightly charge the Maxi lump sum:
  - any intervention needing a general anesthesia which is supervised by a recognized anesthesiologist or
  - administration of chemotherapeutic agents figuring under ATC (Anatomical Therapeutic Chemical)[10] classes L01, V03AF (or L03AX03 – added on 1 April 2009), either reimbursed as A-medication[11] or, in case not, meeting two criteria: (1) therapeutic effectiveness for such indication is evidence based and (2) the medication is administered outside a clinical trial.
- Non-surgical day hospital lump sums: 7 groups of fixed lump sums were created, each with a separate nominative list. To emphasise the distinction with the above mentioned day-surgery we deliberately use the predicate ”non-surgical”. Nevertheless, we need to underline that former nominative lists also contain various operating room procedures (see Table 2). The new nominative lists retain in part the nomenclature from the rescinded lump sums A-B-C-D. However, informal inquiries in the sector revealed that the remaining part of the new nominative lists was based on a proposal of medical and surgical interventions of sickness funds and hospitals.
- Lump sums for chronic pain: 3 fixed lump sum payments with corresponding nominative lists of (newly introduced) nomenclature codes for typical pain clinic services.

Table 2 – Operating room procedures in 2007 hospital day-care groups

Day-care (DC) groups	Numbers of operating room procedures
DC group 1	7
DC group 2	6
DC group 3	6
DC group 4	1
DC group 5	16
DC group 6	50
DC group 7	29
Grand Total	**115**

[h] For comprehensive listing of national conventions see Appendix 2

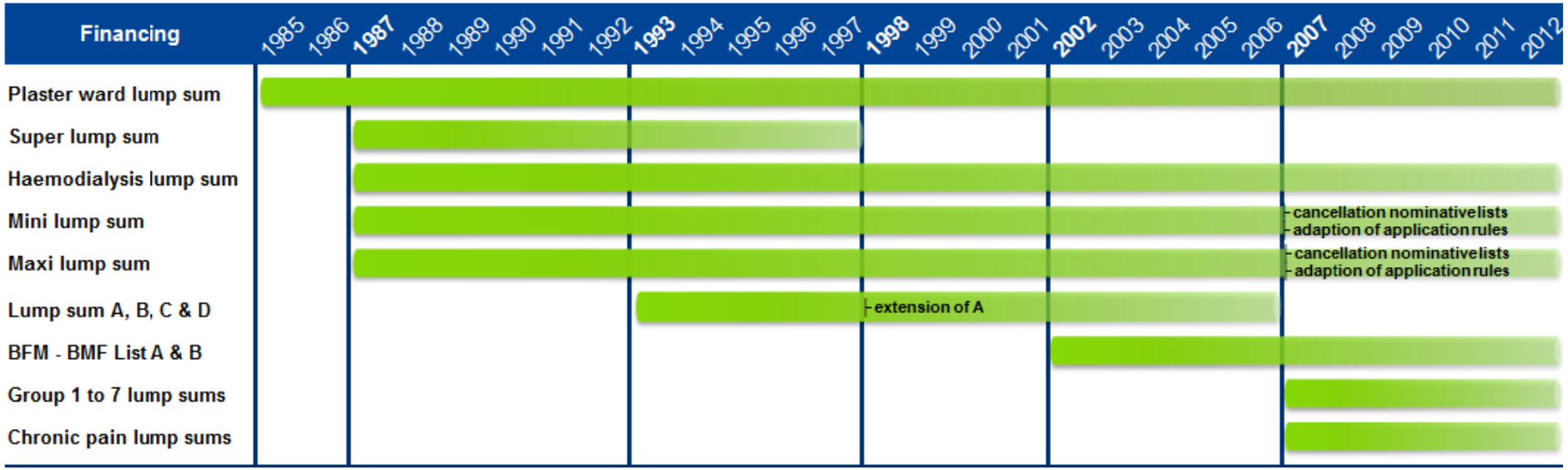
Price scaling for these (fixed) lump sums was based on a pilot study in 95 hospitals to calculate the real costs of the listed interventions. Seven debit items were taken into account:

- general costs and costs of administration;
- costs for bedding and laundry;
- costs for cleaning and heating;
- nursing activity (time) for preparation of patient, ward and intervention as well as for after-care;
- costs of standard anesthesia equipment (for all kinds of anesthesia);
- costs of intervention ward, recovery room and patient's room (usual commodities, disposable or not);
- food and beverages.

Whereas Mini, Maxi and day-care surgery have variable prices per hospital (dependent on its B2-allocation part), the other two categories are fixed and consequently equal for all hospitals.

A summary timeline of the major reforms is shown in Figure 4.

Figure 4 – Overview of major reforms in day-care financing



3.3.4 Current hospital day-care financing modalities

As pointed out in previous section, hospital day-care financing modalities in Belgium vary according to the type of services provided. Essentially four types of financing can be distinguished in this field, some based on the fee-for-service principle, others on the direct hospital financing principle:

- Hospital independent lump sums: plaster ward lump sum, lumps sums 1 to 7 for non-surgical day-care and lump sums 1 to 3 for chronic pain treatments. All have a universally fixed price.
- Hospital dependent lump sums: Maxi and Mini lump sums, variably priced according to previously allocated parts of the hospital's B2 budget.
- Hospital dependent allowances for day-care surgery, included in the Budget of Financial Means, which is for circa 80% directly paid to the hospitals by means of provisional twelfths. The remainder is spread on a per patient stay basis by means of a hospital specific and dual system of two lump sums: one per admission and one per day.
- Provisional financing of pilot projects as e.g., with geriatric day-care for which a global allowance is provided to participating hospitals, irrespective of treatment volume or gravity (budget of €26 000 annually at the time of writing).

Whereas the first two pertain to the fee-for-service pillar and the last to the global hospital financing, the third one – variable hospital day-care allowances – is a mixed form, at least in its disbursement modalities.

Moreover, in Belgian hospital financing the term "forfait" (translated in English as lump sum) is a flag that covers different cargos. Indeed, RIZIV – INAMI nomenclature in the field of general hospital care includes a wide variety of codes (43 presently effective) having the term "forfait" (or an adjective derivative) in their labels. Some of them are fixed price and as such can be considered as lump sums. The fact, however, that they are claimable per patient serviced brings them back to another form of per service remuneration. The only difference is that they represent package prices.

Other so called RIZIV – INAMI forfaits, on the other hand, are emanations of a rather complex system of disbursement of global hospital allowances (BFM – BMF) in a split way: one direct through provisional twelfths, i.e. beyond patients' invoices, and one indirect and piecemeal through per stay lump sums payments. The latter implicates the need for retrograde catch up corrections in six-monthly BFM – BMF calculations (when more recent case-mix data are available).

There are even more forms of lump sum refunding, this time partially, as with remuneration of inpatient and day-care lab tests, medical imaging and inpatient pharmaceuticals. Here, the mix is different: all remunerations appear on patients' invoices, but part of them is structural, i.e. not in relation to any services provided (they are even chargeable without any service provided); the other part is 'à l'acte' (per service provided), i.e. determined by services actually provided to the patient.

In conclusion, all this makes reliable translation of the Belgian concept "forfait" in meaningful English term(s) very difficult.

- Per admission and per diem forfaits for hospital care, in patient as well as day-care surgery, represent disbursement modalities of a global hospital allocation system.
- Day-care groups 1 to 7 and chronic pain groups 1 to 3 represent per package fees, with a uniform price setting, just like any other fee-for-service for health care professionals. However, this complies best with the Dutch Online Encyclopedia[12, 13] definition for "lump sum".
- Per admission and per diem forfaits for lab tests, medical imaging and inpatient pharmaceuticals are a complex mix of both previous forms: per admission and per diem forfaits pertain to the first, the 'à l'acte' part to the second.

Nevertheless, and to avoid causing confusion in the mind of Belgian readers of our health care sector, we will continue to use the term lump sum for all of them.

Next, and for the sake of completeness, we should point out that some day-care services do not yet receive separate financing as is the case for paediatric and oncologic day-care. The two of them, along with day-care haemodialysis which was the subject matter of a previous KCE report[8], are considered outside the scope of present study.

Table 3 gives an overview of currently effective lump sums concerning hospital day-care.

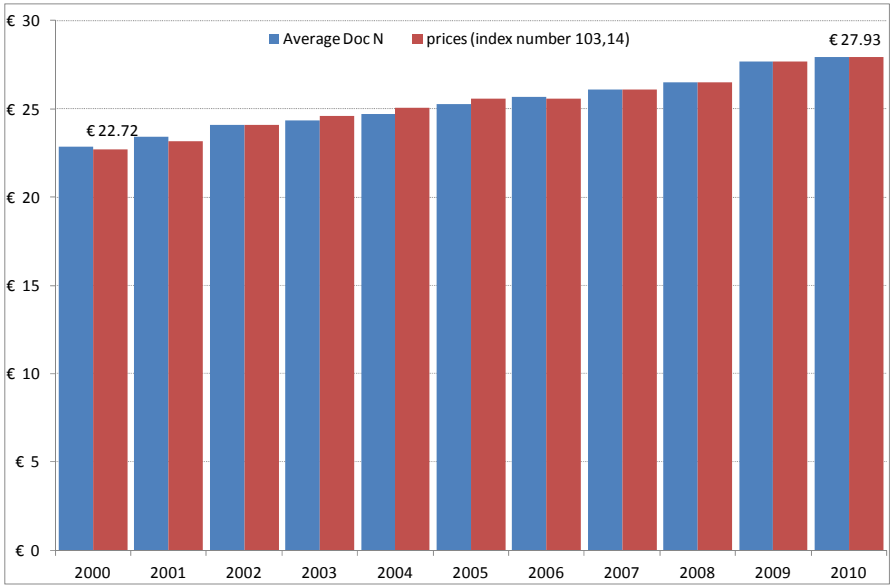
Table 3 – Rating of day-care lump sums

Lump sum	Rating
Plaster room	Fixed
Day-care groups 1-7	
Chronic pain 1-3	
Maxi	Hospital dependent
Mini	
Day-care surgery	
Haemodialysis	

3.4 Pricing of fixed lump sums

All prices have to change to adapt to costs of living. However, in Belgian compulsory health insurance such inflation adjustments are (1) subject to regular, usually annual negotiations at national level and (2) experience tight budgetary restraints. Solely price rating for the plaster room lump sum has a build-in automatism, since tariffs are explicitly linked to the central index (*spilindex* in Dutch, *indice pivot* in French) (see Figure 5).

Figure 5 – Plaster room tariffs versus annual averages, 2000-2009



Starting from their initial calculations, prices of different fixed lump sums (groups 1 to 7 and chronic pain 1 to 3) are published in subsequent amendments or renewals of the National Agreement protocols. Table 4 lists fixed lump sum price evolutions since 1 January 2007 up to current year 2012. Appendix 2 gives a comprehensive version history of National Agreements.

Table 4 – Scale of fees in € for fixed lump sums started 2007

Group	Code pair	2007	2008	2009	2010	2011	2012
Gr 1	768176_768180	140.00	142.82	150.15	152.73	156.08	158.54
Gr 2	768191_768202	171.00	174.45	183.41	186.56	190.65	193.66
Gr 3	768213_768224	247.00	251.98	264.92	269.47	275.37	279.71
Gr 4	768235_768246	176.00	179.55	188.77	192.01	196.22	199.31
Gr 5	768250_768261	183.00	191.48	196.27	199.64	204.01	207.23
Gr 6	768272_768283	218.00	222.40	233.82	237.84	243.05	246.88
Gr 7	768294_768305	180.00	183.63	193.06	196.38	200.68	203.84
CP* 1	768316_768320	196.00	199.95	210.21	213.82	218.50	221.95
CP 2	768331_768342	109.00	111.20	116.91	118.92	121.53	123.45
CP 3	768353_768364	72.00	86.71	91.16	92.73	94.76	96.25

**CP: chronic pain*

Day-care surgery per admission and per diem lump sums are linked to the corresponding inpatient lump sums for acute bed stays. Their prices vary per hospital and are published six-monthly at RIZIV – INAMI website[14]. They represent however only disbursement of the variable part of the BFM – BMF allocation (circa 20%). The remainder 80% is disbursed by means of provisional twelfths, directly paid to the hospitals by the sickness funds. Besides prices for per admission and per diem lump sums, 100% prices are published as well. The latter allow hospitals to claims full stay charges for admissions that are not covered by the compulsory health insurance, as with, for example, labour accidents. All prices are derived from the BFM – BMF hospital allocations which are calculated by the Federal Public Service (FPS) of Public Health, each time for a period of six months.

Likewise, Mini and Maxi lump sums are hospital specific since they were linked to the B2 part of the particular hospital budget. On the other hand, price-rises have been blocked during a considerably long period (1999 to 2007).

3.5 Additional financing of hospital day-care services

3.5.1 Consultation fee

Normally a claim for a consultation fee is prohibited for procedures with a key-coefficient value above a certain threshold. However, for some codes of the former Mini nominative list that were shifted to the new groups 1 to 7 lists, the existing permission to claim a consultation fee was continued.

For 31 of the 33 newly introduced codes this permission was equally granted with the exception of two codes: 476276 (cardiac catheterization for extended electrophysiological survey) and 451894 (cholangio-wirsungography).

For the 22 newly introduced chronic pain treatment codes a consultation fee is claimable for only 10 of them: 202414_202425, 202436_202440, 202510_202521, 202576_202580, 202635_202646, 202694_202705, 202731_202742, 202790_202801, 202812_202823 and 202834_202845[15].

3.5.2 Surveillance fee

For 73 codes of the former Maxi and groups A to D nominative lists that were shifted to the new groups 1 to 7, the permission for claiming a surveillance fee was equally continued[15]. This permission was not granted for all 33 newly introduced codes in groups 1 to 7 as well as for the 22 chronic pain codes.

3.5.3 Fees for in-hospital medical permanence

Starting on 1 December 2007 two not mutually cumulative codes were introduced for remuneration of intramural medical permanence in a recognised day-care centre: code 590310 for hospitals with a specialised emergency room function and code 590332 for hospitals with a recognised intensive care function. Both apply to all cases of a claimed day-care surgery, Maxi or groups 1-7 lump sum. The last permanence code is higher valued than the first.

Depending on the hospital, one of both codes can be claimed, however, restricted to the codes listed in annex 2 of the circular letter to the hospitals 2007/10add[15]. A permanence fee is not claimable for chronic pain services, for the formerly Mini lump sum services nor for the 33 newly introduced codes in groups 1 to 7 nominative lists.

3.5.4 Lump sums for lab tests

The existing system of lump sums, per admission and per day, for inpatient stays was partially extended to day-care stays, however restricted to the codes listed in annex 2 of the circular letter to the hospitals 2007/10add[15]. Lab test lump sums are not claimable for chronic pain services, for the formerly Mini lump sum services nor for the 33 newly introduced codes in groups 1 to 7 nominative lists.

3.6 Nominative lists for day-care reimbursement claims

3.6.1 Brief introduction on nominative lists

Entitlement to lump sum reimbursement rests on the requirement that the intervention giving rise to the claim should be listed in a corresponding restrictive inventory, commonly called ”nominative list”.

All lists contain specific, usually paired billing codes: a first one, called A-code, for ambulatory or day-care, and the second, called H-code, for inpatient care.

Besides legally published nomenclature codes RIZIV – INAMI uses a lot of similar codes (called pseudo-codes) that are published through periodical circular letters to the sickness funds or in specific billing instructions manuals for health care providers[i].

For analytical purposes, nomenclature codes are categorised in clinically meaningful classes, called N-Groups. These follow more or less the medical and paramedical professions' classification (nurses, midwifes, dentists, bandagers, speech therapists, general practitioners versus all different medical specialists etc.) with added rubrics for hospital nursing codes or accountancy codes, e.g. for regularisations.

All RIZIV – INAMI billing codes are accompanied by a key letter that varies in accordance with the clinical group of the code (N in case of orthopaedics) and a numerical coefficient that indicates the relative rate of the corresponding nomenclature code: multiplied by the prevailing index rate it gives the full price for the intervention. Indexes are adapted on a (normally) annual basis to costs of living, be it only after negotiations between health care professionals representatives, representatives from the sickness funds and RIZIV – INAMI officials (*Nationale Commissie Geneesheren-Ziekenfondsen* in Dutch or *Commission nationale medico-mutualiste* in French; commonly called Medicomut).

3.6.2 Code shifts in nominative lists

Nominative lists are far from static. For instance, medical practices evolve and some of them become obsolete while new practices demand for the creation of appropriate billing codes. Consequently, codes considered no longer suitable are rescinded while new ones are created. This causes adaptations to be made to the corresponding nominative list(s). On the other hand, National Agreement negotiations between representatives of hospitals and sickness funds sometimes induce changes in lump sum pricing or shuffling of a code from one list to another (see Table 5).

Table 5 – Example of two early code shifts

Ambulatory code	List entrance date	List
220231	1 Jan 1987	Super
220231	1 Apr 1993	Mini
220231	1 Apr 1998	Maxi
255706	1 Jan 1993	Maxi
255706	1 Jan 1994	Super
255706	1 Apr 1998	Group A

[i] Instructies voor aflevering van facturatiebestanden op magnetische drager = IMD; instructions relatives à la facturation sur support magnétique = ISM)

Furthermore, profound changes in regulations concerning day-care services remunerations brought along some quite radical shifts. Successive major changes with day-care code creation or suppression with corresponding nominative list adaptations were (see Table 6):

- the reform of 1 January 1987;
- the creation of day-care experiment code lists A-B-C and D on 1 January 1993;
- the abolition of the Super lump sum nominative list as from 1 April 1998. Most codes from that list were redistributed to other nominative lists (Groups A-B-C & D);
- the reform of 1 July 2002 reform with the creation of BFM – BMF List A;
- finally, the reorm of 1 July 2007, with the abolition of groups A-B-C-D, rescinding of the nominative lists for Maxi and Mini lump sums and the start of the groups 1-7 and chronic pain 1-3. With the creation of nominative lists for the latter, 15 codes were discarded (9 from former List A, 4 from former Mini list and 2 from the former Maxi list). On the other hand, 33 code pairs, existing but not in any nominative list before, were added (Figure 6)

Table 6 – Lump sums groups per 1 January 1987

Lump sum group	1 Jan 1987	1 Jan 1993	1 Apr 1998	1 Jul 2002	1 Jul 2007
Plaster	129	258	260	258	258
Maxi	140	286	301	95	
Mini	51	46	46	43	
Super	158	317			
Group A		146	299	67	
Group B		18	36	6	
Group C		5	5	6	
Group D		7	20	16	
Haemodialysis		2	2		
Day-care surgery				241	244
Chronic pain 1					10
Chronic pain 2					30
Chronic pain 3					4
Group 1					26
Group 2					38
Group 3					56
Group 4					12
Group 5					34
Group 6					90
Group 7					64
Total	**478**	**1085**	**969**	**732**	**866**

All of these make it very difficult to accurately assess longitudinal budgetary balance sheets, since ”flags” and “cargos” change frequently.

Such cargo problems can be visualised otherwise by simply counting, for each working year, the distinct number of codes, registered by the hospitals in the corresponding RIZIV – INAMI day-care accounts database (Doc FH – see Chapter 4). Methodologically this comes down to recomposing the (historical) menus of a restaurant by checking its cash entries.

Figure 6 – Nominative list creation for new groups 1 to 7

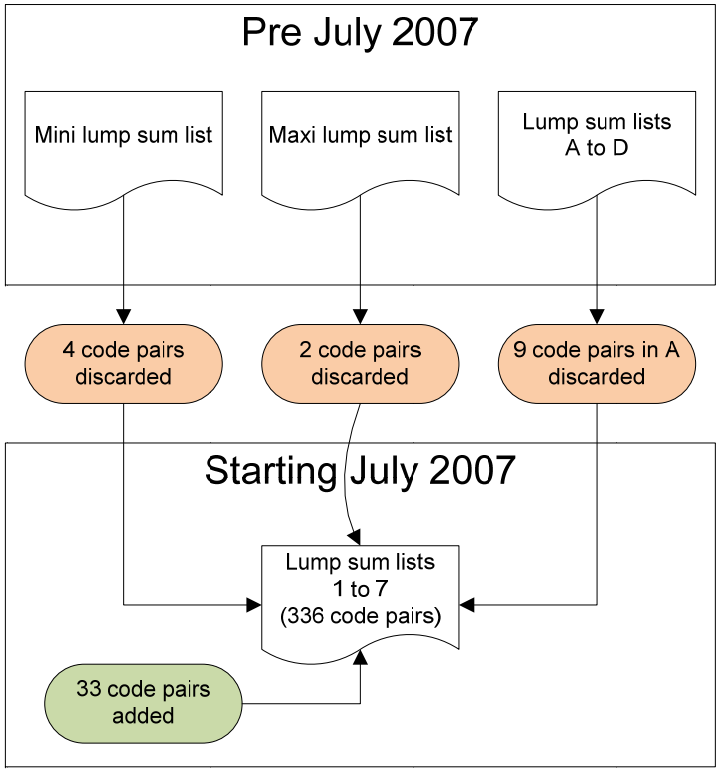


Table 7 gives an overview of this work.

Table 7 – Annual distinct counts of invoiced lump sum codes in RIZIV – INAMI day-care accounts database (Doc FH)

Groups	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Group A	169	162	162	39	43	39	36	32	0	0	0
Group B	33	34	27	8	6	6	5	4	0	0	0
Group C	4	6	5	5	4	4	4	4	0	0	0
Group D	24	18	20	15	16	14	16	13	0	0	0
Chronic pain 1	0	0	0	0	0	0	0	8	5	7	7
Chronic pain 2	0	0	0	0	0	0	0	20	22	23	24
Chronic pain 3	0	0	0	0	0	0	0	5	7	6	6
Group 1	0	0	0	0	0	0	0	26	18	19	21
Group 2	0	0	0	0	0	0	0	32	33	30	36
Group 3	0	0	0	0	0	0	0	43	45	47	44
Group 4	0	0	0	0	0	0	0	9	10	8	8
Group 5	0	0	0	0	0	0	0	21	20	20	24
Group 6	0	0	0	0	0	0	0	43	59	61	61
Group 7	0	0	0	0	0	0	0	40	45	50	44
Maxi	202	184	173	74	64	64	62	52	4	1	2
Mini	50	49	54	50	48	45	48	48	2	4	0
Day-care surgery	0	0	268	304	305	321	318	298	306	308	336

Figure 7 visualises the most striking cases of Maxi and Mini lump sums, Figure 8 visualises distinct code counting for day-care surgery, list BFM – BMF.

Figure 7 – Distinct related service codes counting per year for Maxi and Mini lump sums, 2000-2008

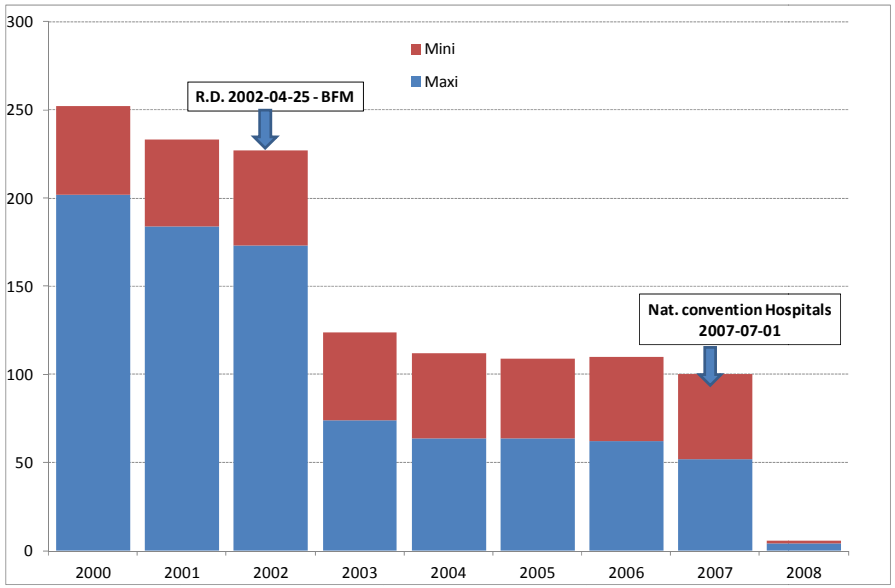
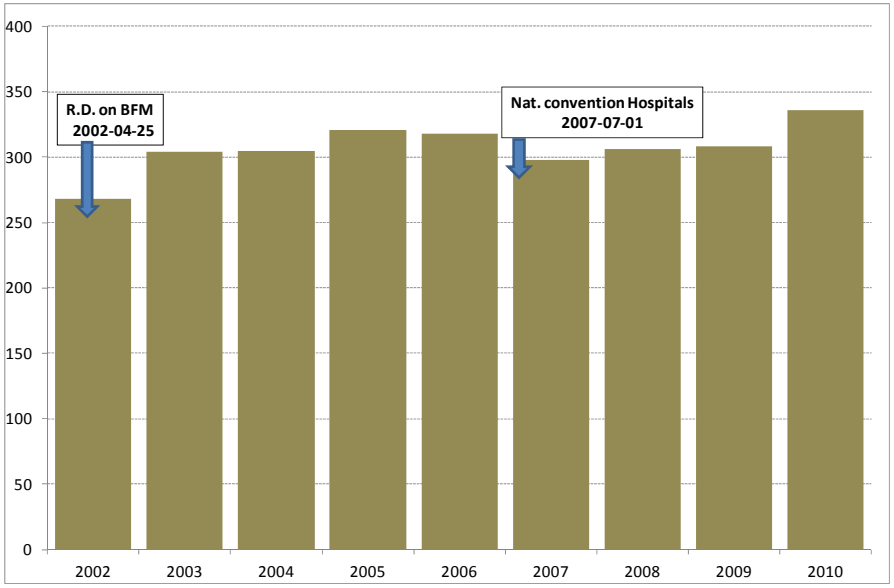


Figure 8 – Distinct related services code counting per year for day-care surgery, 2002-2010



3.6.3 Relative service code registration with reimbursement claims

Since restrictive directives (by means of nominative lists) govern day-care lump sum remunerations and such restrictions require verification by the sickness fund, relative code registration with reimbursement claims was introduced. For listed services as well as for the plaster room lump sum, registration of the billing code of the underlying relative service was required. However, since Maxi and Mini lump sums had other, non-code bound granting rules beyond their nominative lists (that were rescinded on 1 July 2007), RIZIV– INAMI actuaries required the addition of indicative codes to such reimbursement claims describing the nature of the underlying services. Such relative service pseudo-codes do not directly represent reimbursement items: in fact they have no “price”, but allow RIZIV – INAMI actuaries to monitor underlying hospital activities. Table 8 gives an overview of such codes.

Table 8 – Relative service codes with Maxi and Mini lump sums and their adjustments

Code pair	Lump sum	Start	End	Description
761331_761342	Maxi	1 Jan 1994		Any intervention requiring a general anaesthesia, supervised by a recognised anaesthesiologist
761390_761401	Maxi	1 Jan 1994	1 Jan 2007	Intravenous infusion for ambulatory or day-care chemotherapy
761353_761364	Maxi	1 Jan 2007	1 Apr 2009	Administration of chemotherapeutic agents figuring under ATC classes L01, V03AF if reimbursed as A-medication and administered either intravenously, intrathecally or intravesically
		1 Apr 2009		Administration of chemotherapeutic agents figuring under ATC classes L01, V03AF or L03AX03 if reimbursed as A-medication and administered either intravenously, intrathecally or intravesically
761095_761106	Maxi	1 Jan 2007		Administration of chemotherapeutic agents figuring under ATC classes L01, or V03AF not reimbursed as A-medication but meeting 2 criteria: (1) therapeutic effectiveness for such indication is evidence based and (2) the medication is administered outside a clinical trial
761316_761320	Mini	1 Jan 1993		Relative code for emergency bed occupation
761434_761445	Mini	1 Jan 1993	1 Jan 2007	Any condition requiring intravenous infusion
		1 Jan 2007	1 Jan 2010	Any condition requiring intravenous infusion under medical supervision or any KVO infusion for therapeutic reasons i.e. prevention of potentially life threatening adverse effects
		1 Jan 2010		Any condition requiring an effective medical surveillance in case of administration, by intravenous infusion, of a drug, blood or unstable blood derivates, prescribed by a physician

4 DATA SOURCES AND THEIR CONSTRAINTS

4.1 Introduction on RIZIV – INAMI spending monitoring

Founded and commissioned by the Federal Law on Compulsory Health Insurance (dating back to 9 August 1963 and since then continuously adapted), the RIZIV – INAMI organises, manages and controls related public health care spending under the supervision of the Federal Minister of Social Affairs. The institute also takes the lead in the concert of all acknowledged health insurance actors, foundation of all public health decisionmaking in Belgium (*overlegmodel* in Dutch, *modèle de concertation* in French). Decisions, however, need stakeholders' approval.

Regarding its role as spending watchdog, the RIZIV – INAMI continually collects accounting data on reimbursements debited by the sickness funds. For a comprehensive listing of such data collections we refer the reader to the KCE report "Inventory of health care databases"[16].

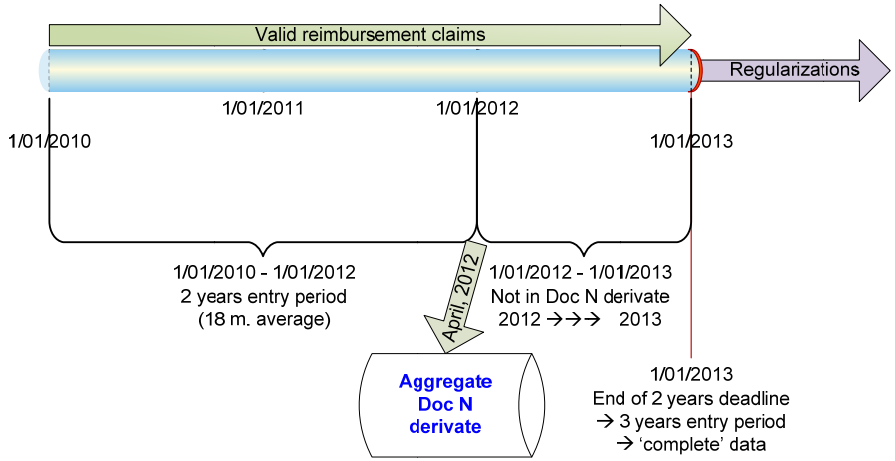
Three major RIZIV – INAMI data collections are useful for present study: the first two, the Doc N and the Doc FH are typical accounting instruments which do not contain micro-data, i.e. data on patient level[j]. Besides those aggregated data sources, we also had hospital micro data at our disposal. The latter data are primarily collected to serve – among other hospital data collections – as a base for iterative calculations of hospitals' annual BFM – BMF allocations. KCE is entitled to have access to these data by Law[18], be it only after pseudonymisation of personal identifiers, patients as well as health care professionals.

4.2 Doc N

Doc N constitutes one of the major RIZIV – INAMI instruments for public health care spending monitoring. Primary data are collected from all 7 sickness funds on a monthly basis and essentially report on counts and reimbursement amounts for all debited nomenclature codes as well as pseudo-codes. However, settlements falling under international agreements are not recorded in Doc N. Appendix 3 gives a full listing of required information (for collections since 1 January 2006).

The main characteristic of these data is that they – inevitably – are based on accounting date and reimbursement claims have a legally established settlement deadline of two years (plus a "put on hold" procedure in case of ineluctable, yet justified exceeding as is sometimes the case with coverage and/or judicial disputes[k]). As a consequence, complete balance sheets for a particular year – in terms of activities performed in that year – cannot be produced until two years after closure of the calendar year. This means a full accounting term of 36 months which boils down to an average entry interval of 30 months, while overdue entries or accounting corrections – beyond the two-year limit – usually will not be recorded under their original nomenclature code but under specific (grouped) regularisation pseudo-codes, leaving a minute margin for bias in studies on Doc N data (Figure 9).

Figure 9 – Timeline for Doc N data (service year 2010)



j Belgian Privay Law[17] is not applicable

k E.g., discussion about private traffic or labour traffic accidents

Nevertheless, long-standing experience by RIZIV – INAMI actuarial officials learns that most billing claims are reimbursed and thus booked within one year after service provided[l]. This is why the most common (because sooner available) derivate database of the primary Doc N data is the aggregated "24 months accounting period" Doc N (which means a minimal debit period of 12 months, a maximum of 24 months and an average period of 18 months). It is to this derivate we refer when using the acronym Doc N in following sections of this report. Data at our disposal go back to financial year 1995 (1990 if only accounting year is required, since date of service provided was only recorded from 1995 on). At present, last "sufficiently complete" year – in terms of services delivered – in our Doc N derivate is 2010 (24 months accounting period = 18 months average); currently data of 2011 are to be considered incomplete (only 2011 entries available = 12 months accounting period).

4.3 Doc FH

Doc FH has been specifically designed to collect aggregated data on hospital reimbursement for claimed day-care lump sums (see Appendix 3 for the layout of DOC FH database). Collection is semi-annual and once again based on accounting date of the reimbursements. Doc FH data for financial years 2000 till 2011 were obtained from RIZIV – INAMI. As for Doc N, they do not contain settlements falling under international agreements. For the year 2010 we need to emphasise that Doc FH at our disposal only contain entries until 31 December 2011 (18 months average accounting period); as such, 2010 data present the same shortcoming as the Doc N we used. Consequently, this will not influence any comparison between the two data sources.

The main point of interest for these data is that they give per hospital, for each billed lump sum code the underlying relative service code, which permits us to investigate on the (be it administrative) foundation of the claims. Since the latter codes indicate particular services provided, they inherently reveal – at least to some extent – clinical indications.

There is however one constraint: we should keep in mind that Doc FH only gives one relative service code, considered by the hospital to be the most relevant for its lump sum claim. Since there certainly are instances where two or even more services were provided in the same day-care stay (typically in day-care surgery cases), any per hospital counting of relative services will be subject to underestimation. Nevertheless, if we are to compare long-range volume changes in hospital day-care activity, we can faithfully assume that this bias will be equally spread over the years and thus will hardly affect our trend estimations.

4.4 Hospital micro level data

The registration of hospitals' Minimal Clinical Records (MKG – RCM, *Minimale Klinische Gegevens* in Dutch, *résumé clinique minimum* in French) is mandatory for every hospital in Belgium since 1991. This means that for each hospital stay – inpatient stays as well as day-care (since 1995) – information such as date of birth, sex, postal code of domicile and other information such as length of hospital stay (LOS), hospital ward and bed type occupation has to be recorded, along with ICD-9-CM (International Classification of Diseases-9th revision-Clinical Modification) encoding of relevant diagnoses as well as diagnostic and therapeutic procedures performed. After stripping of direct patient-identifying information, records have to be sent biannually to the Federal Ministry of Health. Here, all per department registrations[m] are concatenated with assignment of the primary diagnosis of the whole stay, determinant for the APR-DRG-Grouper software[19], classifying all stays in 1 424 possible APR-DRG[n, 20]-SOI[o] combinations[21].

[l] There are some exceptions, especially in the field of 'high tech' implants.

[m] Hospitals have the choice between per stay concatenated data transfer or not.

[n] All Patient Refined Diagnosis Related Group

[o] Severity Of Illness

Since 1997 (after two pilot years, 1995 and 1996) the minimal clinical records (MKG – RCM) are retroactively linked to the hospital billing data (AZV – SHA for inpatients; Anonieme ziekenhuisverblijven in Dutch – Séjours hospitaliers anonymes) yearly transmitted by the sickness funds to the RIZIV – INAMI and assembling all RIZIV – INAMI reimbursements for each hospital stay. Day-care stays data collection (ADH – HJA; Anonieme daghospitalisatie – Hospitalisation de jour anonyme) started in 2004; coupling with MKG – RCM started in 2006. Linkage is performed by a legally instituted "Technical Cell" (TCT) and requires separately sent matching tables containing for each identifiable hospital stay an unique patient pseudonym created by two independently executed hashings. Linkage process takes about two years to completion and full validation. Linkage percentages increased over the years and exceed nowadays 95% overall. This means that the relationship between treated pathology and the costs to the health care system can be studied for hospital services.

The advantage of the coupled hospital data is that registration is compulsory for all hospitals (MKG – RCM) and all sickness funds (billing data) and that they contain all reimbursements, resulting in exhaustiveness. Moreover, MKG – RCM are an important source of patients' clinical health data, be it restricted to hospital admissions, inpatients as well as day-care patients. One should, however, keep in mind that it is difficult to extensively control how accurate each hospital reports its MKG – RCM data, or how reliably the hospital billing data are gathered. If a distinction between hospital billing data for inpatient and day-care stays is not relevant, we will use the term "hospital billing records (HBR)". Furthermore, registration depends on intrinsic granularity of classification systems used (ICD-9-CM for MKG – RCM and RIZIV – INAMI nomenclature for ADH – HJA and AZV – SHA). For ICD-9-CM, for example, there is a great variance in specificity (distinctive power) of codes, especially for operating room interventions.

Furthermore, MKG – RCM and HBR data are micro-data and, above all, they contain personal health data. Hence Belgian Privacy Law restrictions – based on the proportionality principle – opposed to acquisition of full databases over multiple years (2004-2009) and therefore compelled us to restrict our TCT data call for present study to a weighted selection. A pre-study of aggregated full APR-DRG-SOI stay counts tables for years 2004 to 2008 (aggregated extracts; 2009 data were not yet available at the time) resulted in a settlement on a criterion of minimum 50 day-care stays for each APR-DRG-SOI in each registration year, corresponding to 82.2% of all 2004-2008 day-care stays (5 730 339/6 971 517 day-care stays in 331/942 APR-DRG-SOI = 35.1% of all 2004-2008 APR-DRG-SOI). For all selected APR-DRG-SOIs all day-care patient as well as inpatient records were obtained (5 206 900 out of a total of 8 959 077 inpatient stays = 58.1%). Once available, 2009 data were obtained using the same above mentioned APR-DRG-SOI selection criterion.

Another point of consideration is that records of stays under international agreements are included in HBR data and not in Doc N. Nevertheless, we can easily exclude them from all day-care counts in the HBR. To do so, we asked the TCT to give us full lists (aggregated data from full databases; see Appendix 4 for an extract) of differential counts on combined 2004-2009 data for all nomenclature codes figuring in all day-care lump sum nominative lists, active since 1 July 2007 (BFM – BMF List A, day-care groups 1-7 and chronic pain groups 1-3).

4.5 Overview of used data sources

Table 9 gives an overview of characteristics, particularities and caveats of all data sources used for present study.

Table 9 – Overview of used databases and their restraints

Source	Availability	Key dimension	Coverage
Doc N (24 m derivate) RIZIV – INAMI	1990–2011	Nomenclature code	• Counts and expenditures per nomenclature code aggregated per year-month of booking and of service provided since 1995. • Correction lines more than two years after initial booking date are usually registered under regularisation codes and not under the original nomenclature code, resulting in a very small loss of data per nomenclature code. • 2010 is almost complete (claims for 2010 remain eligible up to the end of 2012). For the same reason, 2011 is incomplete (claims remain eligible up to the end of 2013).
Doc FH RIZIV – INAMI	2000–2011	Nomenclature code	• For day-care lump sum nomenclature codes and associated intervention nomenclature codes: counts and expenditures per hospital per date. • The same completeness issues as in Doc N applies for 2010 and 2011.
ADH – HJA RIZIV – INAMI	2004–2009	Day-care stay	• All health care services, including pharmaceuticals, reimbursed disposables and implants, per nomenclature code billed, per date of service provided (not aggregated) . • Among others, the following information is available for each nomenclature code if applicable: irreversibly coded patient identification number at his sickness fund, RIZIV – INAMI identification number of health care professional, hospital and hospital department, date, number and reimbursed amount. • Longitudinality over years for each patient within his sickness fund.
Linked hospital data TCT	2006–2009	Day-care or inpatient stay	• Linked MKG – RCM with AZV – SHA (inpatient) and ADH – HJA (day-care). • MKG – RCM contains diagnoses and procedures performed in day-care or inpatient stays. The information concerns, among others, (irreversibly coded) social security number of patient, date of admission, date of discharge, referral and destination of the patient, demographics (age, sex, nationality), details on ICD-9-CM classification of diagnoses and procedures per date of service provided and APR-DRG of the stays after application of grouping software. • Covers over 95% of all inpatient and day-care stays.

Source	Availability	Key dimension	Coverage
			• Our selection covers 82.2% of all stays but does not contain information on ICD-9-CM procedure codes. • Longitudinality over years for each patient irrespective of his sickness fund.

5 EVOLUTION OF DAY-CARE LUMP SUM BUDGETS AND COUNTS

5.1 Data particularities

For the analysis on national day-care lump sum budgets and number of stays, we used two complementary data sources: Doc N and Doc FH.

5.1.1 Doc N

Doc N data include both counts, i.e. numbers of cases or days, and amounts covered by compulsory health insurance. Concerning comparison of reimbursed amounts, we have to emphasise that – especially in case of long range comparisons – prices change to adapt to costs of living. However, such inflation adjustments are (1) subject to regular, usually annual negotiations and (2) experience tight budgetary austerity. As a consequence, if we are to study budgetary changes solely due to practice variations (increase in numbers over the years), we should obliterate the effects of price changes. The easiest solution would be to compare counts instead of reimbursements. In doing so, however, we dissimulate price differences between various nomenclature codes (low priced procedures will be counted on an equal footing with high priced ones). To overcome this problem, we can conventionally standardise expenditures. Different options can be taken, but we chose to standardise all historical values by means of the calculated national average lump sum price of the last year with complete data (for present lump sums: 2010; for rescinded lump sums: last valid year). For every chart based on expenditures in following sections, we will explicitly mention such standardisation, if applied. If not, which will be in most cases, underlying reimbursements are to be considered crude. 2010 data were included since, on a global scale, Doc N may be considered sufficiently complete up to year 2010 (24 months accounting period).

Another and important remark concerns day-care surgery: we need to emphasise that per admission and per diem lump sums for surgical day-care as well as inpatient stays only cover circa 20% of total hospital allowances apportioned in BFM – BMF. Extrapolation of day-care surgery budgets to their (official) 100% level can however be done by multiplying the per diem lump sums counts by the calculated national average 100% price for an acute bed in the corresponding year. Such national average 100% prices are available for the years 2004-2010[22]. Since exact partitioning of hospital BFM – BMF allowances in separate day-care and inpatient shares is not feasible, our extrapolation technique seems the only way to approximate total budgets.

5.1.2 Doc FH

As stated before, the main point of interest for national day-care accounts data (Doc FH) is that they give per hospital for each billed lump sum code the relative service code, which permits us to investigate on the (be it administrative) justification of the claims. Since the latter indicates particular services provided, they inherently reveal – at least to some extent – clinical indications. Considering the fact that the day-care groups A to D as well as the Super lump sum are presently rescinded (active till 30 June 2007), we will not go in to them in this section. Results, however, are available on demand at KCE.

We need again to emphasise that Doc FH only gives one relative service code, considered by the hospital to be the most relevant to its lump sum claim. Since there certainly are clinical instances where two or even more appropriate related services are provided in the same day-care stay, any per hospital counting of relative services in Doc FH will be subject to underestimation. This is particularly the case in the field of day-care surgery.

On the other hand we should warn that surgical day-care reimbursement is claimed by means of two additive lump sums, one per admission and one per diem. Doc FH instructions impose related service code registration with the per admission lump sum, whereas such registration is facultative for the per diem lump sum. Nevertheless, it appears to be common practice to record them with both lump sums. If we do not bear this in mind, serious overrating of day-care surgery stay counts will falsify our results, unless we calculate counts on one of both lump sums exclusively. Theoretically, the admission lump sum is the best benchmark for relative service counts. Nonetheless, relative service code counts in both lump sums should be quasi equal.

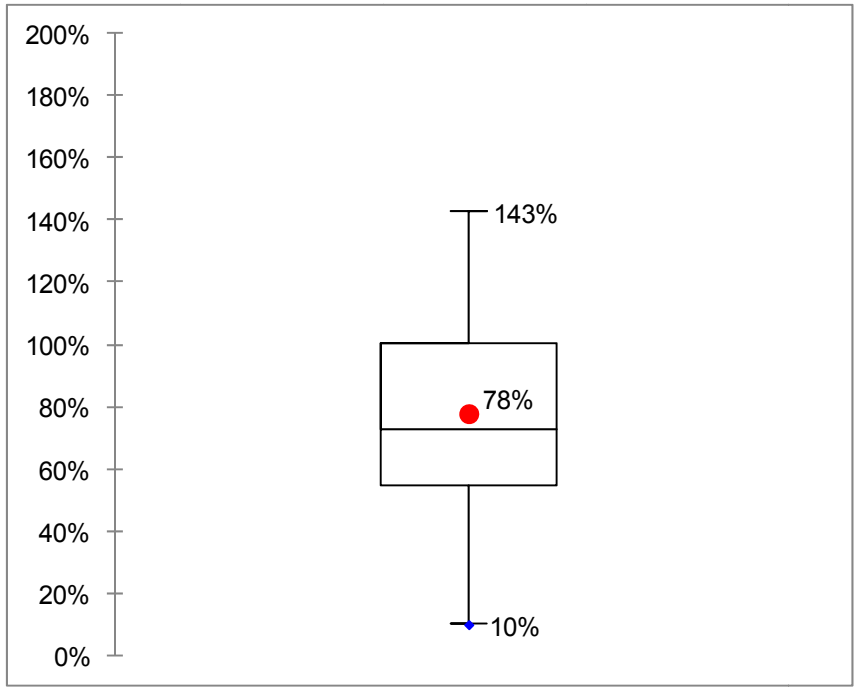
Unfortunately, if we check per annum counts for both lump sums in Doc FH (Table 10), we find somewhat conflicting results: overall per diem counts turn out to be slightly superior in 2006 and 2008-2010. Looking at the relative service code level, the discrepancies are even greater (box plot representation in Figure 10): for each relative service code in Doc FH we counted per year its frequency with per admission versus per diem lump sum registration. Fractions in % were calculated by dividing per diem frequencies by per admission frequencies. Theoretically – based on the 'facultative registration with per diem lump sum' rule – all fractions should not exceed 100%; yet we found a full (upper) quartile with percentages above 100%.

As with Doc N data, Doc FH data can be considered as sufficiently complete up to the year 2010. Yet, this only applies to overall data: if we descend to hospital level analyses (inter-hospital variability) this assumption should not be sustained, since late claims entries could vary from hospital to hospital. For that reason, and by way of precaution, inter-hospital variability was checked on 2009 data.

Table 10 – Doc FH per annum counts of per admission and per diem lump sums for day-care surgery – 2002-2010

Year	Lump sum type	Code pair	Counts Doc FH	% per diem
2002	Per admission	768036_768040	177480	99.29%
2002	Per diem	768051_768062	176228	
2003	Per admission	768036_768040	392310	99.86%
2003	Per diem	768051_768062	391749	
2004	Per admission	768036_768040	416330	99.78%
2004	Per diem	768051_768062	415414	
2005	Per admission	768036_768040	435853	99.87%
2005	Per diem	768051_768062	435286	
2006	Per admission	768036_768040	463535	100.11%
2006	Per diem	768051_768062	464056	
2007	Per admission	768036_768040	485902	99.86%
2007	Per diem	768051_768062	485243	
2008	Per admission	768036_768040	497921	100.01%
2008	Per diem	768051_768062	497978	
2009	Per admission	768036_768040	515156	100.03%
2009	Per diem	768051_768062	515297	
2010	Per admission	768036_768040	526694	100.01%
2010	Per diem	768051_768062	526762	

Figure 10 – Doc FH annual per diem lump sum counts versus per admission counts in day-care surgery, 2000-2010 (N_{obs} = 4 383)



In the next subsections, we will go through globalised, national data using Doc N. When appropriate, we will investigate various indication subgroups for every presently active lump sum category using Doc FH.

5.2 National day-care lump sum reimbursements and counts

Graphical results, including historical lump sums (Super lump sum and day-care groups A to D), are presented in Figure 11 (reimbursements) and Figure 12 (counts). Reimbursements for years are confined to solely day-care service remunerations (budgets from additional financing excluded). Standardised reimbursements (level 2010 or last effective year for groups A to D) are presented in Figure 13 (years 2003-2010). As a rule, and discarding the rescinded lump sums, all day-care lump sum reimbursements show growth, some more considerably than others such as the plaster room lump sum that remained quite stable. This growth effect is most striking with the newer lump sums (groups 1-7 and chronic pain), but of course they are only effective since July 2007 and evidently experience an introduction boost effect. The Maxi lump sums are the only apparent exception: the July 2007 reform, with the discontinuance of the Maxi nominative list, has clearly counteracted further growth, but more time is needed to see if this effect will be durable (2010 data show again a tendency to rise: Figure 11 and Figure 12; see also next section). The somewhat particular course of the Mini lump sums will be discussed in a following section.

Figure 11 – RIZIV – INAMI reimbursements for day-care, 1995-2010 (crude data)

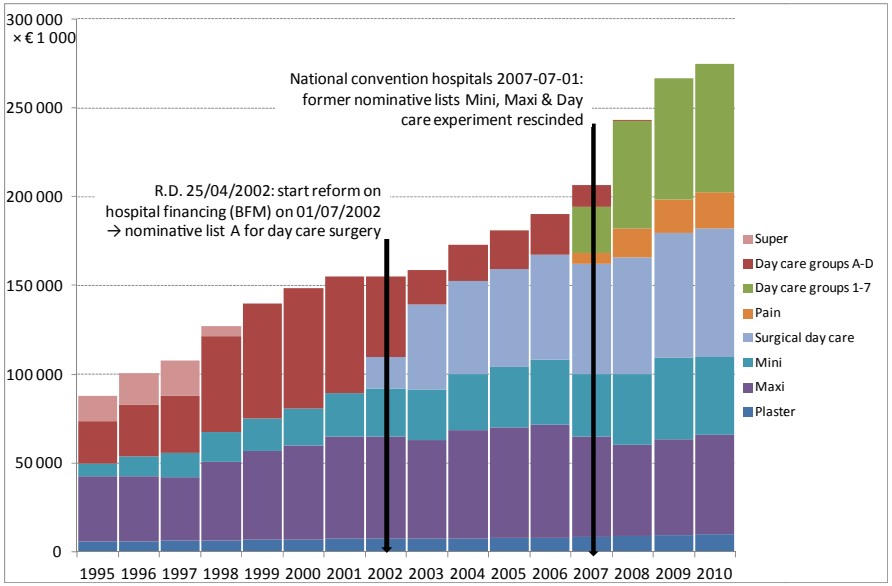


Figure 12 – Evolution of national day-care stay counts, 1995-2010

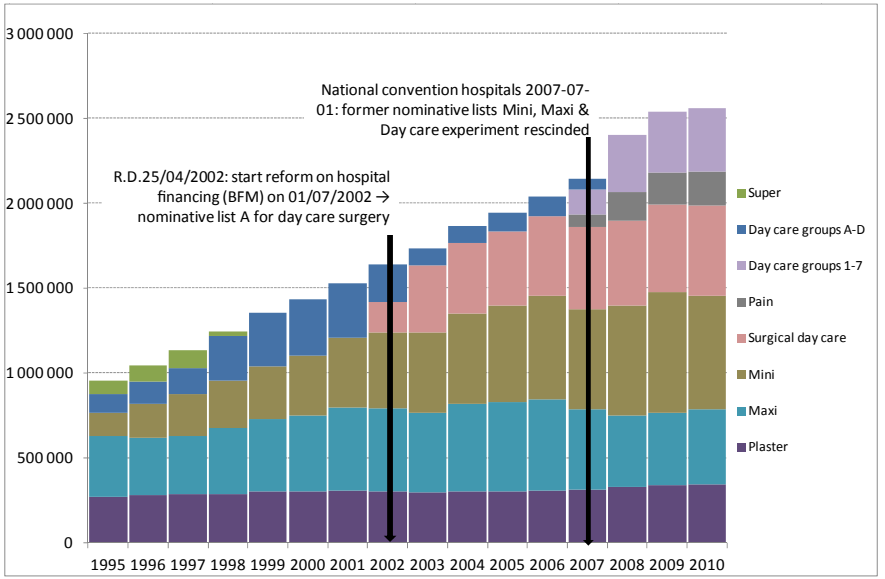


Figure 13 – Evolution of RIZIV – INAMI reimbursements for day care, 2003-2010

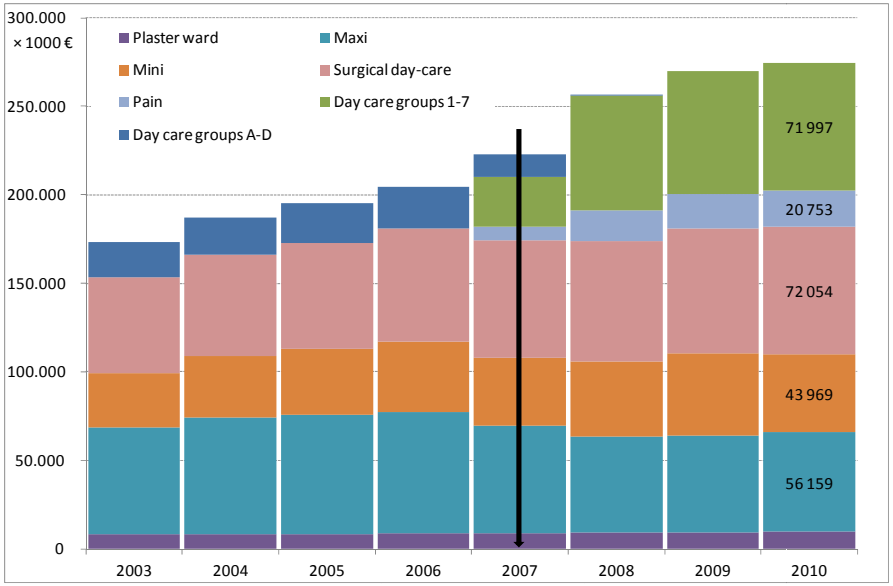


Figure 14 – Evolution of total hospital day-care reimbursements per lump sum category, 2004-2010

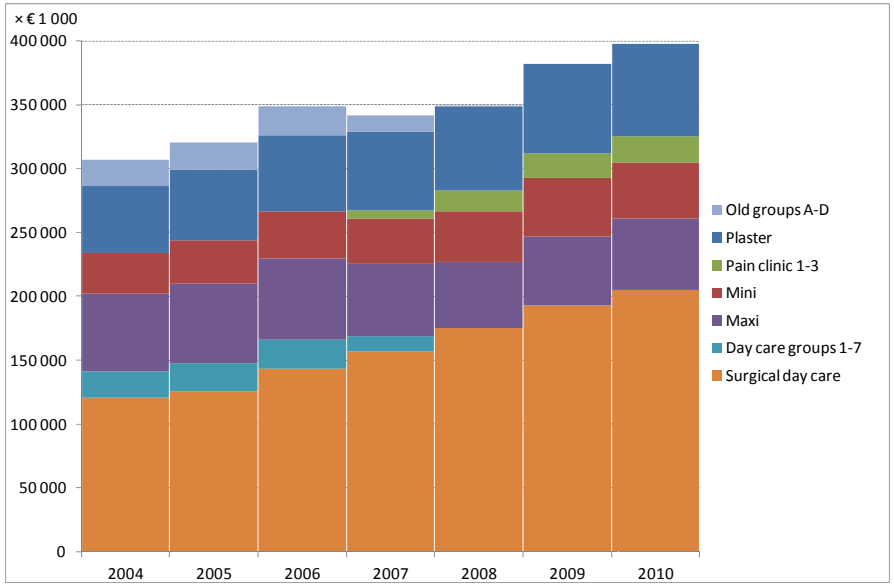
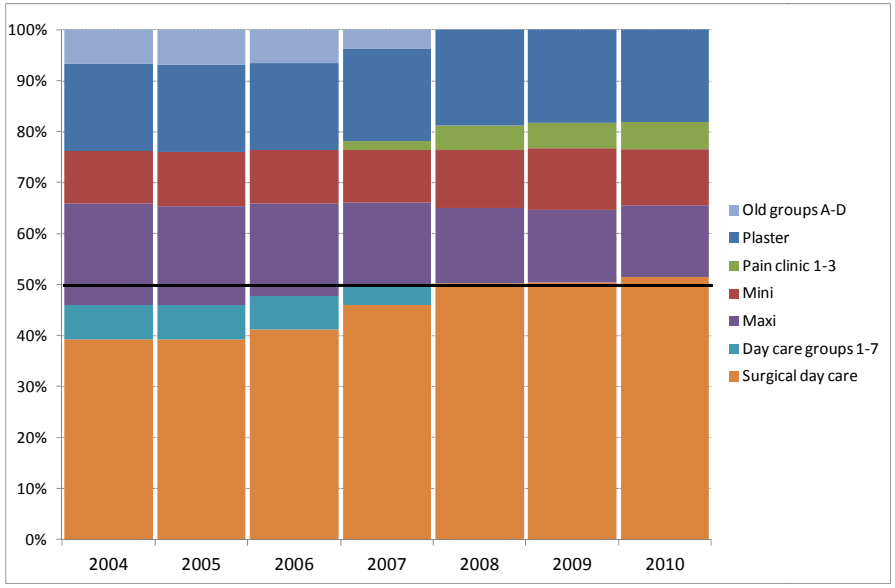


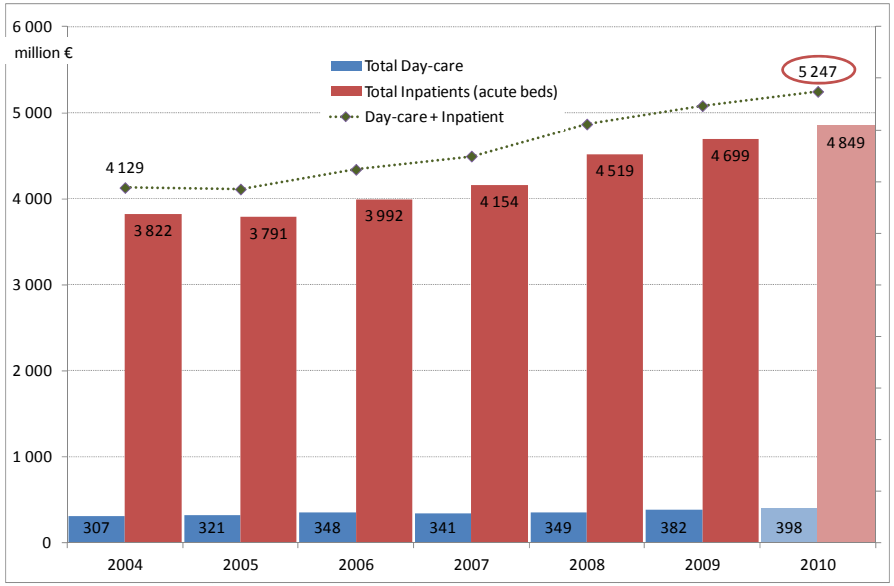
Figure 14 shows such calculated reimbursements for the years 2003-2010 (standardisation at level 2010 or last effective year = 2007 for groups A to D). In 7 years time total day-care reimbursements have increased with 74.8 % and slightly above 50% of the yearly reimbursements from 2008 on is due to day-care surgery financing (Figure 15).

Figure 15 – Evolution of total hospital day-care reimbursements (% per category), 2004-2010



In Figure 16 we compare extrapolated reimbursements for overall day-care with similarly extrapolated total reimbursements for inpatients (only acute bed stays) for the years 2004 to 2010 i.e. a 7 year interval. In crude amounts day-care totals have increased (from €307×10^6 in 2004 to €398×10^6 in 2010 = 29.6 % overall rise) but acute bed inpatient stays totals also rose (from €3 822×10^6 in 2004 to €4 849×10^6 in 2010 = 26.9%). Yet, the latter rise has to be balanced against a rise of national weighted average prices for acute bed stays in the same period: from €288.94 in 2004 to €388.14 in 2010 i.e. a 34,3% rise, indicating a relative, be it small diminution of budget fractions for acute bed inpatient stays (from 92.6% in 2004 to 92.4% in 2010). Combining both day-care and acute bed inpatient budgets, we find a global rise of 27.1%: from €4 129×10^6 in 2004 to €5 247×10^6 in 2010 in only 7 years. Between 2004 and 2010, total (extrapolated) expenditures for day-care and inpatient acute hospital stays combined, increased on average 3.9% per year from 4.13 billion euros to 5.25 billion euros.

Figure 16 – Total reimbursements (in million €) for hospital day-care versus inpatient stays (acute bed), 2004-2010



Comparing both extrapolated reimbursements per year, expressed in percentages of the corresponding total, the gross budgetary shift effect is rather disappointing (Figure 18): the day-care fraction rose from 7.4% in 2004 to 7.6 % in 2010, whereas the acute bed inpatient fraction diminished form 92.6% to 92.4%.

The extrapolated reimbursements in previous chart match very well the annual budgetary estimates for stay day reimbursements, published by RIZIV – INAMI[23] (Figure 17), on the understanding that in the latter chart acute bed estimates include both inpatient and surgical day-care stays (red bars) as distinct from non surgical day-care estimates (blue bars). The totals in both charts, however, match very well: €5 247×10^6 for our 2010 extrapolation vis-à-vis €5 022×10^6 in the RIZIV – INAMI estimates for the same year. The surplus of €225×10^6 (only 4.5% difference against RIZIV – INAMI estimate) can be explained by the fact that the extrapolation totals

in Figure 16 represent actual spending (retrospective) as opposed to the RIZIV – INAMI estimates being prospective.

Figure 17 – RIZIV – INAMI budgetary estimates for hospital stay day reimbursements, 2007-2011

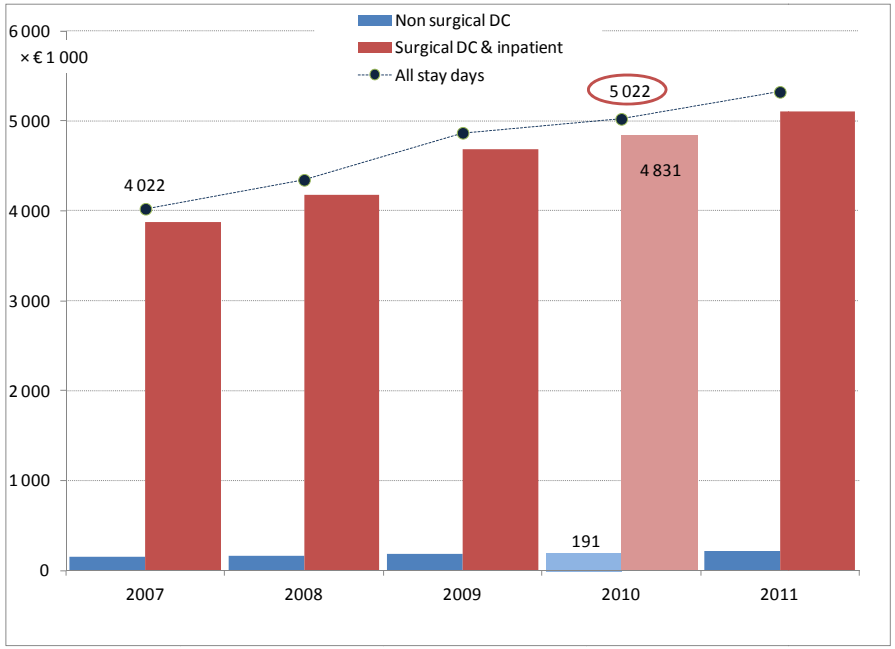
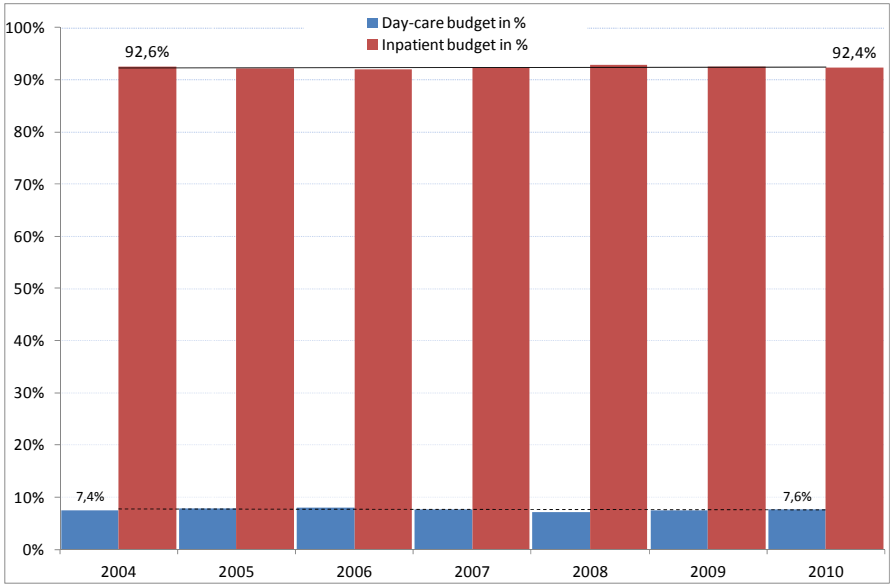


Figure 18 – Percentages of combined total budgets for day-care versus inpatient stays (acute bed), 2004-2007



Moreover, if we compare stay day counts (Figure 19), we notice from 2003 to 2010 (2002 being omitted since data only cover half a year), a rise of 900 000 days in day-care against a drop of 1 000 000 acute bed inpatient days. Globally speaking, we could claim an indeed disappointing ”gain” of 100 000 inpatient days, but this is entirely to be ascribed to a general and continuing trend of lower length of stay (LOS) for inpatient stays. Calculated from linked TCT data[24], overall mean LOS was 7.8 days in 2003 versus 7.5 days in 2009. The latter applied to 2003 stay counts (1 533 000 stays) would mean a drop of 510 000 days, which is far over the above mentioned 100 000 days. Moreover, global stay counts on MKG – RCM 2004-2008 data corroborates our conclusion: while stay day counts have dropped, stay counts have continued to rise (Figure 20, including all stays, whether or not covered by compulsory health insurance).

Figure 19 – Global day counts per year for day-care versus acute bed inpatient stays, 2003-2010

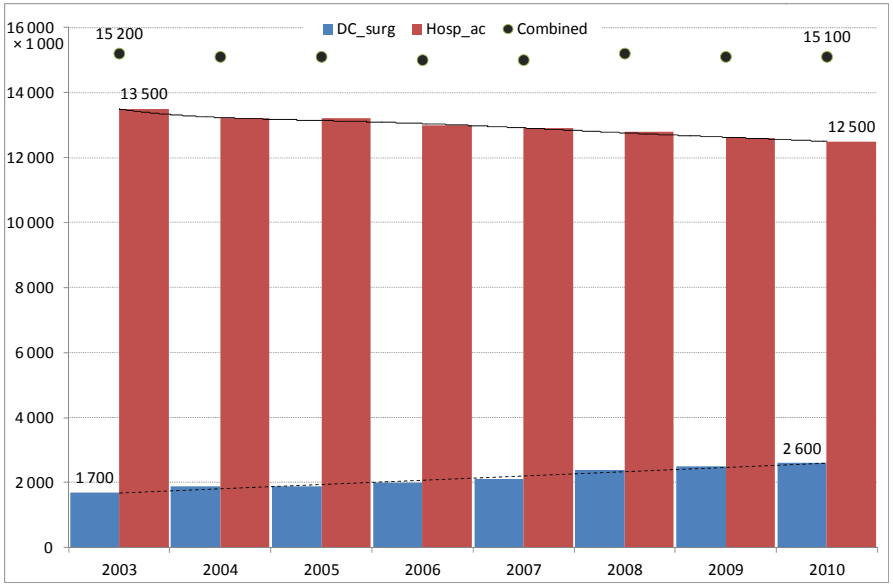
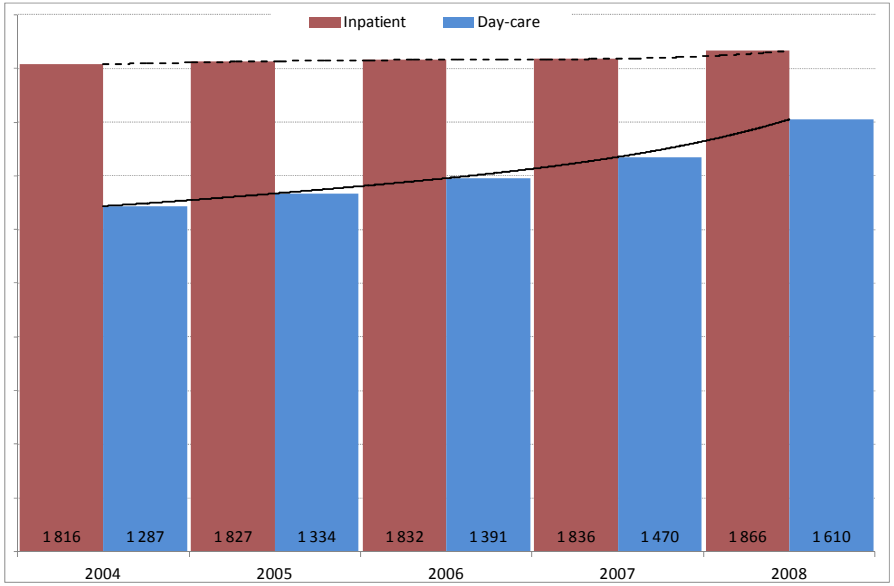


Figure 20 – MKG – RCM stay counts, 2004-2008



5.3 National reimbursements and counts per lump sum category

In this section we go through evolutions in reimbursements and case counts per lump sum category separately and this for a 10 years interval (2000 to 2010), except for the new lump sum categories that were introduced on 1 July 2007.

5.3.1 Plaster ward services

Figure 21 and Figure 22 give the results for plaster ward services. Most striking in these charts is the excavated shape of the numbers chart as opposed to the more ”uphill” shape in the (crude) reimbursement chart, the latter entirely due to higher plaster room lump sum prices in the lean years.

Figure 21 – Evolution of national plaster ward service counts, 2000-2010

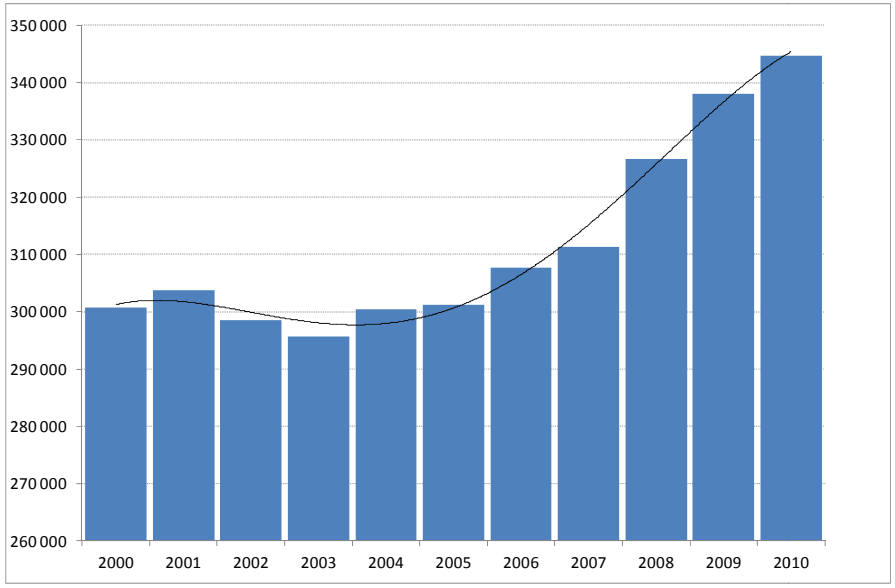
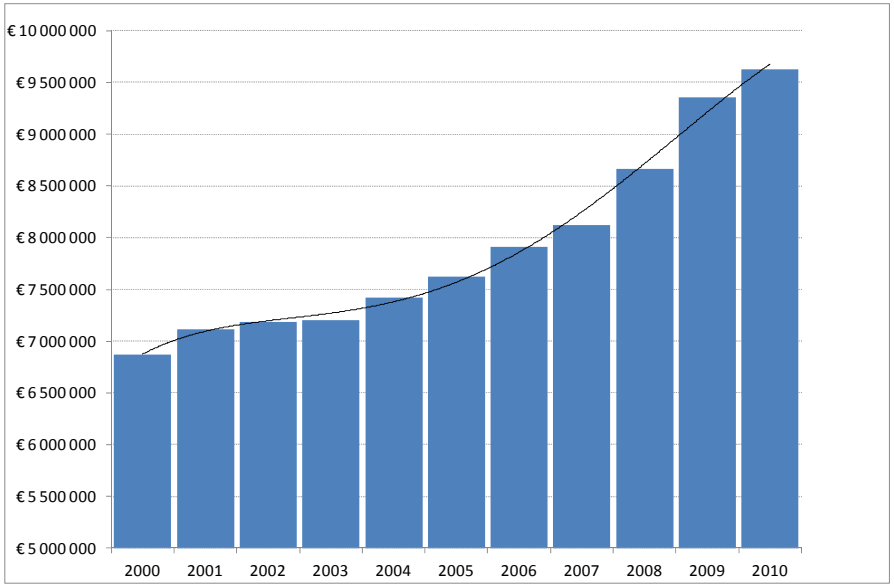


Figure 22 – Evolution of national plaster ward service reimbursements, 2000-2010



Looking more closely at the plaster ward activity, we subgrouped all related service codes found in the Doc FH database into four clinical groups (excluding eventual but only very occasional records with refutable or absent relative service codes):

- Fract/Lux Upper Extr. = any fracture or dislocation in the upper extremity region including acromio-clavicular (collar bone) region;
- Fract/Lux Lower Extr. = any fracture or dislocation in the lower extremity region including femoro-acetabular region (entire hip joint);
- Fract/Lux Axial = any fracture or dislocation in the trunk parts (rib cage, pelvis), axial skeleton or skull region;
- All other = plaster casting for lesser osteo-articular trauma such as distortions or as an adjunct treatment with orthopaedic (joint implants, tendon repair) and other conjunctive tissue surgery or for moulding in the field of custom-made orthoses.

For each of those subgroups we calculated annual counts and crude reimbursements from 2000 to 2010 and results are presented in Figure 23 and Figure 24. Since skeleton trauma is likely to follow epidemiological and demographic evolutions. Considering the continuing aging of the Belgian population, it is not surprising to see that most subgroups increased over the years. The growth of the "other cases" bars, however, causes some concern: more than 99% of them are for soft tissue trauma (the other subgroups being traction, moulding, joint manipulations and post surgery). Apparently plaster immobilisation – reimbursed through lump sum and plaster materials[p] – is preferred to other, non-orthotic immobilising bandages, usually not reimbursed by compulsory health insurance.

Figure 23 – Counts for plaster ward services by subgroup, 2000-2010

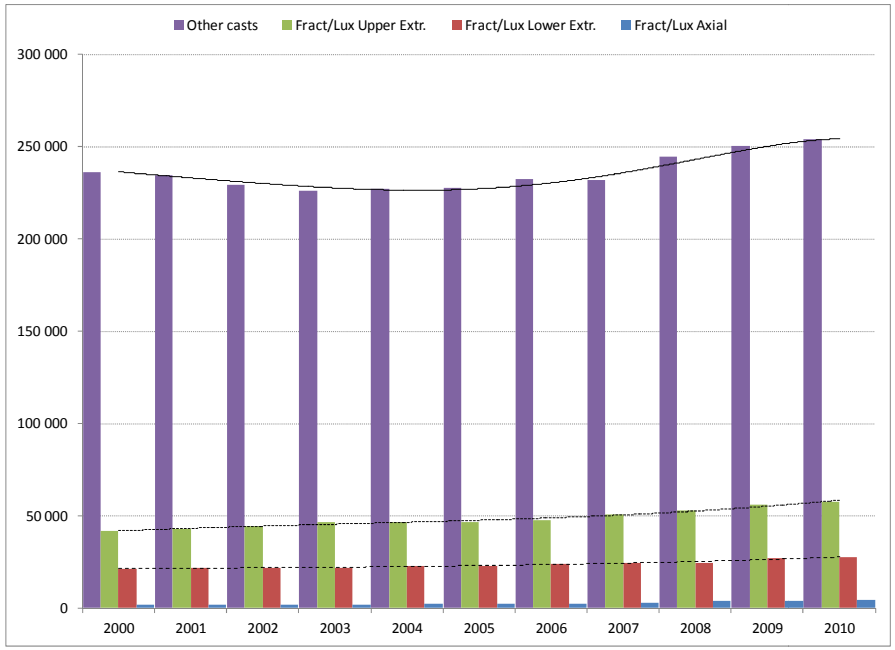
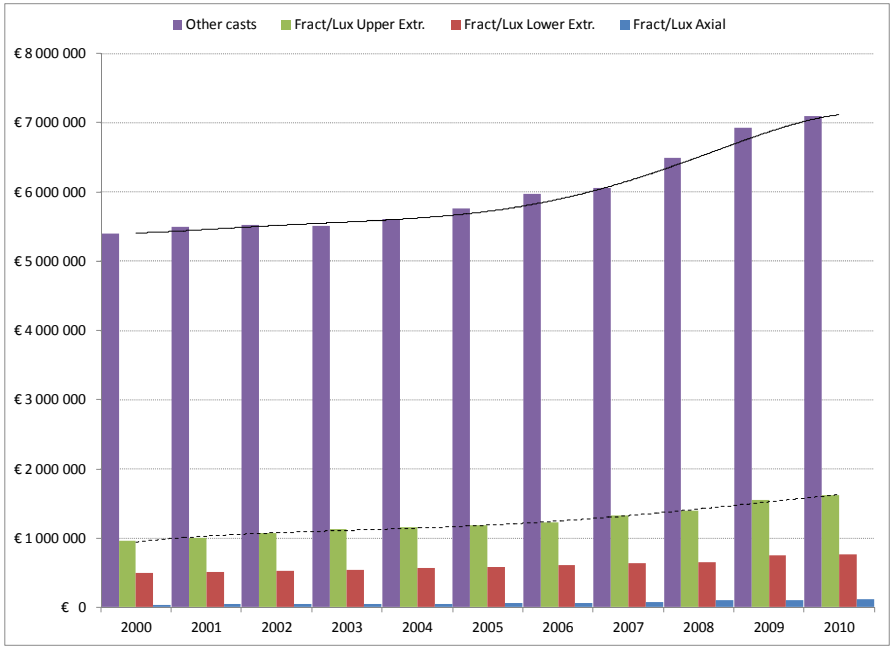


Figure 24 – Reimbursements for plaster ward services by subgroup, 2000-2010



5.3.2 Mini lump sum services

Figure 25 and Figure 26 present results for Mini lump sum reimbursements and counts. Both graphs show a general pattern of steady rise, only interrupted in the year 2007, with an obvious effect of the rescinding of the Mini lump sum nominative list. In following years, however, reimbursements show again an even steeper rise "as if nothing happened". Only in 2010 a decline seems to take shape.

p RIZIV – INAMI codes 690012 till 693626 (162 code pairs)

Figure 25 – Evolution of Mini days, 2000-2010

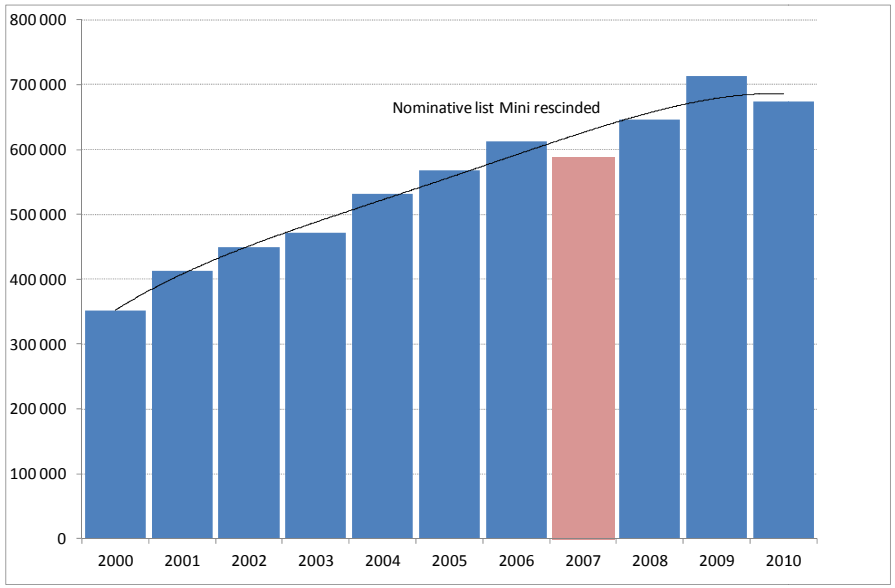
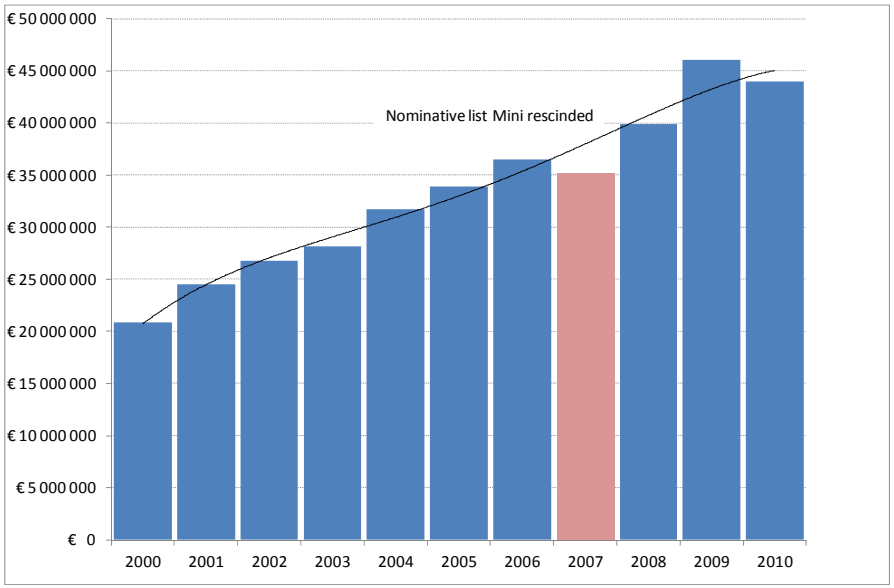
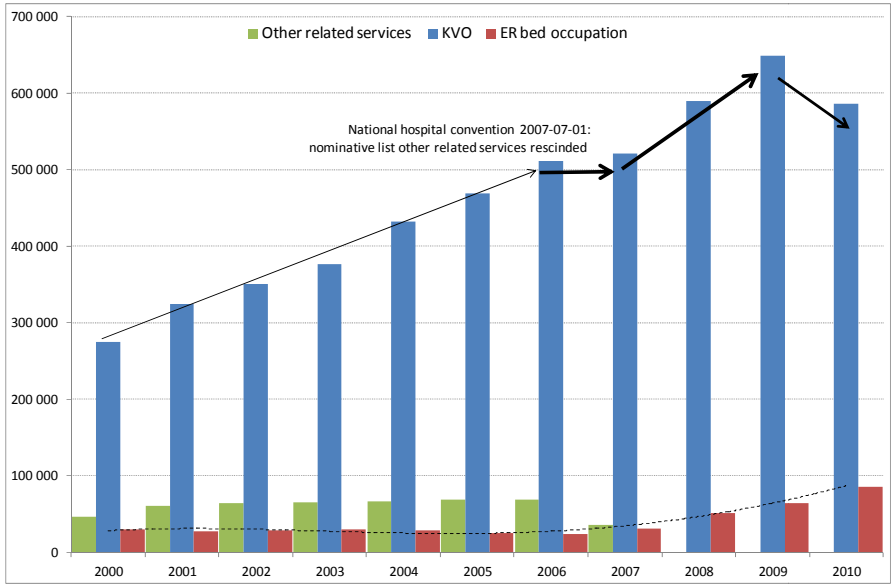


Figure 26 – Evolution of Mini reimbursements, 2000-2010



If we look closer to the Doc FH data for Mini lump sum services per component, we again clearly perceive (Figure 27) the 2007 breaking point in the plot.

Figure 27 – KVO services counts versus ER bed occupation with Mini lump sum, 2000-2010



What followed was a remarkable rise of the KVO (Keep Vein Open) reimbursement claims (see arrows in Figure 27). In a circular letter to the hospitals, dated 11 January 2010, the General Council of the National Agreements Commission alerted by its permanent audit noticed serious budgetary overspending in the field of day-care lump sums, mainly due to Mini lump sum expenditures exceeding by far all anticipations. Inquiries at hospitals by the commission revealed that this excess was chiefly due to the addition of the wording (see Table 8) "or any Keep Vein Open infusion for therapeutic reasons" in the National Agreement protocol of 1 July 2007, which led hospitals to charge all KVO, rinsing and flushing of vascular access implants (portal catheter) included.

This rather broad interpretation was explicitly prohibited and consequently the phrasing was altered to: "Any condition requiring an effective medical surveillance in case of administration, by intravenous infusion, of a drug, blood or unstable blood derivatives, prescribed by a physician". Prescriptions had to be noted in the patient's record.

Starting 1 February 2011, a new lump sum code for portal catheter flushing was installed at a fixed (and lower) price.

5.3.3 Maxi lump sum services

Charts for Maxi lump sum (Figure 28 and Figure 29) show quite a different pattern than Mini lump sum charts. Hospital prices for Maxi lump sum have indeed hardly changed between 1998 and 2007 (see Table 4). When plotting the annual Maxi lump sum day counts against the corresponding relative service code counts invoiced by the hospitals (extracted from Doc FH; Figure 30), we see a pattern suggesting possible compensatory strategies by the hospitals as to accommodate to nominative code list reductions (2000-2006 interval). Indeed, the number of Maxi lump sums stays did not drop with the number of relative service codes. It is only after the 1 July 2007 reform that the billing counts trend line bows back to the distinct relative code counts trend line.

Figure 28 – Evolution of Maxi lump sum days, 2000-2010

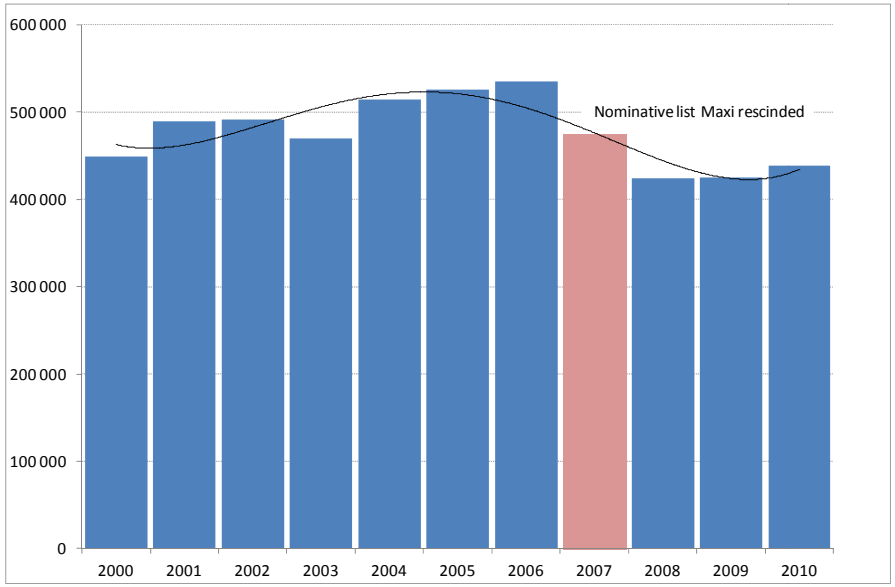


Figure 29 – Evolution of Maxi lump sum reimbursements, 2000-2010

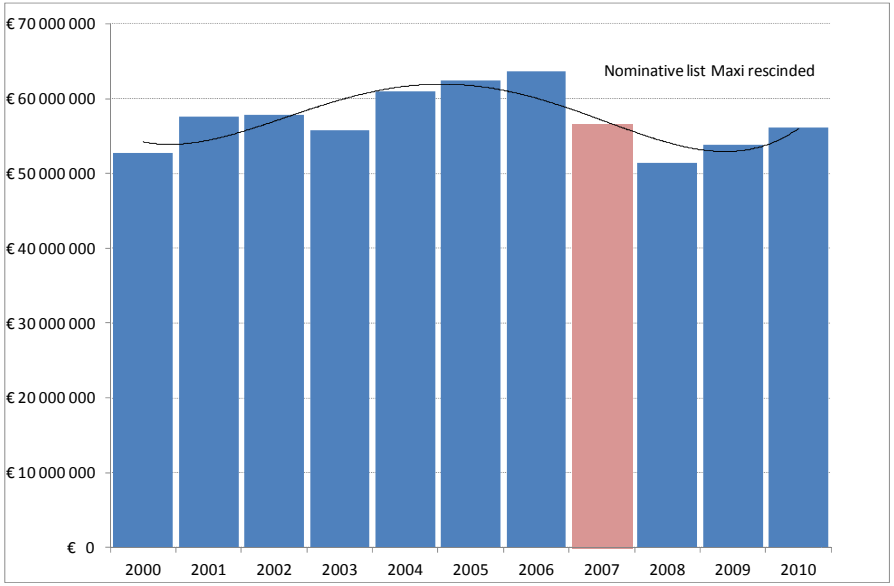
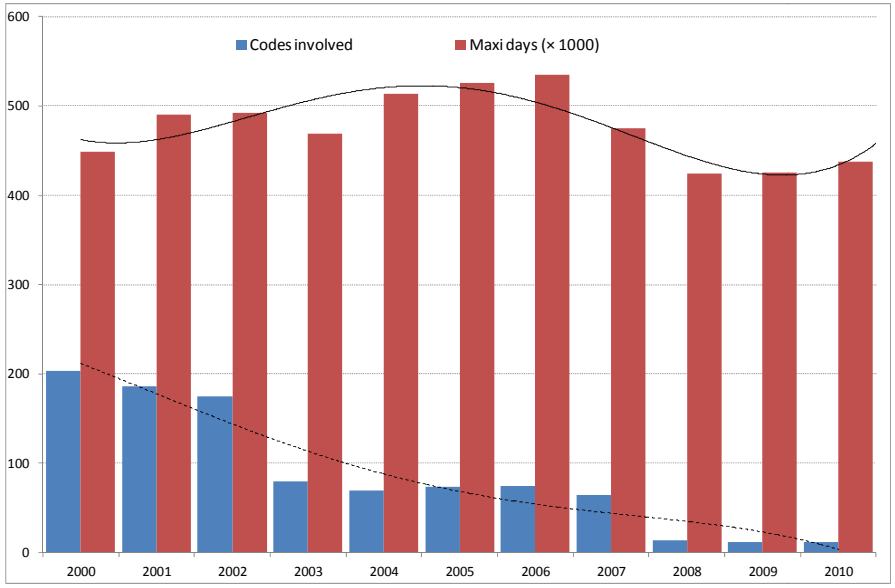
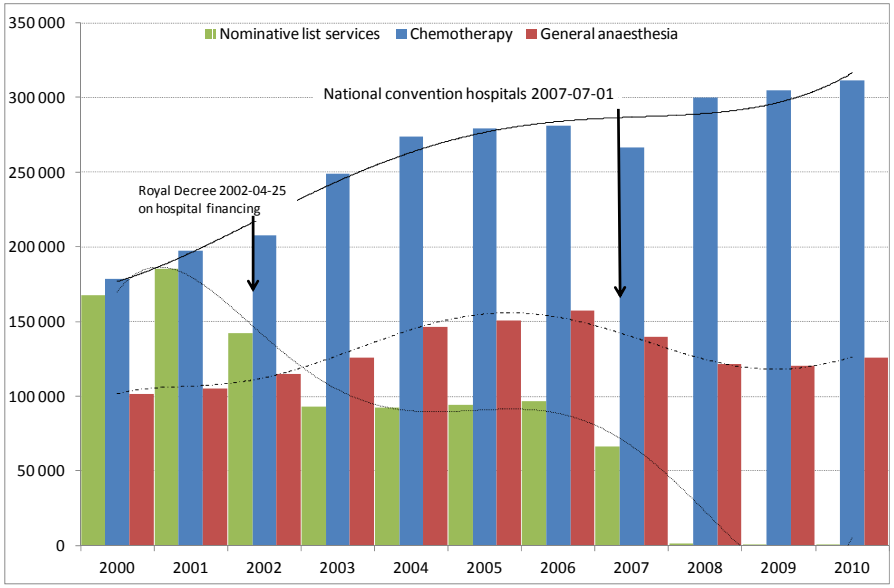


Figure 30 – Maxi lump sum counts versus numbers of related service codes involved, 2000-2010



Looking at the subgroups of the Maxi lump sum, noticeable breaking points are found (Figure 31). Indeed, in 2002 the Maxi lump sum nominative list was considerably reduced (see Table 9) and starting July 2007 it was even totally abolished. Meanwhile, the chemotherapy services showed a steady ascent. Although directives for rightfully claiming Maxi lump sums were straightened with the lapse of time (see Table 8), this was for the greater part a mere reflection of adapting the rules to clinical practice evolutions: the marked rise in chemotherapy services is indeed to be considered as greatly caused by changes in oncology practice, particularly in the extending field of chemotherapy.

Figure 31 – Services versus general anaesthesia with Maxi lump sum reimbursements, 2000-2010



On the other hand, since Maxi lump sum prices vary from hospital to hospital and the new 2007 lump sums are fixed (see Table 3), hospitals have a different scaling of their Maxi price compared to national, fixed lump sum prices (see Figure 32). As a consequence, for any intervention performed under general anaesthesia and figuring in one of the fixed lump sum nominative lists, hospitals have the option to pick the best offer (Article 4, § 10 of the National Agreement of 1 July 2007). From a theoretical point of view, it seems logical that hospitals with a higher Maxi lump sum could show a tendency to substitute fixed lump sum claims by their Maxi lump sum. We verified this hypothesis in the 2008 HBR day-care database at our disposal (overall 82% of all stays, see section 2 for details). For all day-care stays showing a Maxi lump sum reimbursement with a relative service code 761331_761342 (any intervention requiring a general anaesthesia), we extracted all service codes reimbursed in that stay and then we checked which of those codes figured in the nominative list of another lump sum. The results are shown in Figure 33. Rather

surprisingly, we did not find what we expected: 10% interventions under Maxi lump sum claim were found in the plaster room group (10%) and 6.3% in group 7. Whereas the plaster room fee (€26.52 in 2008) definitely is inferior to any Maxi fee (lowest rate: €62.82 € in 2008), and thus the billing of a Maxi lump sum in such cases is quite logical, the group 7 fee (€180.00 in 2008) has only two hospitals with a Maxi fee exceeding it. The other groups show too little percentages, so will not go into these.

Figure 32 – Maxi prices (bars) versus fixed lump sum prices (lines, 2010 last semester

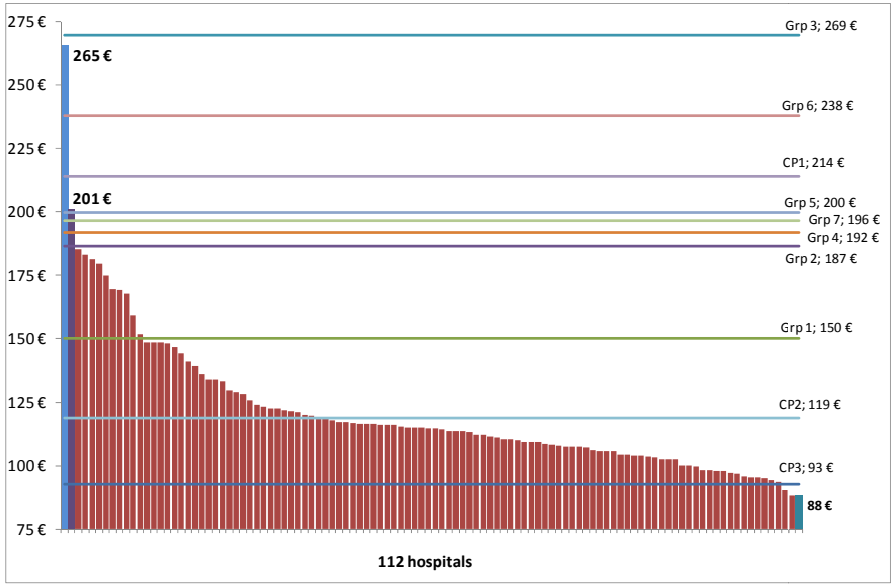
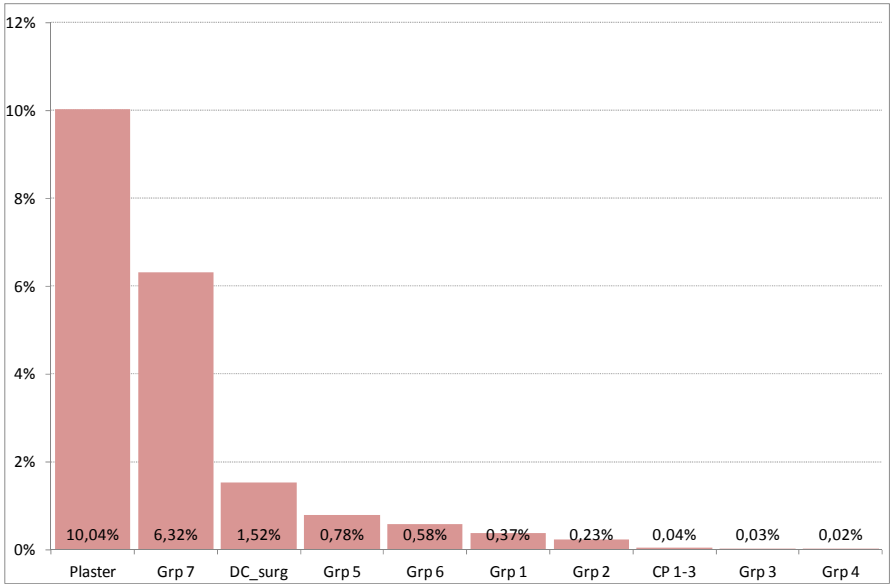


Figure 33 – Fraction of Maxi lump sum stays with nomenclature code of other lump sum list, day-care HBR 2008 (first full year)



As for the plaster ward services, we can argue that 10% day-care casts applied under anaesthesia (after exclusion of all supplemental casts applied in conjunction with a surgical intervention) seems acceptable, certainly if we see that almost 45% of them are for fractures / dislocations of the upper extremity or joint manipulation procedures (5 478/12 189 stays = 44.9% in 2008). Furthermore, it seems very unlikely that patients would accept unjustified non-local anaesthesia for simple application of a cast, exceptions made for low pain threshold patients.

Looking at the group 7 procedures billed under a Maxi lump sum in 2008, there is another puzzle to solve (Figure 34): a scatter plot of the percentage of group 7 codes billed under maxi lump sum versus the per hospital weighted average of Maxi lump sum fee in 2008[q] – each point representing the values for 105 implicated hospitals – shows no correlation

[q] Maxi lump sum prices per hospital are subject to half-yearly revisions.

whatsoever between both entities, suggesting other reasons need to be found for such lump sum shifts. Figure 35 shows the same disparity in a broader perspective (all lumps sum group 7 procedures billed in 2008). An explanation seems to lie in the composition of the group 7 nominative list: paradoxically many of its codes are typical surgical procedures that are commonly performed under some form of major (= non-local) anaesthesia (Table 14). So, in a way, classifying such procedures in group 7 induces divergence in hospital reimbursement claims as is suggested by Table 12 which shows a definitely narrowed spectrum of group 7 procedures performed with local anaesthesia and thus not apt for Maxi lump sum claims. Indeed, without major anaesthesia those interventions give only entitlement to group 7 lump sum claims, unless they are combined with other, mostly BFM – BMF List A interventions (surgical day-care).

Figure 34 – Percentage group 7 codes billed under Maxi lump sum versus weighted average of hospital Maxi fee, day-care HBR 2008 (first full year)

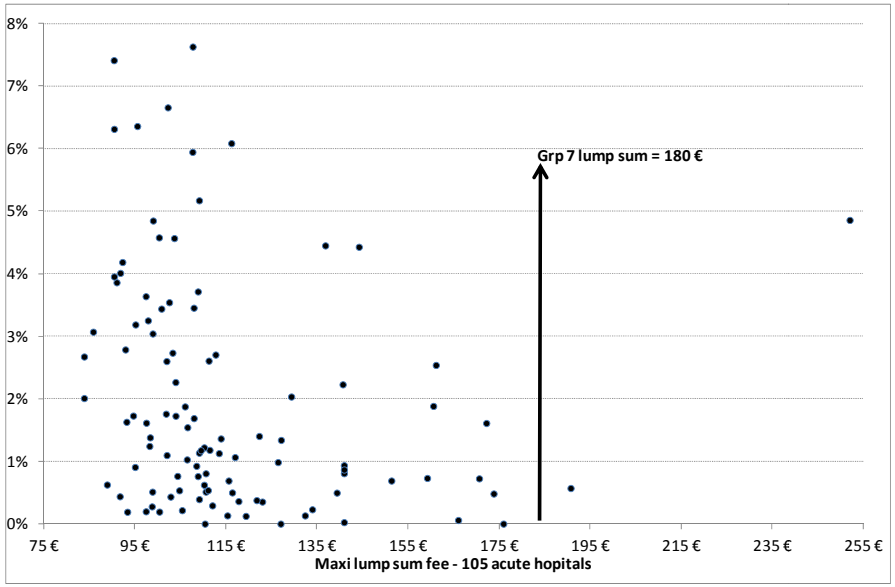


Figure 35 – Percentage of group 7 procedures versus lump sum billed for 105 hospitals, day-care HBR 2008 (first full year – any lump sum billed)

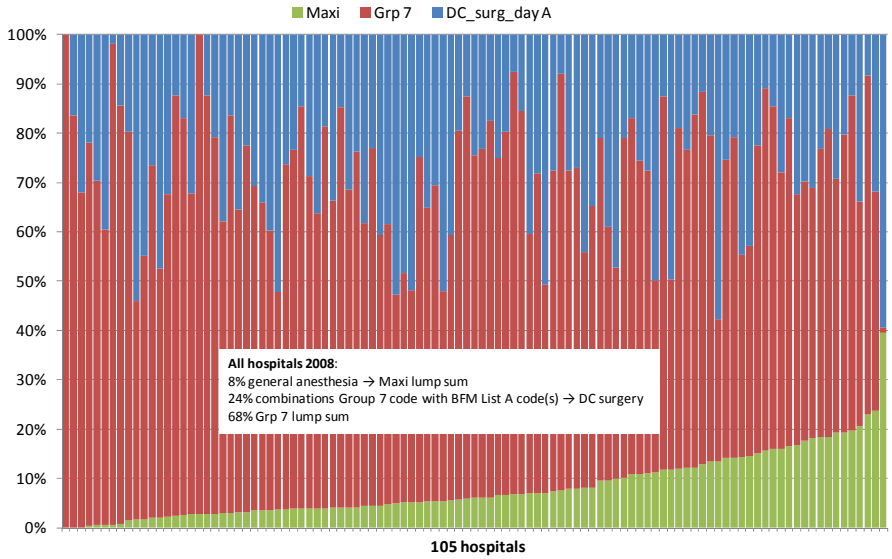


Table 11 – Percentages of (non-local) anaesthesia with day-care group 7 nomenclature codes, data 2006-2008 (any lump sum billed)

Code	All day-care 2006-2008	% Anaesthesia	Label
258532	3081	99.4%	Microsurgery vocal cord correction
262371	5147	99.2%	Therapeutical ureteroscopy or ureterorenoscopy for urinary lithiasis, abscesses, stenosis or other lesions
312012	107	99.1%	Maxillary or mandibular osteosynthesis for fracture
257471	85623	98.7%	Transtympanic prosthetic drainage
256535	433	98.2%	Tonsillectomy ± adenoidectomy. adults
261612	1488	98.2%	Meatoplasty by mucosal slide
311415	3485	98.0%	Mandibular osteotomy & reconstruction, eventual prelevation of autogenous bone graft included
311135	4388	97.4%	Maxillary trepanation for tumor, Osteitis, sequesters or foreign bodies
260713	441	97.4%	Epididymectomy
431491	2874	96.9%	Amputation of neck of the uterus with vaginoplasty (Sturmdorf)
262356	1291	96.8%	Diagnostic ureteroscopy of ureterorenoscopy
311371	2024	96.1%	Simple maxillofacial osteotomy
431093	1300	94.4%	Marsupialisation of Bartholin's gland
227032	7592	91.6%	Mammary excision of tumefaction of cyst
256933	447	89.4%	Surgical intervention for deep cervical cyst or tumour
431756	4590	87.3%	Vulvo-vaginal plasty
261531	1091	87.0%	Open testicular biopsy
312130	315	86.3%	Uncomplicated treatment of maxillofacial fracture, nasal bone fractures excluded
260175	45	81.8%	Endoscopic extraction of ureter stone, cystoscopy included, per session
220091	257	75.4%	Supraclavicular Daniels' biopsy
432294	11822	71.3%	Conisation of neck of uterus
532210	58	66.7%	Surgical dermal abrasion ≤ half of face or ≤ 1/5th of body surface
300355	187	64.3%	Percutaneous nucleotomy for discus hernia
220356	1551	61.7%	Exeresis of ganglion
310914	11502	37.3%	Treatment of mandibular osteitis by curettage, one or more sessions
355073	9208	35.1%	Extracorporeal shock wave lithotripsy
293193	5	29.4%	Metatarsophalangeal resection of ≥ 1 toes of same foot
287851	119	28.8%	Nail transplantation
261811	77	17.7%	Radioscopy guided percutaneous pyelo- or nefrostomy
148072	158	16.5%	Debridement and suture of ≥ 3 facial wounds

Code	All day-care 2006-2008	% Anaesthesia	Label
212214	7	5.7%	Cardiac catheterization for temporary atrial and/or ventricular stimulation, pressure or cardiac output monitoring
432353	34	0.3%	Invasive obstetrical procedure (amniocentesis, fetal puncture, cordocentesis) under US control

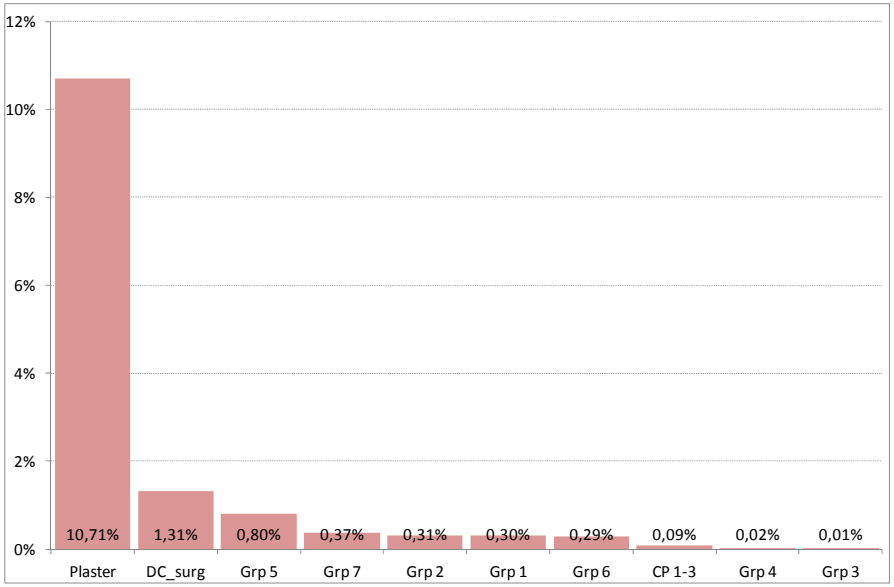
Table 12 – Lump sum group 7 claims in 2008: day care procedures frequently performed with local anaesthesia

Code	DC 2008 stays	Column %	Label
310914	12672	39.73%	Treatment of mandibular osteitis by curettage, one or more sessions
355073	6853	21.48%	Extracorporeal shock wave lithotripsy
432353	6766	21.21%	Invasive obstetrical procedure (amniocentesis, fetal puncture. cordocentesis) under US control
432294	1715	5.38%	Conisation of neck of uterus
257471	819	2.57%	Transtympanic prosthetic drainage
220356	572	1.79%	Exeresis of ganglion
148072	478	1.50%	Debridement and suture of ≥ 3 facial wounds
431756	445	1.40%	Vulvo-vaginal plasty
227032	415	1.30%	Mammary excision of tumefaction of cyst
261811	233	0.73%	Radioscopy guided percutaneous pyelo- or nefrostomy
287851	197	0.62%	Nail transplantation
300355	104	0.33%	Percutaneous nucleotomy for discus hernia
261531	100	0.31%	Open testicular biopsy
311135	67	0.21%	Maxillary trepanation for tumor, Osteitis, sequesters or foreign bodies
212214	56	0.18%	Cardiac catheterization for temporary atrial and/or ventricular stimulation, pressure or cardiac output monitoring
220091	53	0.17%	Supraclavicular Daniels' biopsy
311371	52	0.16%	Simple maxillofacial osteotomy
431093	46	0.14%	Marsupialisation of Bartholin's gland
431491	46	0.14%	Amputation of neck of the uterus with vaginoplasty (Sturmdorf)
311415	46	0.14%	Mandibular osteotomy & reconstruction, eventual prelevation of autogenous bone graft included
256933	32	0.10%	Surgical intervention for deep cervical cyst or tumor
312130	31	0.10%	Uncomplicated treatment of maxillofacial fracture. nasal bone fractures excluded
262356	23	0.07%	Diagnostic ureteroscopy of ureterorenoscopy
262371	17	0.05%	Therapeutical ureteroscopy or ureterorenoscopy for urinary lithiasis, Abscesses, stenosis or other lesions
261612	16	0.05%	Meatoplasty by mucosal slide
258532	12	0.04%	Laryngeal microsurgery (vocal cord correction)

Code	DC 2008 stays	Column %	Label
532210	9	0.03%	Surgical dermal abrasion ≤ half of face or ≤ 1/5th of body surface
260175	9	0.03%	Endoscopic extraction of ureter stone, cystoscopy included, per session
260713	7	0.02%	Epididymectomy
293193	4	0.01%	Metatarsophalangeal resection of ≥ 1 toes of same foot
312012	1	0.00%	Maxillary or mandibular osteosynthesis for fracture
256535	1	0.00%	Tonsillectomy ± adenoidectomy. adults

Looking again at the scatter plot in Figure 34 one could wonder why the vast majority of the hospitals (left to the group 7 arrow) chose to claim a Maxi lump sum for group 7 procedures carried out under non-local anaesthesia instead of the higher group 7 lump sum. Apparently, hospitals initially have struggled with the complexity of day-care financing rules, with on the one hand ”transversal” lump sums (Mini & Maxi) as opposed to ”vertical”, i.e. code restrictive lump sums (nominative lists). In fact, repeating the same exercise on 2009 data seems to point in such direction (Figure 36): except for plaster room lump sum, all percentages of the other nominative list interventions under Maxi lump sum claim have significantly dropped, suggesting some awakening at hospital management level.

Figure 36 – Fraction of Maxi lump sum stays with nomenclature code of other lump sum list, ADH – HJA 2009 (last full year)



5.3.4 *Day-care surgery services*

An introductory remark on day-care surgery charts (Figure 37 and Figure 38) is that the 2002 data only cover half a year. Consequently, we did not take them into account for trend line plotting. Next, as stated before, day-care surgery reimbursements need extrapolation to obtain approximated total reimbursements.

We see once again that both counts and reimbursements plots as well as trend lines concord strikingly. Since there has been a deliberate public health care policy as well as a market demand trend to stimulate day-care stays, it seems logic that the evolution is markedly ”up hill”, even if the related nominative list (BFM – BMF List A) has not been extended in a significant way over the years (Figure 39).

Figure 37 – Evolution of day-care surgery counts, 2003-2010

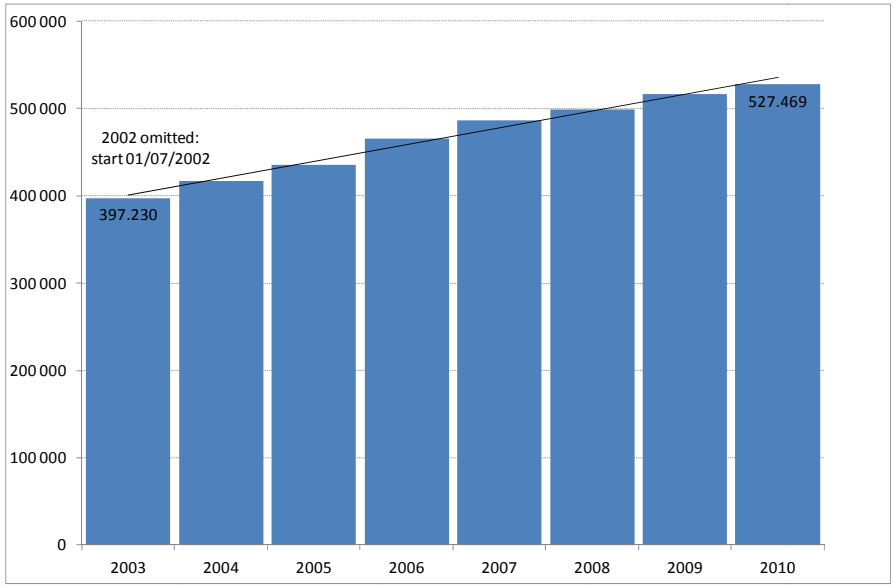


Figure 38 – Evolution of extrapolated reimbursements for day-care surgery, 2004-2010

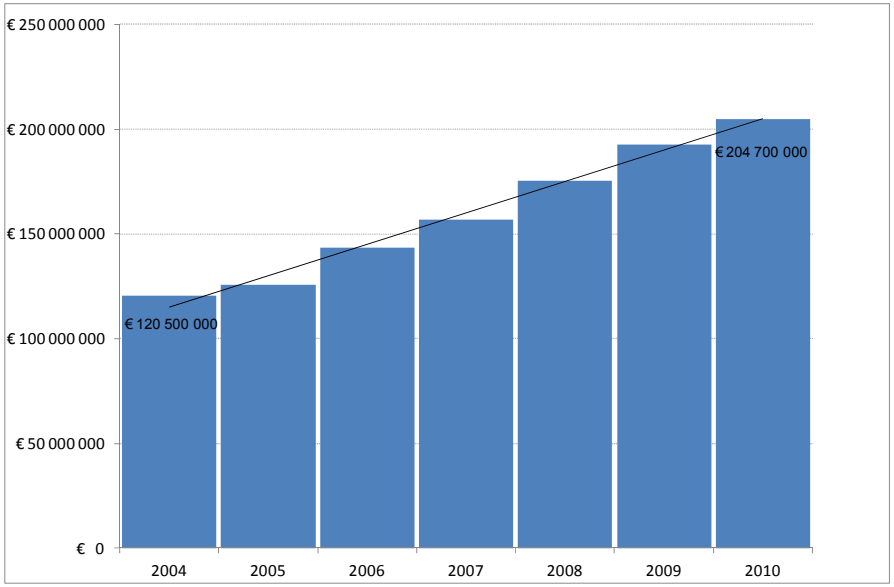


Figure 39 – Evolution of day-care surgery counts versus related services code counts, 2003-2010

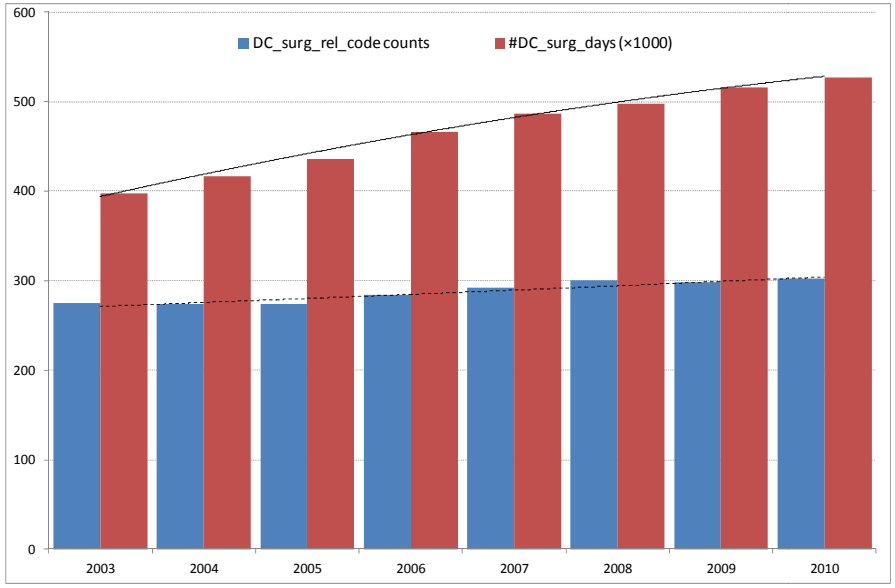
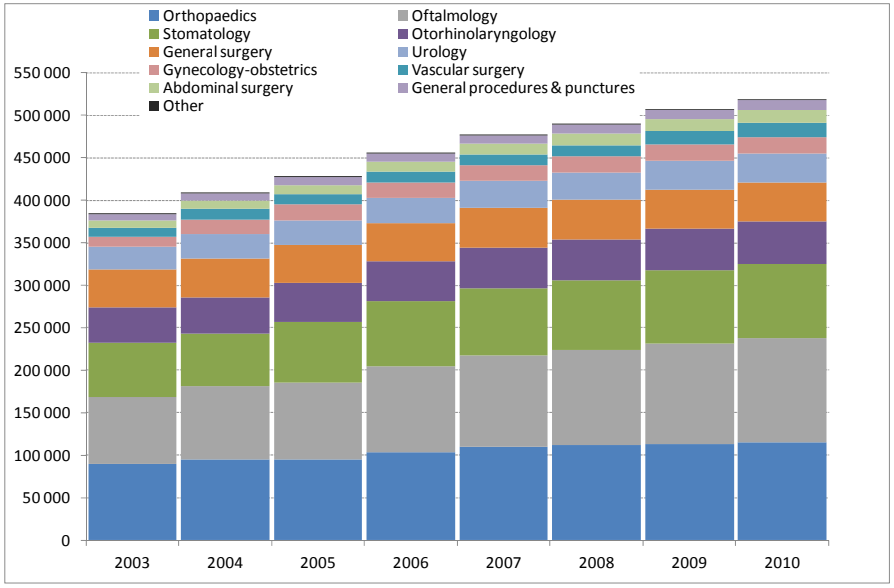


Figure 40 – Differentiation of day-care surgery stay counts by clinical specialism, 2002-2010



Day-care surgery at present (1 January 2012) covers a list of 245 surgical interventions (code pairs), which makes it practically impossible to separately discuss them one by one.

Easier insight is obtained if we look at stay counts by group N, reflecting clinical specialists (Figure 40). Not surprisingly, ophthalmology (cataract surgery), orthopaedics (minor to moderate trauma surgery, hand- and foot surgery), stomatology (dental and jaw bone interventions) and otorhinolaryngology (nasopharyngeal interventions, mostly in children) take the lead, followed by (in descending magnitude) general surgery (various minor and typically day-care interventions such as benign tumour or cyst excisions, etc.), urology (vasectomy, circumcision, orchidopexy), gynaecology-obstetrics (minor vulvo-vaginal interventions and dilation and curettage of the uterus), vascular surgery (varicectomy), abdominal surgery (proctologic interventions as well as abdominal hernia repair), general procedures & punctures and reconstructive surgery. The percentages per specialism on 2010 data are given in Figure 41.

Figure 41 – Percentages of day-care surgery stays per specialism in 2010

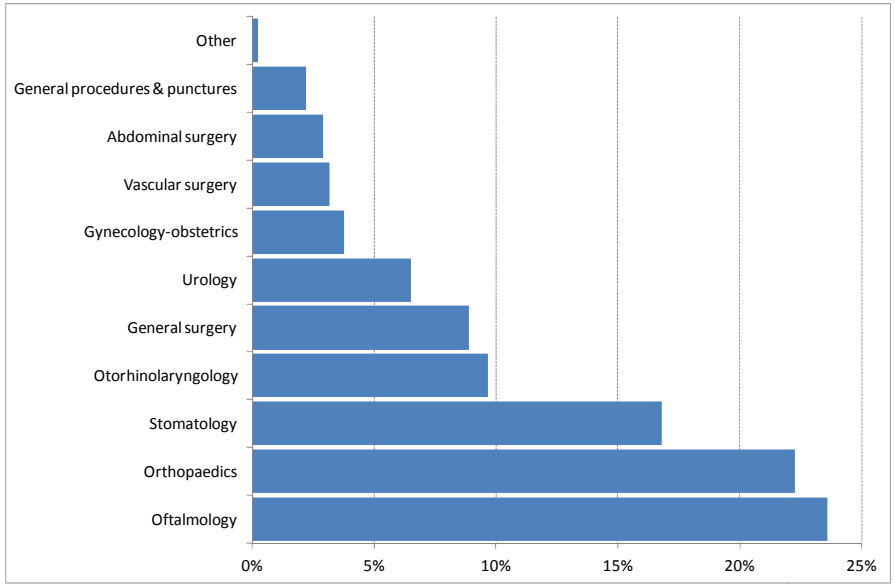
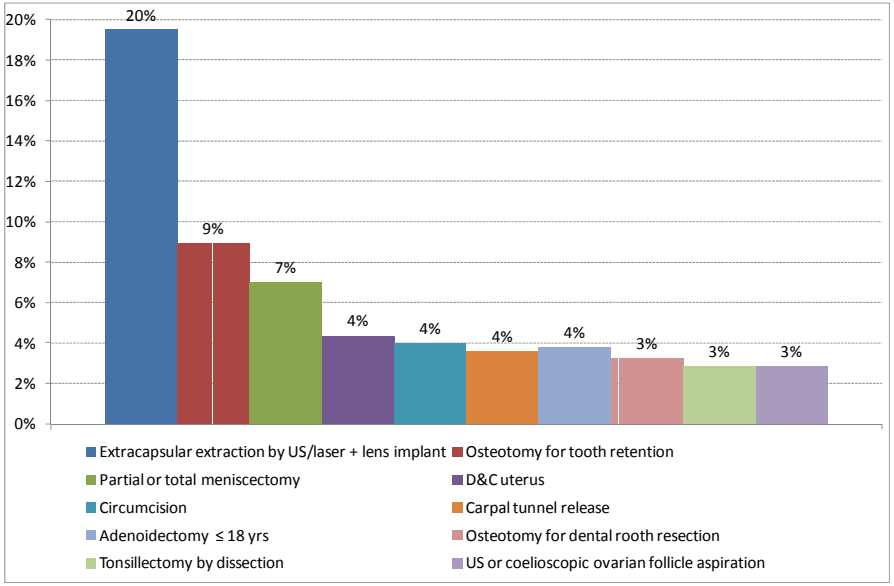


Figure 42 – Top 10 day-care surgery procedures (% of 2010 total)



A glance at intervention volumes is given in Figure 42 (percentage of counts total in 2010) and Figure 43, shows an average annual increase from 2003 to 2010 per clinical specialism: highest risers are abdominal surgery (10% average annual counts increase), gynaecology (9%) and general procedures and punctures (8% - vascular access portal implants and diagnostic laparoscopy as well as laparoscopic biopsy or follicle aspiration).

Figure 43 – Average annual increase (in % per year) of day-care surgery per specialism, 2003-2010

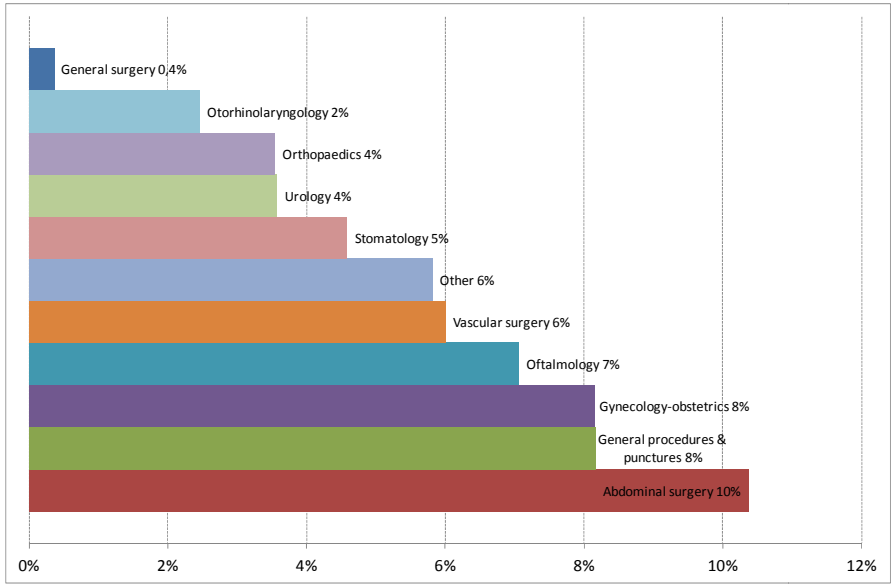
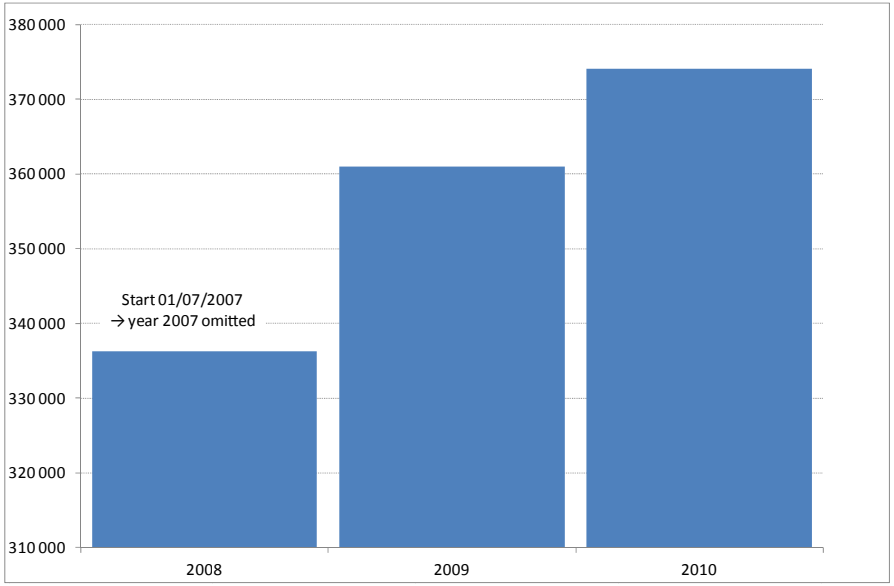


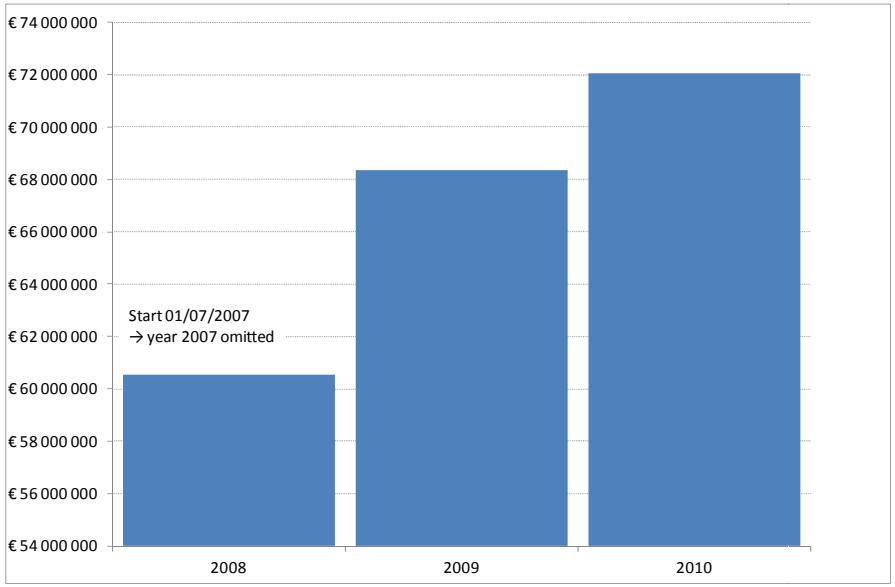
Figure 44 – National day-care counts for groups 1-7



5.3.5 Day-care groups 1-7 services

On counts and reimbursement plots for day-care groups 1 to 7 (Figure 44 and Figure 45), we can confine ourselves to (1) our remarks at the beginning of this section and (2) a general observation of a steep rising of both stay counts and reimbursements shortly after their introduction on 1 July 2007 (2007 data not shown). The main question to be asked is what will follow: a further steep rise or a tendency towards a certain steady state?

Figure 45 – National day-care reimbursements for groups 1-7



Non-surgical day-care services assemble a wide variety of diagnostic or therapeutic interventions into 7 groups. The corresponding 7 nominative lists presently totalise 176 different nomenclature code pairs with a wide variation of associated interventions, some of which are undeniably – and more or less contradictorily – surgical interventions. Historically, all codes effective on 1 July 2007 were shifted from other pre-existent nominative lists: Mini, Maxi or former groups A to D.

Budgetary differentiation between the 7 groups is presented in Figure 46, stays counts in Figure 47. All charts include historical reimbursements classified under foregoing day-care lump sums, which gives the opportunity to visualise a clear incentive caused by the 2007 reform. If we separate pre-existent and newly listed codes (Figure 48 and Figure 49), we see that rise was higher in the pre-existent subgroup, certainly for the reimbursements (Figure 49). Based on budgetary parameters group 2 takes the lead followed by (in descending order) groups 7, 4, 3, 1, 6 and finally 5.

Figure 46 – Overview of national crude reimbursements per day-care group 1 to 7, 2000-2010

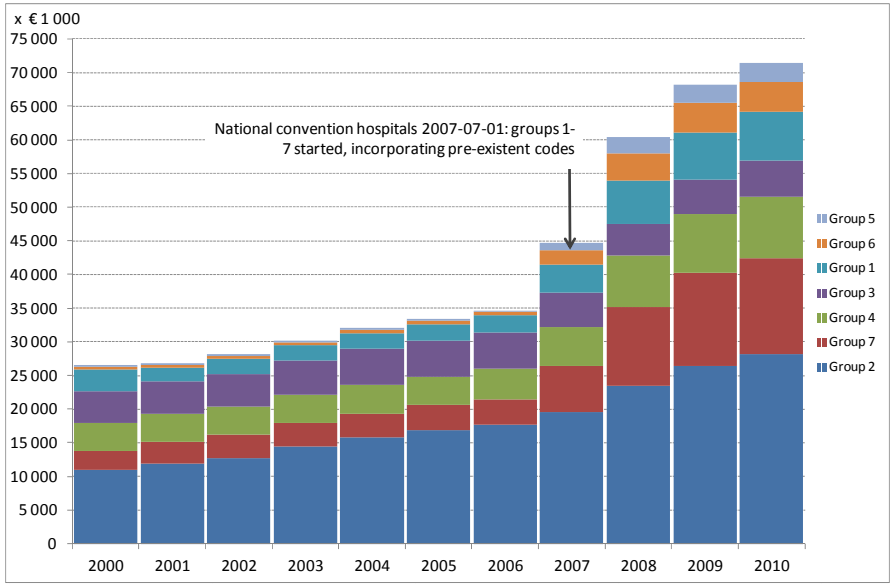


Figure 47 – Overview of national day-care stays counts per group 1 to 7, 2000-2010

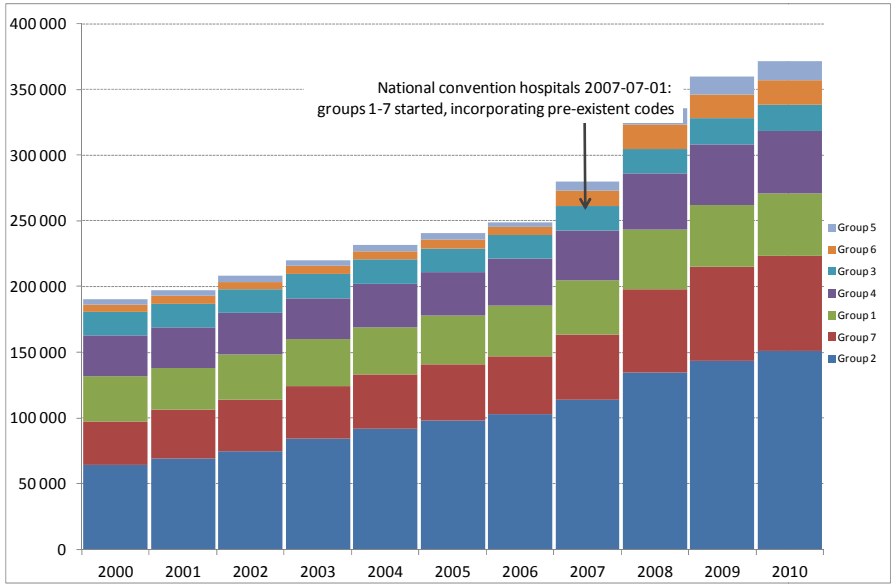
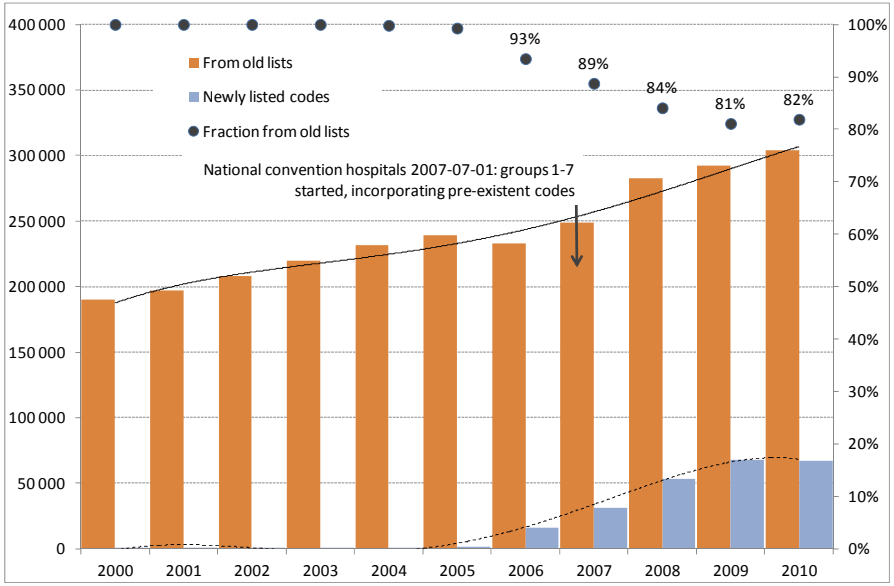


Figure 48 – Doc FH day-care stays counts for groups 1-7, 2000-2010



Better insight is obtained if we extract for each distinct group the underlying most frequent clinical interventions. For practical purposes we will confine ourselves to a presentation of the results for the top 4 groups (2, 7, 4 and 3).

Group 2 (Figure 50) encloses exclusively lower gastro-intestinal fibre-optic endoscopy procedures, diagnostic as well as therapeutic (polypectomies). All show a marked rise, with a definite 2007 boost, but we will come back to this in a following section examining ambulatory to day-care shifting.

Figure 49 – Doc FH day-care reimbursements for groups 1-7, 2000-2010

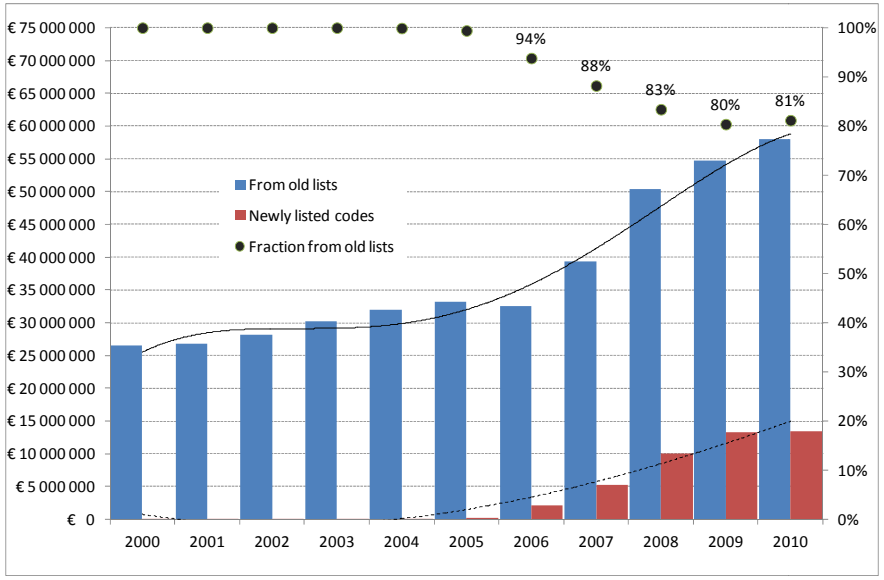
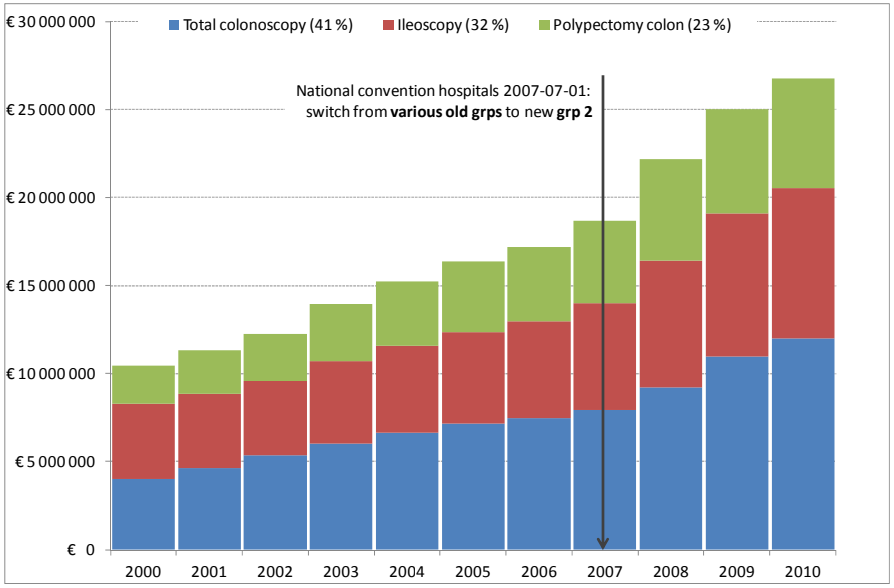


Figure 50 – Top 3 (96%) reimbursements for day-care group 2, 2000-2010



Group 7 (Figure 51) chart likewise shows a clear incentive effect of the 2007 reform, however most pronounced for the stomatological subgroup (curettage for mandibular osteitis).

Figure 51 – Top 4 (65%) reimbursements for day-care group 7, 2000-2010

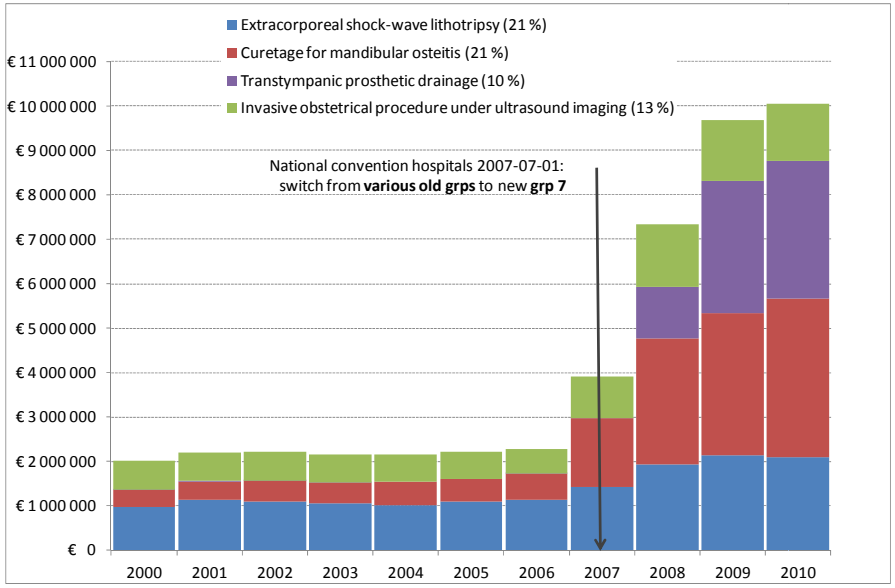
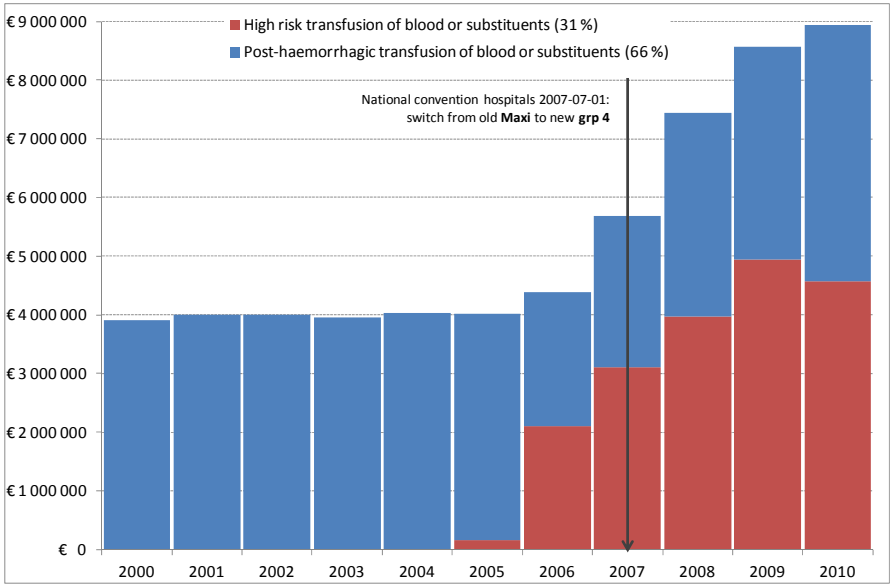
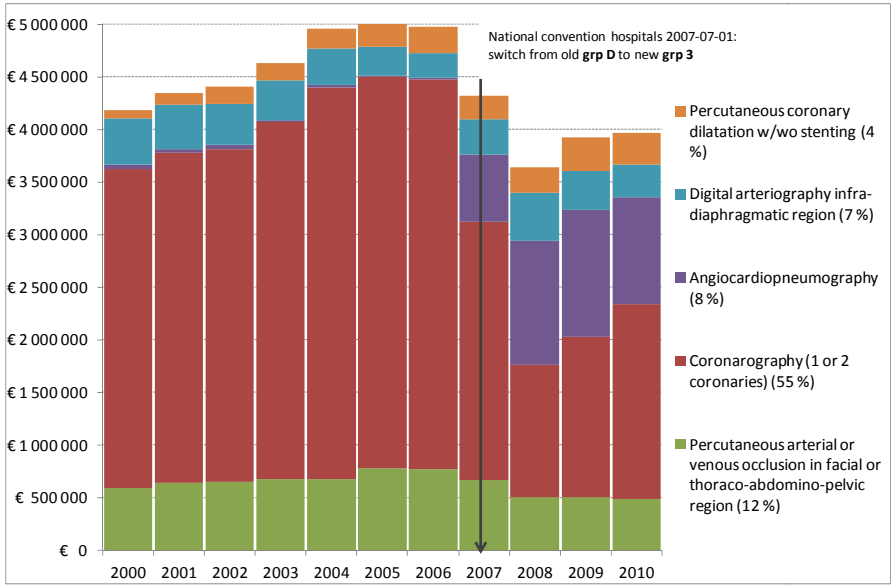


Figure 52 – Top 2 (99.7%) reimbursements for day-care group 4, 2000-2010



The same applies to group 4 (Figure 52), which encloses exclusively transfusion interventions and group 3 (Figure 53) for cardiovascular catheter lab interventions, but the latter shows some particularities, which will be discussed in topic section on cardio-angiography (see below).

Figure 53 – Top 5 (86%) reimbursements for day-care group 3, 2000-2010



5.3.6 Pain clinic services

For day-care pain clinic activity, we found a steep rising of both stay counts and reimbursements shortly after their introduction on1 July 2007 (2007 data not shown) (Figure 54 and Figure 55).

Figure 54 – National day-care counts for chronic pain services

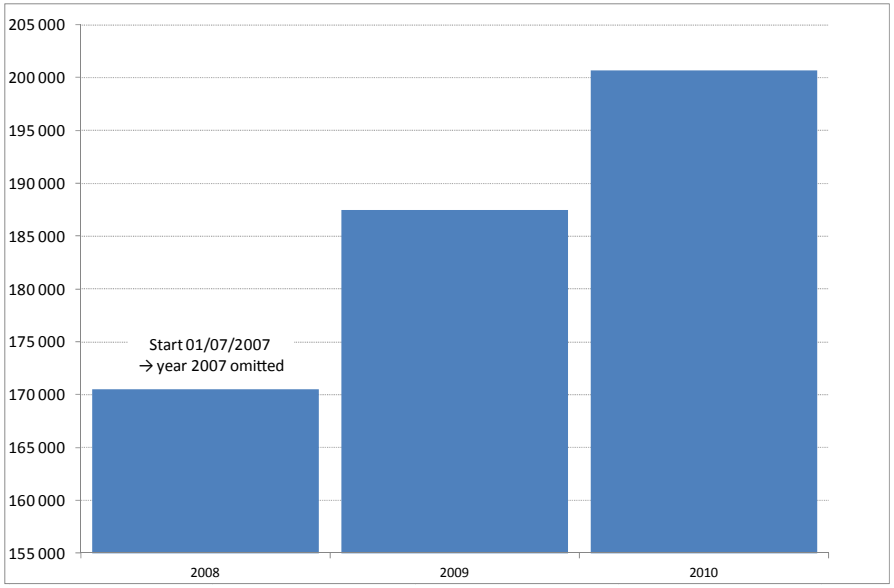
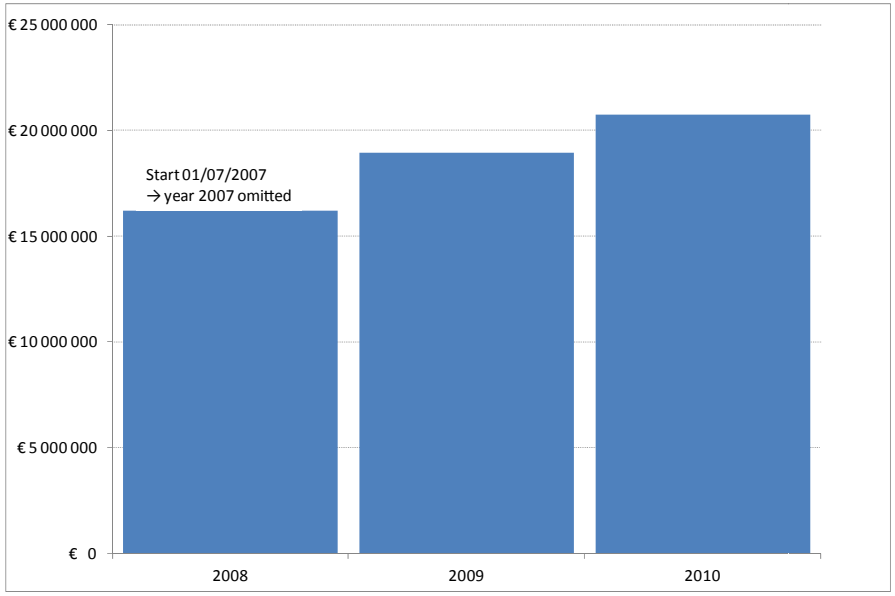


Figure 55 – National day-care reimbursements for chronic pain services



The three day-care lump sum groups for chronic pain services contain a set of 22 newly installed relative service code pairs. Separate day-care stay counts for chronic pain services groups 1 to 3 are presented in Figure 56 and Figure 57 (lowest category omitted). Despite a narrow time window of only 3.5 years, we see a typical rise of numbers, especially in chronic pain group 2 (mostly high precision procedures under roentgen amplification control) and chronic pain group 3, which is the low back pain treatment group (therapeutic epidural infiltrations). This topic will be treated in depth in the section on possible ambulatory to day-care shifts.

Figure 56 – Differential stay counts for chronic pain groups 1-3, 2007-2010

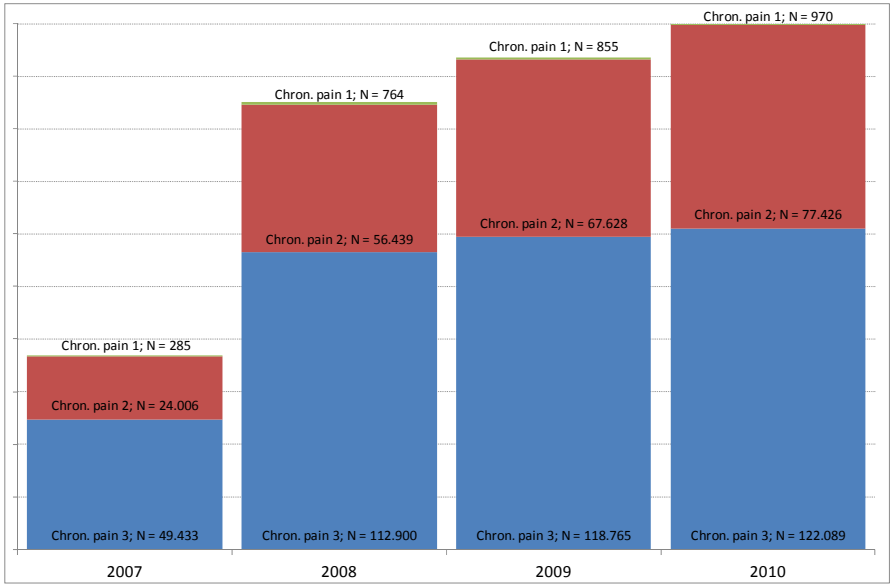
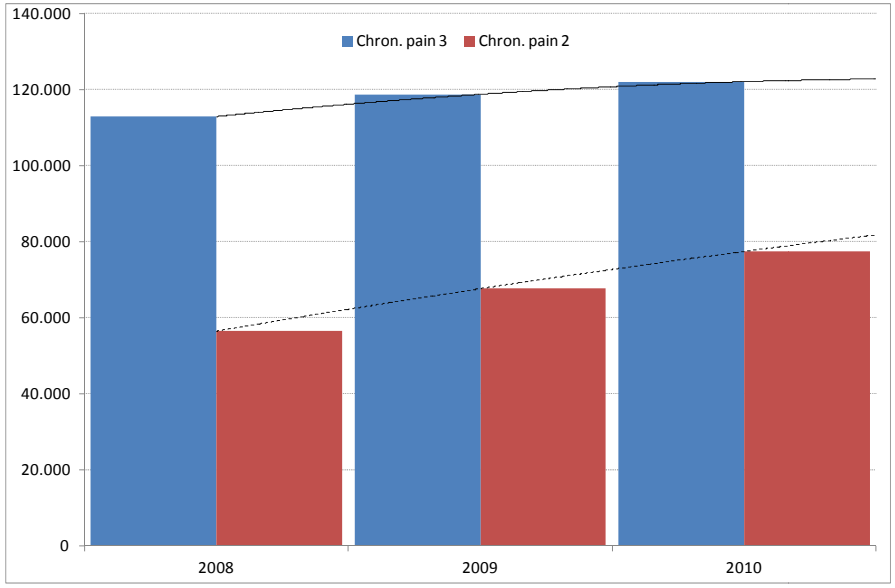


Figure 57 – Evolution of stay counts for chronic pain groups 2 and 3, 2008-2010



6 SELECTIVE INQUIRY ON SHIFTS IN CARE

6.1 General introduction to the matter

There are two possible channels for shifts in hospital related care we should investigate in the present context: (1) inpatient to day-care shifts (2) ambulatory to day-care shifts or the reverse.

6.1.1 Inpatient to day-care shifts

Mainly driven by arguments of cost-effectiveness, shortening inpatient stays and shifts from inpatient to hospital day-care have been stimulated by health care legislation starting the late eighties of previous century: first by the introduction of the PAL-NAL – DJP-DJN system to retroactively correct BFM – BMF allocations based on length of stay performance of the hospital, followed by the 2002 BFM – BMF and the 2007 reforms. In parallel with technological innovations, changing hospital financing modalities could therefore have promoted shifts from inpatient to day-care.

6.1.2 Shifts from ambulatory to day-care or the reverse.

Increasing communications, both official and informal, from various hospitals, representatives of sickness funds and health care professions called for attention to such swings. Two major drivers are stirring. The first is related to technological innovation, the second is founded on organisational issues in Belgian intramural care:

1. With the advancement of medical technology, especially in the field of minimal invasive interventions, hospital confinement is no longer peremptory and technologically advanced ambulatory care becomes an option, thus smoothing the path for private extramural initiatives. This is for instance abundantly clear in the field of ophthalmology to give the most notorious example in Belgium (see section 6.3.1).

2. In the field of Belgian intramural care, on the other hand, we are facing two sometimes opposite forces: hospital management versus medical specialists. Hospital management seek to obtain additional funding or maximise existing financing mechanisms for services and goods in the particularly costly field of hospital care. In this sense, new financing modalities can result in a shift from ambulatory to day-care. Medical specialists seek to evade growing retrocession tendencies (see section 3.2), which can lead to a shift from day-care to ambulatory care

Resulting shifts can go in both directions as we will illustrate in this section.

6.2 Methodological considerations

6.2.1 Shifts from inpatient to hospital day-care

Since inpatient reimbursement claims are billed with another code (see 'Brief introduction on nominative lists', page 46) than ambulatory or day-care reimbursements, differential counting in Doc N database seems straightforward. One should nevertheless keep in mind that it is impossible, based on these data solely, to directly discriminate between strictly ambulatory and hospital day-care, since both are recorded with the same A-code. Such differentiation needs recording of the place of service rendered, which is the case in Doc FH and HBR data. Yet, there is a way to get (at least partially) around this problem: compulsory health insurance reimbursement rules require any operating room (OR) intervention represented by a nomenclature code with a coefficient value equal to or greater than K 120 or N 200 or I 200 to be performed in an officially recognised hospital having at least one service C (=surgery department) or D (=internal medicine)[25], exception made for cases of force majeure. Noteworthy is that this rule does not apply to non-OR procedures (e.g. GI endoscopy).

So, if we exclude all nomenclature codes having a coefficient value less than K 120, N 200 or I 200 we can assume that virtually all of the remainder A-code records in Doc N represent hospital day-care and not strictly ambulatory care since the latter would not, neither should have been accepted for reimbursement. Excluding interventions having less than 11 000 cases totalised over the years 2000 to 2010 (i.e. < 1 000/yr on average) as well as codes that were rescinded before 2010 we were left with 161 interventions to examine. For these interventions, counts per year were obtained from the Doc N database, for A-codes as well as H-codes. Next A-code fractions (in %) were calculated for each year, followed by calculation of the Δ ($Fraction_{Max}$ - $Fraction_{Min}$) divided by the corresponding year interval (11 years for 85% of all codes). We deliberately chose the $Fraction_{Max}$ - $Fraction_{Min}$ option (instead of the $Fraction_{last\ year}$ - $Fraction_{first\ year}$) to avoid passing over the intermediate rises, that would have been left undetected with the latter option (e.g., secondary cataract plot).

It is important to understand that rises in A- to H-code fractions expressed as Δ/yr not necessarily mean that actual shifts from inpatient to hospital day-care are taking place. Rises in A- to H- code fractions can for example be the result of a growth of day-care without a proportional decrease of inpatient care. Only if A-code fractions increase and global counts (A- plus H-codes) remain (grossly) equal in a well-defined and unchanging clinical application domain, we can conclude that a shift has taken place, i.e. cases that previously were inpatient have probably shifted towards day-care treatment. A conceptual framework on "growth" versus "shift" can be found in Appendix 5.

6.2.1.1 Preliminary code by code plots

Plotting for all 161 selected code pairs in Doc N the results - Δ ($Fraction_{Max}$-$Fraction_{Min}$) divided by the corresponding year interval in descending order (see Figure 58) resulted in a top 10 list at either extremity of the plot, one at the head for the highest (see Figure 59) and one at the tail for the lowest shifters (see Figure 60).

We see a general pattern of steady rising of the A-fraction over the years, indicating a positive trend effect towards more day-care in the hospitals in accommodation to changing health care policies as well as technological innovations in last decades.

Figure 58 – Shifts from H-code to A-code in Doc N for codes ≥ K 120, N 200 or I 200, 2000-2010

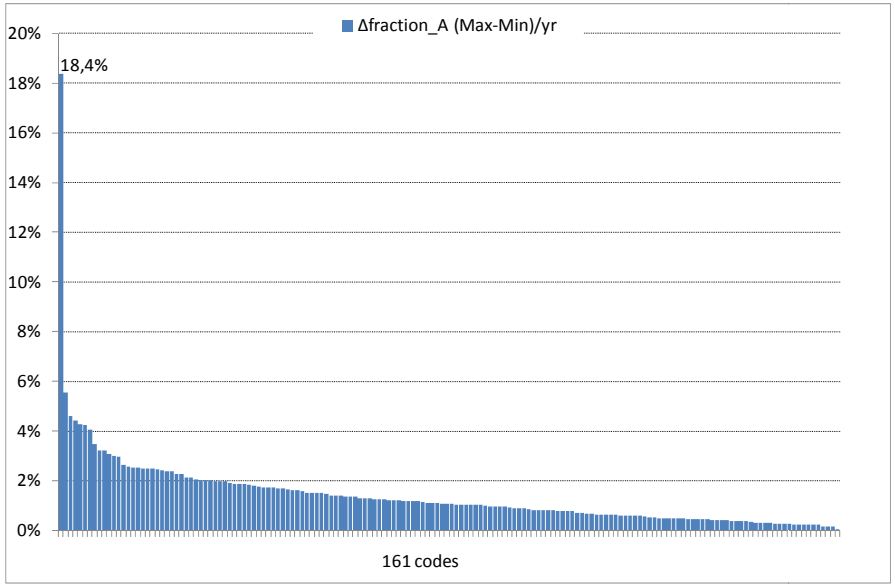


Figure 59 – Top 10 highest shifters from H-code to A-code

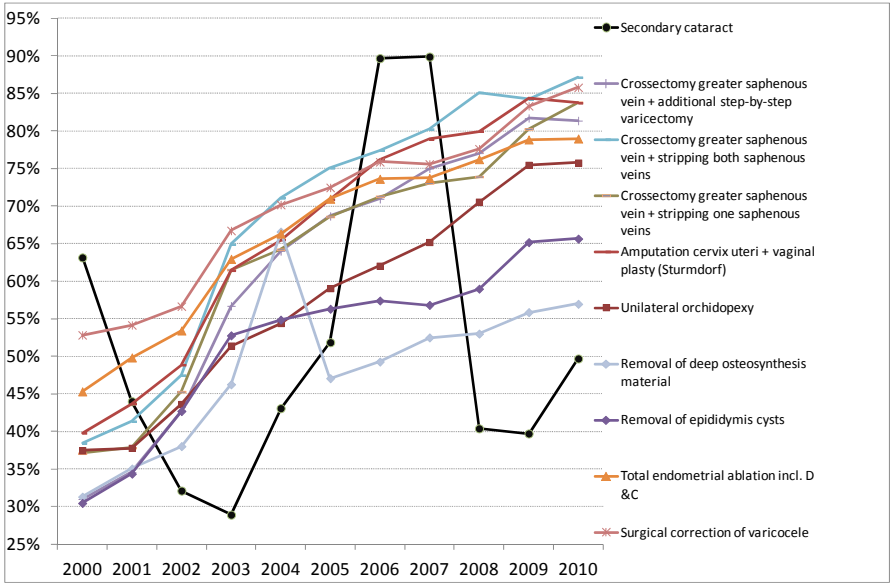
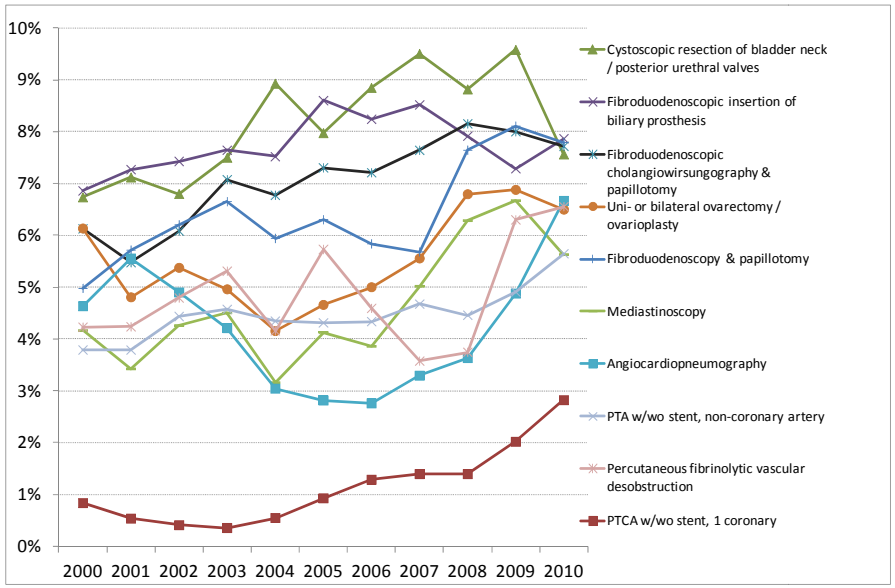


Figure 60 – Top 10 lowest shifters from H-code to A-code



6.2.1.2 Grouped code studies

We find some strangely shaped curves, especially for secondary cataract surgery at the high end as well as for angiocardio-pneumocardiography at the low end of the spectrum. Two major factors to consider in this respect are:

1. Often codes are not to be looked at in an isolated way. Indeed, there are multiple instances where several codes belong to a same clinically meaningful diagnostic or therapeutic entity (cf. the homogeneity principle in DRG grouping). Typical high counts examples are the cataract surgery (4 code pairs, after exclusion of combined cataract-glaucoma surgery), the field of cardiac angiography (8 codes pairs), lower GI fibre optic endoscopies (3 code pairs to bundle) and dental surgery (12 stomatology code pairs). Others are abdominal wall or inguinal hernia repair (6 code pairs), varicose vein surgery (9 code pairs) and removal of osteosynthesis material (5 code pairs). In bundling them the resulting groups turned out to surpass the above mentioned volumetric exclusion threshold. Consequently, they were picked up for further combined study.
2. RIZIV – INAMI nomenclature is far from static and on a rather regular basis code lists are revised by implicated Medico-technical Councils for either rescinding of obsolete codes, either relabeling of codes or creation of new codes in response to changing medical practice. Inevitably such changes induce intercurrent and usually swift shifts from old to new codes.

6.2.2 Shifts between day-care and ambulatory care

Since related service codes recorded in Doc FH represent true hospital day-care cases, while corresponding A-code counts in Doc N cover both strictly ambulatory and day-care cases, we should be able to get some grip on day-care to ambulatory care or the reverse by comparing counts in both databases. Yet, Doc FH data present with one major mishap: they only give one relative service code, considered by the hospital to be the most relevant for their lump sum claim. Considering that there certainly are instances where two or even more listed services were provided in the same day-care admission (especially in day-care surgery cases) any per hospital counting of relative services in Doc FH data will be subject to risk of underestimation or even distortion of results. This is not the case for HBR data where we have full registration of services rendered.

Other considerations, however, should be taken into account:

1. Since HBR data contain services rendered under international agreements and Doc N do not, we had to correct for this discrepancy, which did not show disturbing magnitudes (see section 4.4);
2. Corrections in Doc FH were also needed for surgical day-care, where double registration of related service codes is common (see section Doc FH above, page 53);
3. and, last but not least, Doc FH is available in a wider year span (2000-2010) than HBR data (2004-2009) and even less for linked MKG – RCM to HBR data (2006-2009 for day-care stays).

Considering that accuracy of trend line estimation augments with observation time, and thus on a mere theoretical basis Doc FH would seem more suitable, we looked at counts in both Doc FH and HBR databases and then decided – case per case – which comparator to use:

Doc FH as the preferential choice if counts did match with corresponding HBR counts (with an acceptable degree of tolerance). There are indeed many instances, certainly for diagnostic entities, where multiple code billing is exceptional, not to say inexistent. In the other cases, mostly surgical day-care, HBR counts corrected for international agreements were used as a comparator.

6.2.3 Selection of study items

After assembling A-code case counts in day-care Doc FH, HBR and Doc N for al relative service codes listed in nominative lists effective to date, plaster ward and haemodialysis excluded, we had to deal with selection criteria for further analyses. There are indeed several hundreds of code pairs, status at present, as a result of which full investigations on all of them would be overburdened. Since we are principally interested in high budgetary volumes, only codes or code groups having an average annual A-code budget of at least €10 000 000 over a 10 year interval were considered for selection.

Next, we picked up a number of related codes needed for combined study (e.g. 312410_312421 and other dental procedures enabling us to get a broader view on the aggregated dental surgery group). In some instances we even retrieved codes that were not on any nominative list, and thus on their own were not eligible for day-care lump sum claims. Cataract surgery and lower GI fibre optic endoscopy were equally bundled for analysis as well as abdominal wall / inguinal hernia repair (6 code pairs), varicose vein surgery (9 code pairs) and removal of osteosynthesis material (5 code pairs). Table 13 gives an overview of our final list of 16 grouped and clinically distinct entities, with corresponding retrieved code pairs. Each group had at least one intervention with an average annual increase in A-code fraction greater than 0.5% (i.e. > 5.5% over 11 years). An exception to this rule was made for therapeutic epidural infiltration in the lumbar region, because of the tremendous initial rise in A-code counts since the introduction of code pair 202812_202823 on 1 July 2007.

Possible shift tendencies were visualized by plotting best fitting trend lines – usually based on R^2, in some instances on moving averages – on Doc N and Doc FH/HBR counts per year. Comparison of the slopes of both parameters would indicate:

- either a trend towards intramural, i.e. hospital day-care: if both lines (viewed from left to right) incline towards each other and HBR day-care slope is higher than Doc N slope;
- either the opposite – shift towards ambulatory care – if they divert from each other and HBR day-care slope is lower than Doc N slope;
- there is of course a third possibility in cases where the trend lines remain virtually parallel.

Table 13 gives us, for each of the 16 groups, an overview of Doc FH, HBR day-care and Doc N A-code counts for corresponding year span. A column was added to the right mentioning the final choice of comparators (Doc FH or HBR day-care) for trend line plotting.

Table 13 – Extramural to intramural shifts investigation - choices of comparators

Group	Code pairs	Nominative list	Doc FH 2000-2010	Doc N A-code 2000-2010	HBR_DC 2004-2009	Doc N_ A 2004-2009	Comparators ambulatory → day-care*
Eye lens surgery	246595_246606	List A	481 032	488 896	262 014	263 673	HBR_DC / Doc N_A
	246610_246621	List A	4 359	5 264	2 615	2 694	
	246632_246643	List A	10 326	10 761	9 88	9 971	
	246912_246923	List A	352 575	359 3	251 561	253 33	
Cardiac angiography	453073_453084	Group 3	344	777	317	581	HBR_DC / Doc N_A
	453095_453106	Group 3	290	468	190	208	
	464074_464085	Group 3	836	2 394	1 286	1 389	
	464096_464100	Group 3	4 275	15 076	8 847	9 725	
	464111_464122	Group 3	7	18	3	6	
	464133_464144	Group 3	24 012	21 87	10 539	14 108	
	464951_464962	None	0	903	295	359	
	464973_464984	None	0	8 378	2 128	2 516	
Lower GI fibre optic endoscopy	473174_473185	Group 2	460 991	553 411	281 217	336 329	Doc FH / Doc N_A
	473211_473222	Group 2	254 917	272 616	163 566	169 422	
	473432_473443	Group 2	356 303	388 041	211 741	227 536	
Dental surgery	312410_312421	List A	288 483	701 771	542 698	582 979	HBR_DC / Doc N_A
	312432_312443	List A	112 248	404 275	319 702	342 796	
	311334_311345	List A	95 398	113 06	63 171	64 966	
	310855_310866	List A	408	517	261	282	
	311651_311662	Group 6	1 365	2 368	1 407	1 433	
	312152_312163	List A	177 397	450 483	9 938	10 765	
	312314_312325	List A	8 709	12 133	9 372	10 287	
	312336_312340	Group 1	3 216	9 678	5 707	8 264	
	312351_312362	Group 1	1 267	2 988	2 203	2 537	
	312373_312384	Group 1	921	2 423	1 959	2 086	
	312395_312406	Group 1	443	1 063	880	932	
	317214_317225	List A	10 565	9 305	4 745	5 188	
Circumcision	260934_260945	List A	183 702	199 785	110 85	117 709	Doc FH / Doc N_A
Carpal tunnel release	287836_287840	List A	145 519	152 78	95 047	96 136	HBR_DC / Doc N_A

Group	Code pairs	Nominative list	Doc FH 2000-2010	Doc N A-code 2000-2010	HBR_DC 2004-2009	Doc N_ A 2004-2009	Comparators ambulatory → day-care*
	230252_230263	Group 5	52 299	123 389	68 049	69 097	
Partial or total menisectomy	300333_300344	List A	348 341	352 75	210 909	211 856	Doc FH / Doc N_A
Inguinal hernia repair	241150_241161	List A	60 857	66 954	41 402	41 611	HBR_DC / Doc N_A
	241312_241323	List A	9 357	9 624	6 513	6 603	
	241334_241345	Group 6	3 204	6 279	4 301	4 369	
	241113_241124	None	0	1 043		648	
	241054_241065	None	0	11		6	
US or coelioscopic follicle aspiration	432434_432445	List A	131 065	134 106	84 528	85 628	Doc FH / Doc N_A
Full endometrium resection	432456_432460	Group 6	15 59	39 497	24 622	24 971	HBR_DC / Doc N_A
ESWL lithotripsy	355073_355084	Group 7	98 172	102 047	56 92	57 653	Doc FH / Doc N_A
Tonsillectomy	257390_257401	List A	152 633	164 755	94 937	95 891	HBR_DC / Doc N_A
	256535_256546	Group 7	617	1 742	1 048	1 087	
	256491_256502	List A	397	522	214	226	
	256513_256524	List A	205 705	236 858	128 591	130 059	
	257471_257482	Group 7	37 506	384 021	174 765		
Subcutaneous portal system	354056_354060	List A	87 803	96 718	62 215	62 436	HBR_DC / Doc N_A
Therapeutic epidural infiltration	202812_202823	CP 3	337 458	349 487	236 181	245 343	Doc FH / Doc N_A
Varicose vein surgery	238070_238081	None	0	34 394		19 621	HBR_DC / Doc N_A
	238092_238103	Group 6	1 717	17 773	1 103	10 815	
	238114_238125	List A	24 656	49 255	21 543	31 733	
	238136_238140	Group 6	1 515	4 875	2 984	3 118	
	238151_238162	Group 6	807	1 801	519	918	
	238173_238184	List A	42 345	44 371	25 573	25 727	
	238195_238206	List A	21 976	23 012	14 369	14 668	
	238210_238221	List A	38 884	39 706	22 441	22 805	
	238232_238243	None	0	100		61	

Group	Code pairs	Nominative list	Doc FH 2000-2010	Doc N A-code 2000-2010	HBR_DC 2004-2009	Doc N_ A 2004-2009	Comparators ambulatory → day-care*
Removal of osteosynthesis material	280011_280022	None	13	108 11		58 227	HBR_DC / Doc N_A
	280033_280044	None	3	50 223		26 002	
	280055_280066	List A	106 589	120 382	66 612	67 597	
	280070_280081	List A	17 062	18 953	11 376	11 377	
	280092_280103	List A	32 797	37 78	22 89	22 89	

** Choice dependent on completeness of Doc FH (see section 4.3)*

6.2.4 *Other methodological issues*

Sometimes apparent aberrations in results evoke particular explanatory hypotheses that can only be clarified by in depth analyses on patient level micro data. Typical examples are age or clinical indication (diagnosis) related filters. When such questions arose we complemented with appropriate detailed analyses on MKG – RCM and/or HBR data.

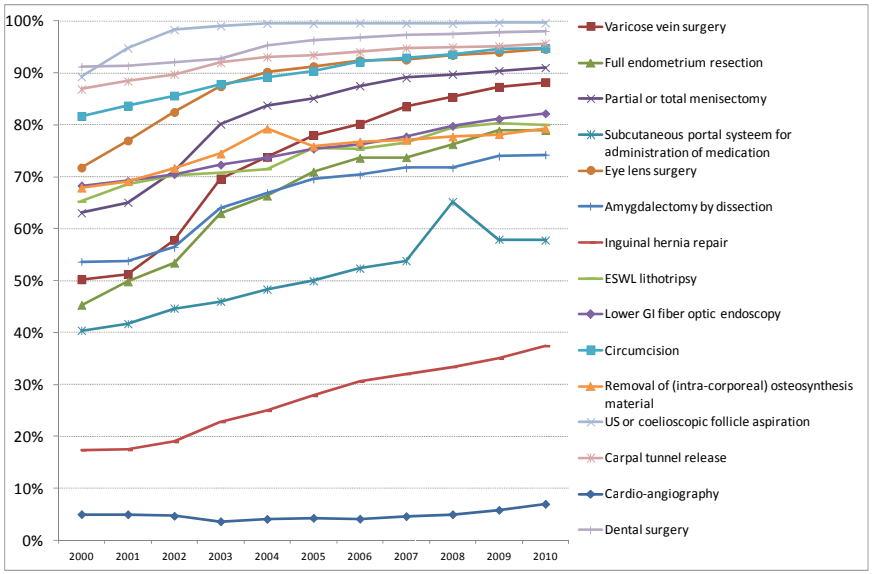
Next, we need to emphasise that in Doc N data we cannot separate cases of day hospital services for patients sojourning in another (geriatric, psychiatric,…) institution from true inpatient cases, since both are billed with H-codes. In following focused studies these will inevitably be omitted. As a consequence, all case counts in present section concern only A-code counts, for Doc N as well as for Doc FH or HBR data.

Finally, the reader should not focus too much on absolute count differences between Doc FH or HBR and Doc N data because of the previously discussed differences between the data sources: only long range trend lines should get our attention.

6.3 Results of 16 selected case studies

In following subsections we embark upon a more specific scrutiny of all 16 clinical groups, one after another. Most of them (12) are surgical, 4 are medical. All 16 show a constant, more or less pronounced rise in A-code fractions in Doc N data 2000 to 2010 (Figure 61 – extension codes not included and data epidural infiltration not shown because of reduced year span of 3.5 years). Tabular data can be found in Table 14.

Figure 61 – A-code fractions per year for 15 selected intervention groups



In Figure 61 therapeutic epidural infiltration was omitted, since this code pair was only introduced in 2007.

Table 14 – A-code fractions per year for 16 selected intervention groups

Clinical group	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Eye lens surgery	71.8%	77.0%	82.4%	87.4%	90.2%	91.3%	92.4%	92.5%	93.4%	94.0%	94.6%
Lower GI fibre optic endoscopy	68.3%	69.2%	70.5%	72.3%	73.7%	75.4%	76.2%	77.7%	79.8%	81.1%	82.2%
Dental surgery	91.2%	91.4%	92.1%	92.7%	95.4%	96.3%	96.9%	97.3%	97.5%	97.8%	98.0%
Circumcision	81.7%	83.7%	85.6%	87.9%	89.2%	90.4%	92.1%	92.9%	93.6%	94.6%	94.8%
Carpal tunnel release	86.9%	88.4%	89.7%	92.0%	93.1%	93.5%	94.0%	94.8%	94.9%	95.2%	95.7%
Partial or total menisectomy	63.0%	65.1%	71.1%	80.1%	83.8%	85.1%	87.5%	89.1%	89.7%	90.4%	91.0%
Inguinal hernia repair	17.4%	17.4%	19.0%	22.8%	25.0%	27.8%	30.6%	32.1%	33.4%	35.0%	37.4%
US or coelioscopic follicle aspiration	89.3%	94.8%	98.3%	99.0%	99.5%	99.5%	99.6%	99.5%	99.5%	99.7%	99.6%
Full endometrium resection	45.3%	49.8%	53.4%	63.0%	66.3%	71.0%	73.6%	73.7%	76.2%	78.9%	79.0%
ESWL lithotripsy	65.3%	68.6%	70.3%	70.7%	71.5%	75.5%	75.3%	76.6%	79.5%	80.3%	80.1%
Amygdalectomy by dissection	53.6%	53.8%	56.4%	64.0%	66.9%	69.6%	70.4%	71.7%	71.7%	74.0%	74.3%
Subcutaneous portal system	40.4%	41.7%	44.7%	46.0%	48.3%	49.9%	52.4%	53.8%	65.2%	57.9%	57.8%
Therapeutic epidural infiltration, lumbar region								94.5%	94.8%	94.9%	95.2%
Varicose vein surgery	50.2%	51.3%	57.8%	69.6%	73.8%	78.0%	80.2%	83.5%	85.4%	87.3%	88.2%
Removal of (intra-corporeal) osteosynthesis material	67.9%	69.1%	71.7%	74.4%	79.3%	75.8%	76.7%	77.1%	77.7%	78.2%	79.3%
Cardio-angiography	5.0%	5.0%	4.7%	3.6%	4.1%	4.3%	4.1%	4.6%	5.0%	5.8%	7.0%

6.3.1 Eye lens surgery

In our preliminary Doc N study (Figure 59) the singular shape of the secondary cataract[r] plot drew our special attention. If we focus on a similar, yet isolated plot (Figure 62) of secondary cataract A-code fractions we see an obvious polynomial trend line, with 4 distinguishable parts apparently pivoting around 2 major regulatory benchmarks: the 1 July 2002 reform of hospital financing (creation of BFM – BMF List A for financing day-care surgery, with uptake of the secondary cataract code pair) and a newer regulation change in 2009. Indeed, starting May 2009 the above mentioned hospital confinement rule for interventions with a coefficient value equal to or greater than K 120 or N 200 or I 200 does not apply anymore to interventions listed in Article 14 h) of the nomenclature (ophthalmology[26]), provided that (1) such procedures be performed in an extramural environment that meets the architectural standards of the function day-care surgery[s] and (2) only if these procedures are done under local or topical anaesthesia, (3) require no sedation of the patient, (4) neither direct nursing care or aftercare. This exception can be seen as the

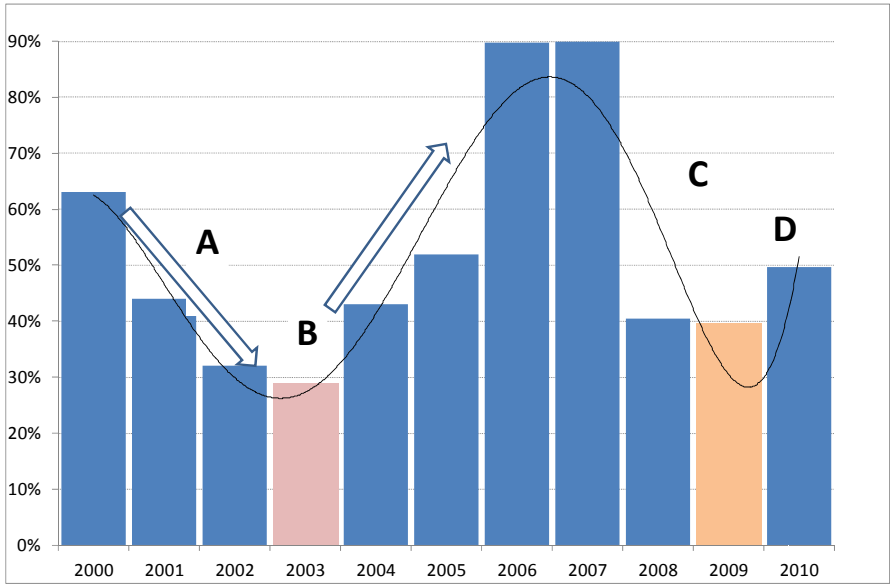
[r] During cataract surgery the outer shell (capsule) of the natural lens is left behind to hold the artificial lens (implant). Over time, in most patients, this outer shell becomes cloudy. This condition is called a secondary cataract.

[s] As described in articles 2 to 6 of the Royal Decree of 25 November 1997 laying down the standards to which the day-care surgery function must meet to be recognised.

first step in the direction of extramural surgical care regulation in matters of Belgian compulsory health care insurance.

Does this knowledge help us with the interpretation of the secondary cataract plot? Can we formulate hypotheses for each of the 4 parts of the trend line?

Figure 62 – Doc N evolution of A-code fractions for secondary cataract, 2000-2010



- *Part A* shows a manifest drop of the A-code fraction till 2002 and Figure 63 and Figure 64 suggest an "opportunistic" reason: a shift towards billings under code pair 246610_246621 (deferred lens (re)implant - coefficient N350 - higher A-code fractions 1999-2002) instead of code pair 246632_246643 (secondary cataract – coefficient N300 – lower A-code fractions). On the other hand we should consider the fact that secondary cataract surgery typically is a "redo surgery" performed on patients having already had a previous lens implant. Since we can assume that this particular patient group is on average older than the primary cataract patients and since average population ages steadily increase in western societies, an alternative hypothesis would be that the average age for (secondary) cataract surgery is constantly rising and thus necessitating a larger fraction to be done on an inpatient basis because of higher degrees of co-morbidity. Focused analyses on patient level micro data should corroborate this, as we will discuss at the end of present subsection.

Figure 63 – Doc N combined A- and H-code counts for secondary cataract versus deferred lens (re)implant, 1995-2002

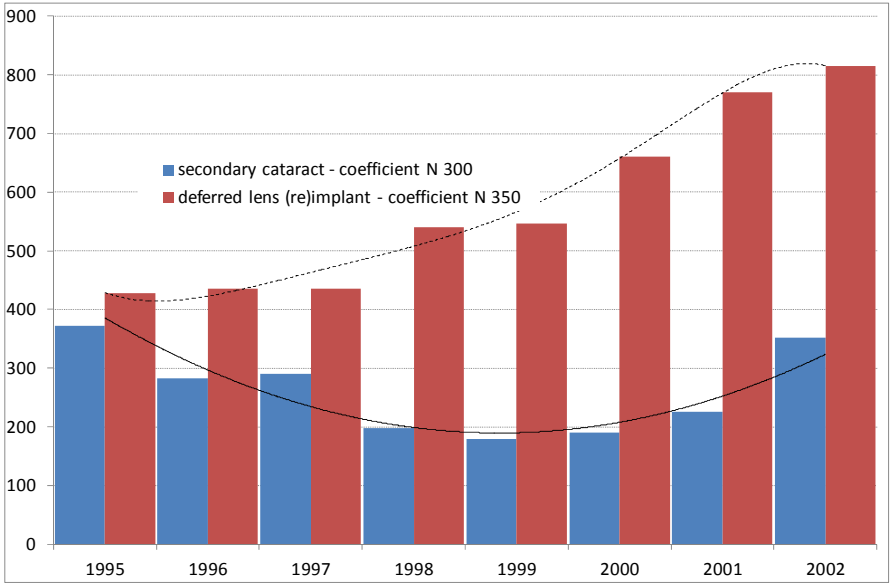
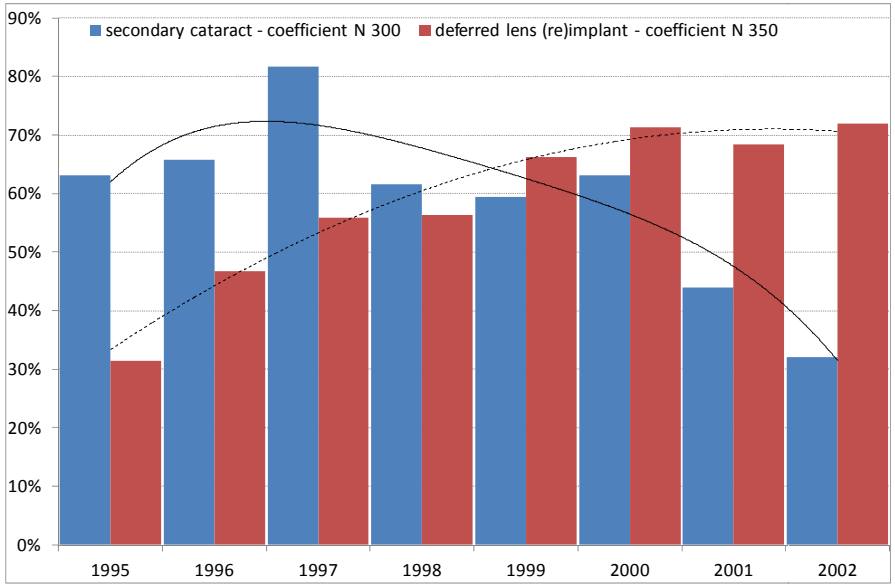
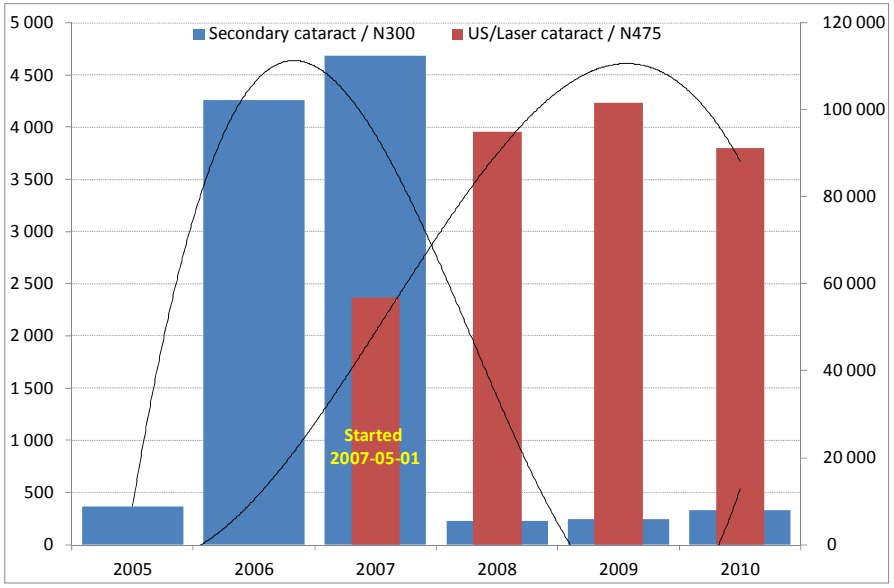


Figure 64 – Doc N A-code fractions for secondary cataract versus deferred lens (re)implant, 1995-2002



- *Part B* manifestly indicates a positive trend towards day-care cataract surgery after the July 2002 reform.
- Surprisingly *part C* shows a sudden reversal of the curve with a rather steep fall in A-code fraction starting in 2008: what happened? Did one for some reason fold back on inpatient surgery? Figure 65 sheds a totally different light on the matter: the sudden change is manifestly caused by the creation of a new nomenclature code - 246912_246923 (extra capsular lens extraction by US, laser or other comparable methods eventually followed by a prosthetic lens implant - coefficient value N 475) starting 1 May 2007 and causing a swift abandoning of the secondary cataract code (coefficient value N 300 hence lower rated).

Figure 65 – A-code counts for secondary cataract versus US or laser cataract surgery, 2005-2010

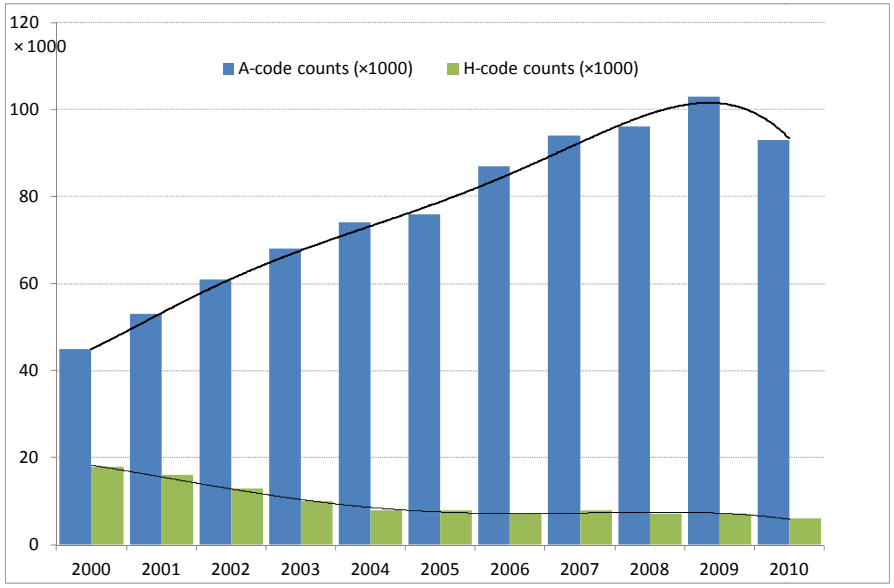


- Finally *part D* shows us a distinct redressing of the trend line for secondary cataract A-code fraction: enhanced shift to more day-care in spite of the 2009 rescinding of the hospital confinement rule for ophthalmology interventions? If we are to answer this question we need a broader look at simple cataract surgery[t] as a whole by combining the data of four code pairs: 246595_246606 (extra capsular lens extraction eventually followed by a prosthetic lens implant / N 450), 246912_246923 (extra capsular lens extraction by US, laser or other comparable methods eventually followed by a prosthetic lens implant/ N 475), 246632_246643 (secondary cataract / N 300) and 246610_246621 (delayed prosthetic lens implant / N 350). Results are presented in Figure 66 and oppose the 2010 secondary cataract

[t] As opposed to cataract surgery combined with glaucoma surgery but such interventions are scarce in numbers.

findings: while inpatient counts for all simple cataract surgery continue to decrease smoothly, day-care care reimbursements for the whole simple cataract group, after having been in the lift for ten years, definitely started falling in 2010 suggesting an ongoing shift to private clinic care, not claimed for reimbursement under compulsory health care insurance.

Figure 66 – Overall evolution of simple cataract surgery A-code and H-code counts, 2000-2010



Regarding the above formulated age related hypothesis: since most of the cataract interventions are classified under APR-DRG 073[u] we verified differences per age category (<56, 56-75 and >75 yr.) in corresponding MKG – RCM linked to HBR data of that APR-DRG from 2004 to 2009, both inpatient and day-care (see Table 15 – only stays with recorded cataract interventions were considered).

Table 15 – APR-DRG 073, annual stay counts per age category, 2004-2009

Day-care patients						
Age range	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
<56	3 584	3 568	4 292	4 352	4 697	4 745
56-75	29 471	30 381	36 755	39 814	41 434	45 353
>75	39 502	40 816	41 289	44 919	47 351	51 649
Totals	72 557	74 765	82 336	89 085	93 482	101 747
Inpatients						
Age range	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
<56	615	623	588	646	610	299
56-75	2 778	2 418	2 421	2 618	2 388	1 600
>75	4 272	3 977	3 809	3 912	3 693	3 090
Totals	7 665	7 018	6 818	7 176	6 691	4 989

Separate annual counts and trend lines are presented for day-care (Figure 67) and inpatient stays (Figure 68), fractional portions per age category in Figure 69 and Figure 70. What can these figures tell us now?

Day-care stay counts *augmented* in all age categories, but most noticeably in the elder categories (Figure 67), whereas the inpatient stays show an even more striking *descend*, again most pronounced in the elder categories (Figure 68). Thus, and undoubtedly, there has been a shift from inpatient to day-care.

[u] 3M® APR-DRG grouper software, version 15.0

Figure 67 – Cataract surgery in APR-DRG 073, day-care counts per age category, 2004-2009

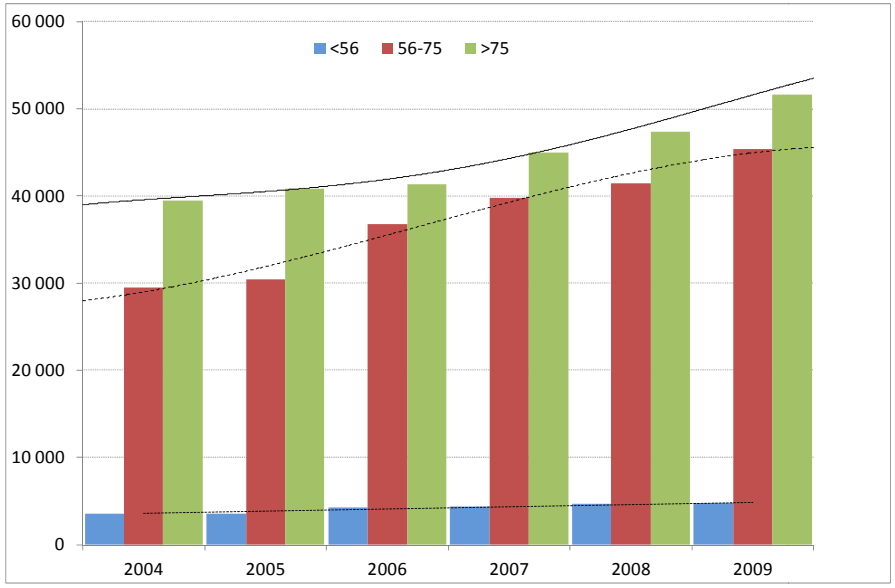
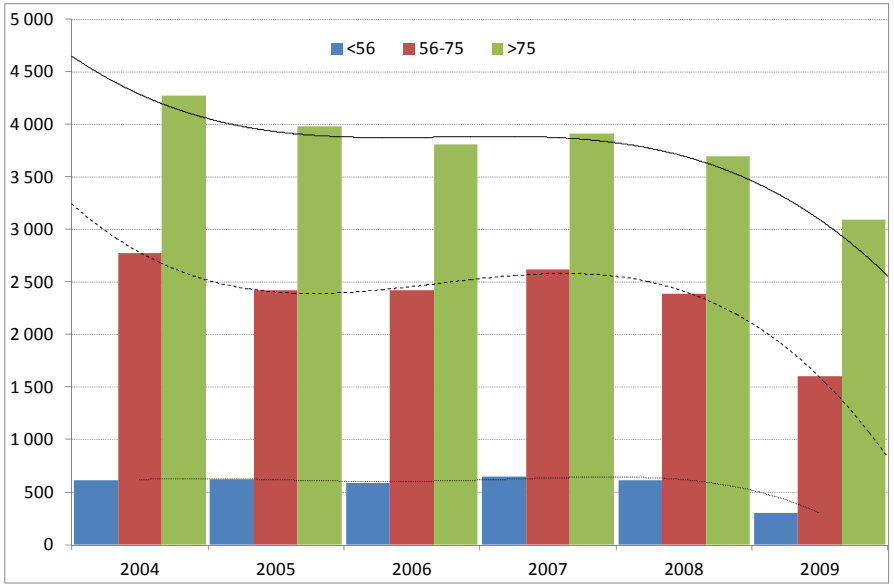


Figure 68 – Cataract surgery in APR-DRG 073, inpatient counts per age category, 2004-2009



If, however, we present the data in percentage fractions, we get a different insight: there is indeed a noticeable rise in the >75 yr. fraction for inpatients (Figure 69), whereas this tends to be the reverse for the day-care stays (Figure 70). Maybe the latter is influenced by the fact that the new code pair 246912_246923 (extra capsular lens extraction by US, laser or other comparable methods eventually followed by a prosthetic lens implant/ N 475) not only applies to classical lens cataract cases, but also to refraction corrections (replacing former corneal scarification techniques), typically performed in younger patients, more prone to ambulatory care.

Figure 69 – Cataract surgery in APR-DRG 073, inpatients counts percentages per age category, 2004-2009

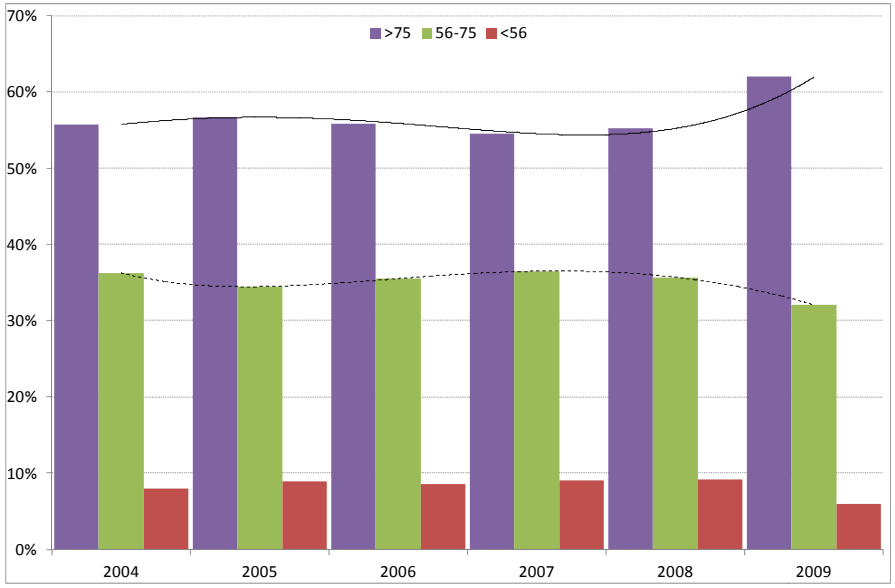
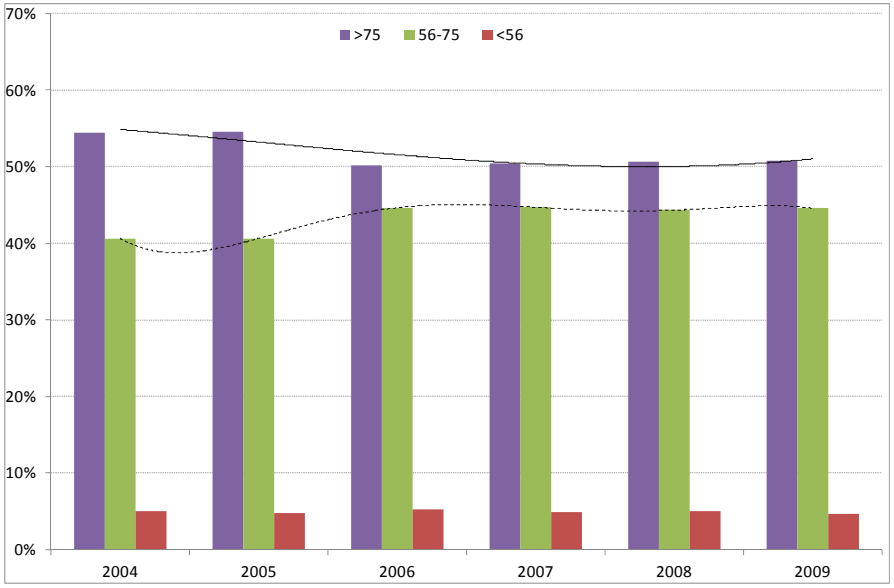


Figure 70 – Cataract surgery in APR-DRG 073, day-care counts percentages per age category, 2004-2009



Finally, over the past 16 years cataract surgery has (1) shown a significant ascent in counts and reimbursements (Figure 71) and (2) become an almost exclusively day-care procedure: from 71.4% in 1995 to 98.6% in 2010 (Figure 66 and Figure 72). The growth of day-care is larger than the shift from inpatient to day-care. Furthermore, Figure 73 shows trend lines on ADH – HJA versus Doc N A-code counts for all cataract surgery over a 6 year interval and both are very close to each other indicating no shift tendencies towards ambulatory care. If, however, we focus solely on the latest introduced nomenclature code (extra capsular lens extraction by US or laser, since 1 May 2007 – Figure 74), we could suspect an increasing shift towards ambulatory care

Figure 71 – Doc N evolution of simple cataract surgery A- and H- code reimbursements, 2000-2010

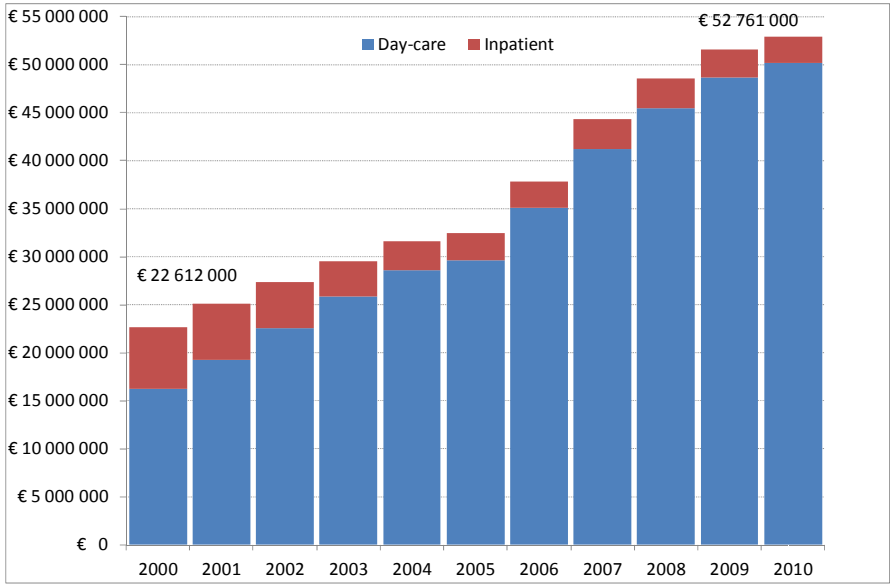


Figure 72 – Evolution of simple cataract surgery counts, 2000-2010

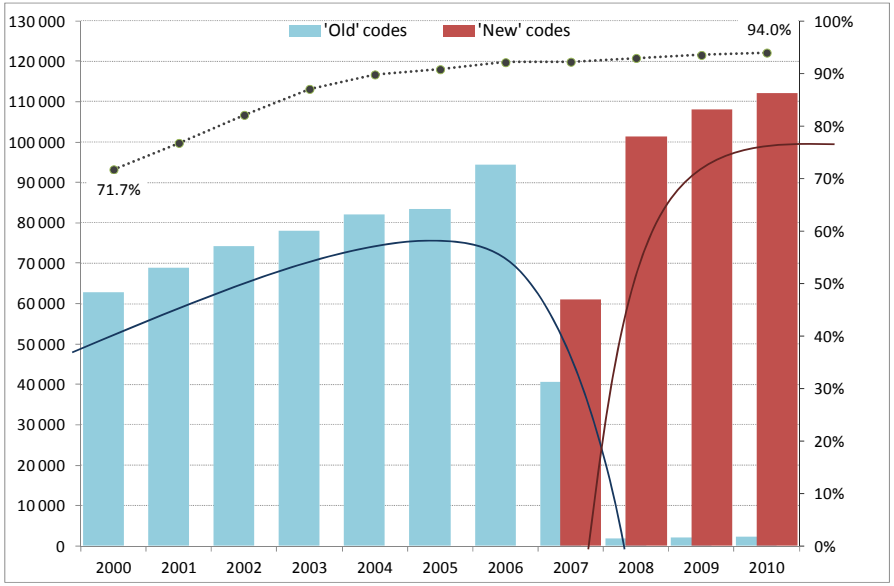


Figure 73 – Doc N A-code versus HBR day-care counts for simple cataract surgery (4 codes), 2004-2009

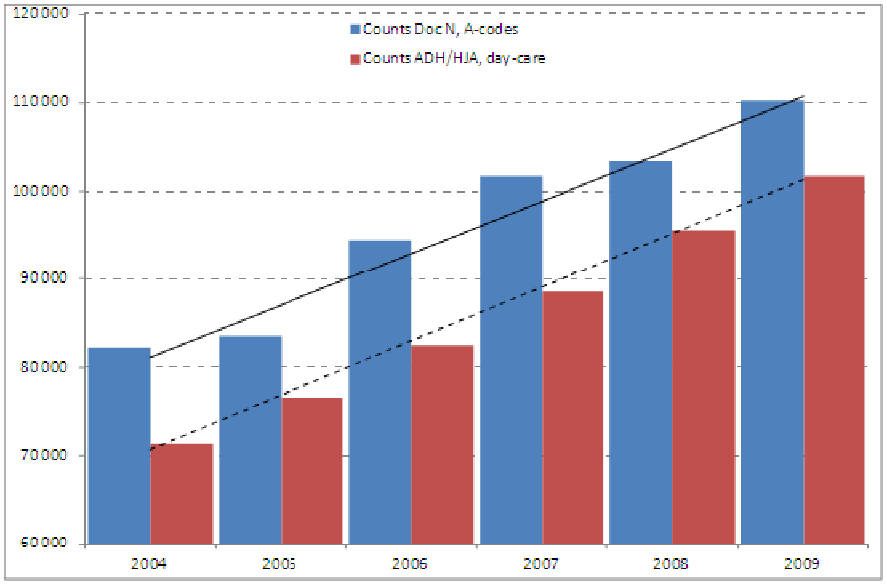
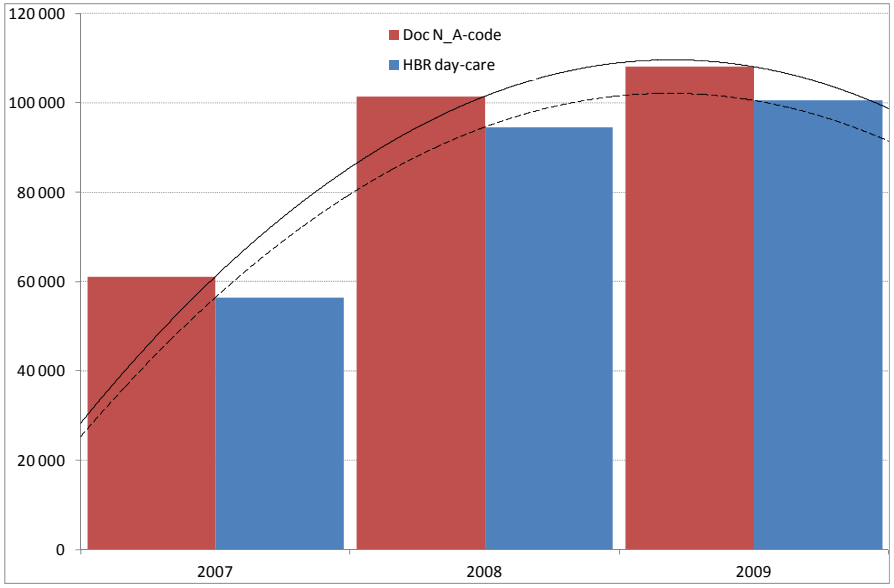


Figure 74 – Doc N A-code versus HBR day-care counts for new cataract surgery (1 code), 2007-2009



6.3.2 *Lower GI fibre optic endoscopy*

Technically colonoscopy, ileoscopy and endoscopic polypectomies are quite related: all are carried out trans-anally by means of a flexible fibre optic endoscope and as such they are dissimilar to conventional rectosigmoidoscopy performed through a rigid steel tube. From the clinical point of view the first two are diagnostic procedures, colonoscopy confined to the (at least entire left sided) colon while ileoscopy passes the ileo-cecal valve. The third procedure adds a therapeutic intervention: resection of polyps by means of an electrically heated diathermy string. Furthermore all three appear in day-care group 3 nominative list starting July 2007. Aggregating the three procedures in one group "lower gastrointestinal fibre optic endoscopy" is therefore a logical step.

Figure 75 shows A-code versus H-code counts and Figure 76 the corresponding reimbursements over the last 16 years. From 1995 to 2010 day-care or ambulatory cases have multiplied by a factor 7.6 (+562%), reimbursements by a factor 10.6 (+865%). At the same time, inpatient cases increased to a much lesser degree till 2005 and even dropped, definitely from 2009 onwards after a variable transition phase between 2005 and 2008. Hence, there was a day-care growth without shift prior to 2005; and from 2009 onwards day-care growth was larger than the shift from inpatient to day-care. Possible explanations of this procedure increase are: (1) increasing numbers of interventional gastroenterologists in hospitals and private praxis, (2) an undeniable rise in attention given to case screening for colonic polyposis and adenocarcinomata[27] and (3), to a lesser degree, the uptake of colonoscopies in the day-care lump sum system (starting January 1987 with Maxi & Super lump sums, over former day-care group A and finally in July 2007 transfer to the new group 2). In addition, RIZIV – INAMI data (Doc P containing practice profiles for individual health care professionals, based on annual per code reimbursement counts) show that the number of practicing colonoscopists rose from 213 in 1995 to 556 in 2010 (+161%).

Figure 75 – Annual A-code versus H-code counts for lower GI fibre optic endoscopy, 1995-2010

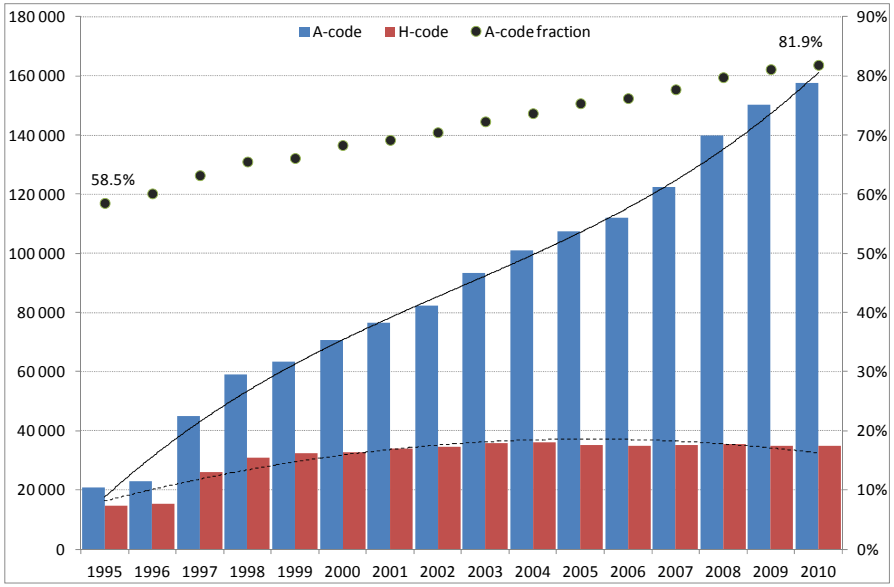


Figure 76 – Annual A-code versus H-code reimbursements for lower GI fibre optic endoscopy, 1995-2010

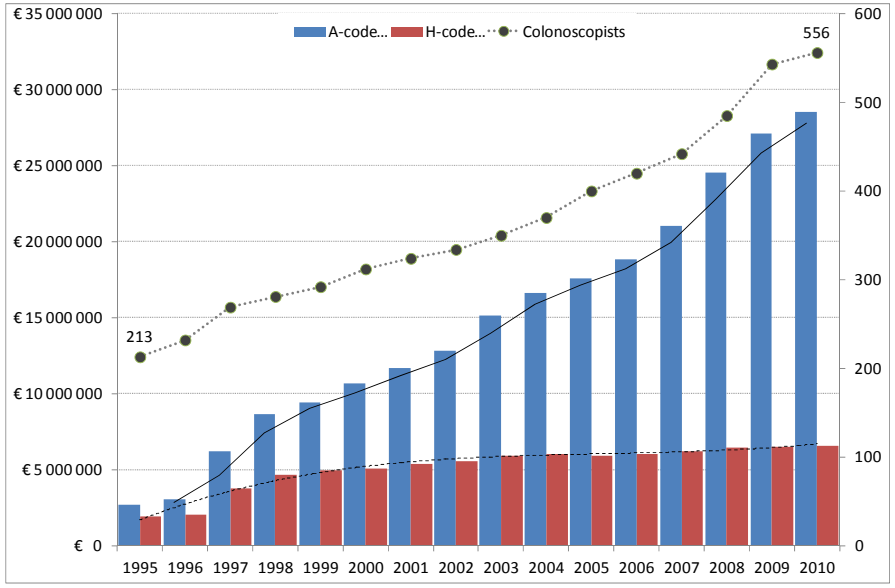
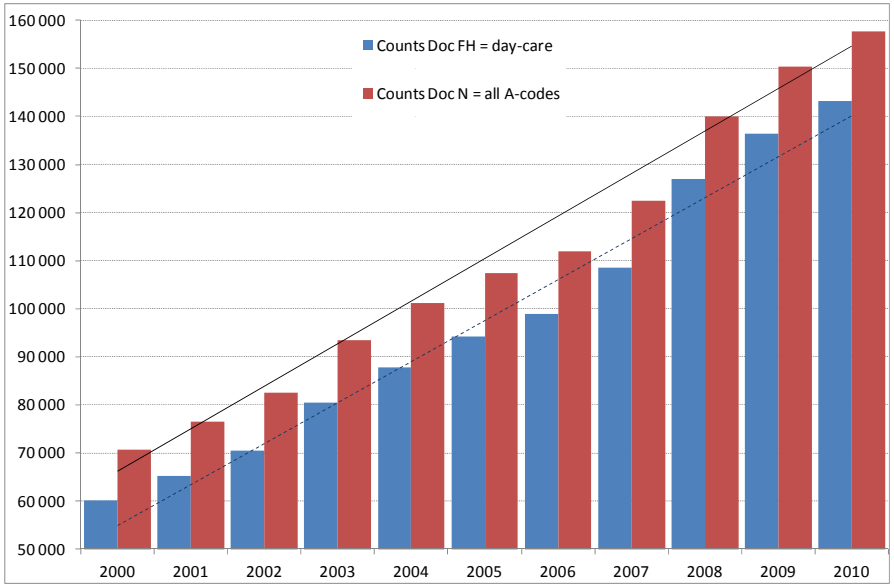


Figure 77 compares Doc FH and Doc N A-code counts and trend lines in the 2000-2010 interval. Both trend lines are virtually parallel, so there is little indication of opposite shifts from ambulatory to day-care.

Figure 77 – Lower GI fibre optic endoscopy – Doc FH versus Doc N counts, 2000-2010



6.3.3 Dental surgery

Interventions for alveolar tumours put aside, we found twelve code pairs in stomatology[v] nomenclature that concern other dental surgery procedures: eight of them are listed in the BFM – BMF List A (surgical day-care), 3 in group 1 nominative list and the last one in group 6 (Table 16). Six of them were introduced on 1 February 2004.

[v] In Belgium, stomatology is a medical specialism, whereas dentistry is paramedical.

Table 16 – Nomenclature for dental surgery

Codes	Label	Start code	Coeff	Nominative list
310855 310866	Plasty for tooth-to-skin fistula	01 Apr 1985	K 120	DC surg
311334 311345	Surgical intervention for paradental cysts	01 Apr 1985	K 120	DC surg
312152 312163	Desinclusion and extraction of an impacted or retained tooth by pericoronary bone resection or osteotomy	01 Apr 1985	K 120	DC surg
312314 312325	Desinclusion of a palatinal enclosed canine	01 Feb 2004	K 120	DC surg
312410 312421	Peri-dental osteotomy for retained tooth	01 Feb 2004	K 120	DC surg
312432 312443	Peri-apical osteotomy ± apicectomy	01 Feb 2004	K 120	DC surg
317214 317225	Extraction, under general anesthesia, of minimal 8 tooth	01 Apr 1985	K 125	DC surg
312336 312340	Liberation of retained tooth by muco-periost flap technique	01 Feb 2004	K 75	Group 1
312351 312362	Removal of supernumerary and retained dental element in the maxillar incisivo-canine region	01 Feb 2004	K 75	Group 1
312373 312384	Heterotopic dental transplantation, including creation of neoalveolus and fixation	01 Feb 2004	K 180	Group 1
312395 312406	Transalveolar dental transplantation, including osteotomy and fixation	01 Feb 2004	K 150	Group 1
311651 311662	Dental root or foreign body removal via fossa canina	01 Apr 1985	K 120	Group 6

Overall views on long range (16 years) Doc N code counts, A-code fractions (Figure 78) and reimbursements (Figure 79) show significant increases on all three parameters, with extra emphasis on a threefold rise in annual budgets and A-code fractions rising from 61.9% in 1995 to 97.9% in 2010. Nevertheless, as there is only a slight decrease of inpatient cases, the shift from inpatient to day-care is smaller than the growth of day-care.

Figure 78 – Doc N A- and H-code counts for dental surgery (12 code pairs), 1995-2010

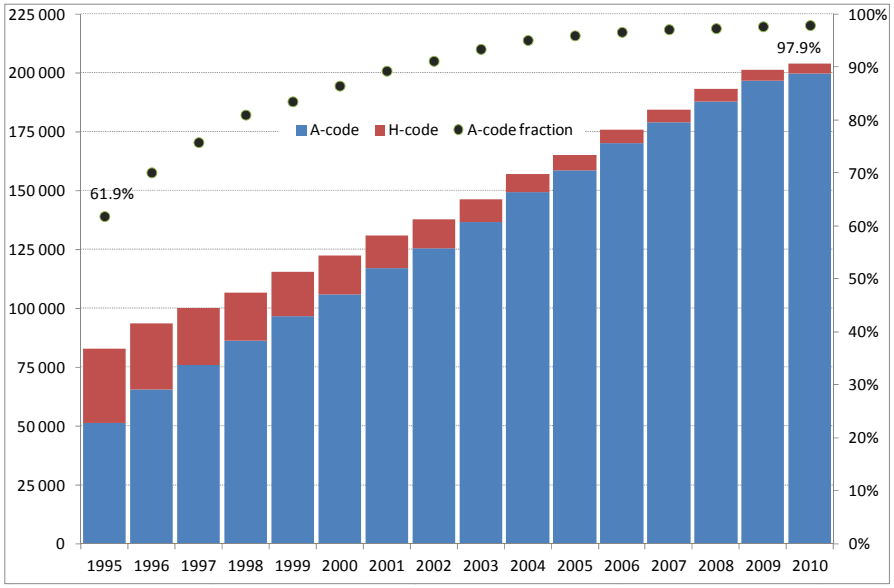


Figure 79 – Doc N A- and H-code reimbursements for dental surgery (12 code pairs), 1995-2010

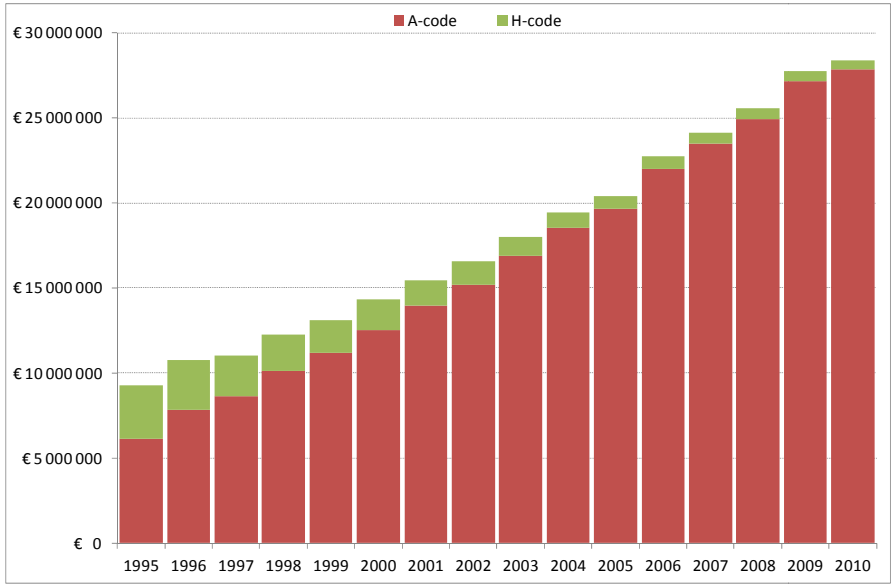
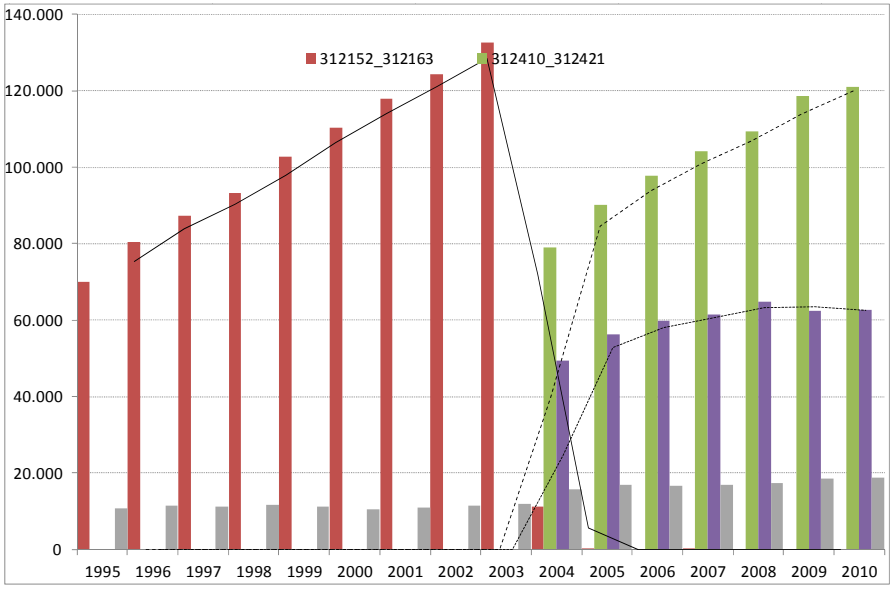
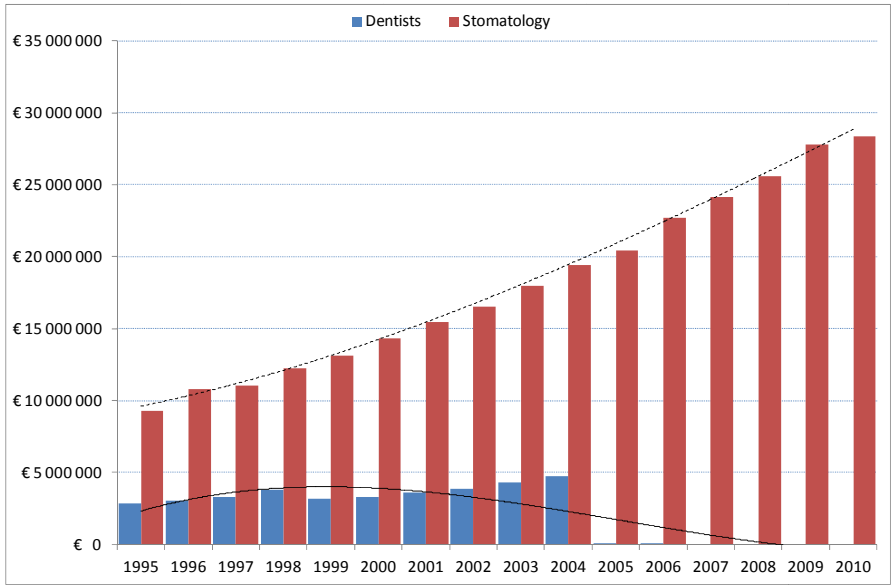


Figure 80 – Dental surgery Doc N: old versus now codes, 1995-2010



In absolute numbers there are three major dental surgery interventions: 312152_312163 (desinclusion and extraction of an impacted or retained tooth by peri-coronary bone resection or osteotomy), 312410_312421 (peri-dental osteotomy for retained tooth) and 312432_312443 (peri-apical osteotomy ± apicectomy) that represent 90.3% of all counts in the 1995-2010 period. The first code pair, however, was rescinded on 1 February 2004 and taken over by the next 2, introduced on the same date (Figure 80). We see an undeniable boost effect of the introduction of the 2 most recent codes. Moreover, on 1 September 2005 three code pairs for surgical tooth extractions by dentists (303170_303181, 303192_303203 and 303214_303225) were rescinded, causing even more dental surgery by stomatologists. Resulting budgetary shifts from ambulatory care (dentists) to inpatient or day-care (stomatologists) are obvious (Figure 81).

Figure 81 – Evolution of combined A- and H-code reimbursements for (surgical) tooth extractions – dentists versus stomatologists, 1995-2010



Comparing ADH – HJA day-care counts to Doc N A-code counts (Figure 82) we see, after an initial convergence of trend lines in the 2004 start-up period (not shown), a slight divergence from 2008 to 2009, possibly indicating some tendency towards ambulatory treatments. Indeed, Belgian stomatology practices traditionally have a strong extramural footing (private surgeries in the Anglo-Saxon sense of the word) (see Table 17).

Table 17 – Numbers of practising stomatologists in Belgium

Year	Intramural	Extramural	Mixed	Total
1995	4	62	198	264
1996	4	56	193	253
1997	9	50	204	263
1998	5	54	205	264
1999	5	49	211	265
2000	7	50	211	268
2001	8	53	214	275
2002	6	51	217	274
2003	8	57	209	274
2004	5	51	213	269
2005	4	46	214	264
2006	2	47	222	271
2007	5	45	218	268
2008	9	46	220	275
2009	11	43	229	283
2010	8	46	235	289
2011	7	44	238	289

Figure 82 – ADH – HJA day-care versus Doc N A-code counts for dental surgery, 2005-2009

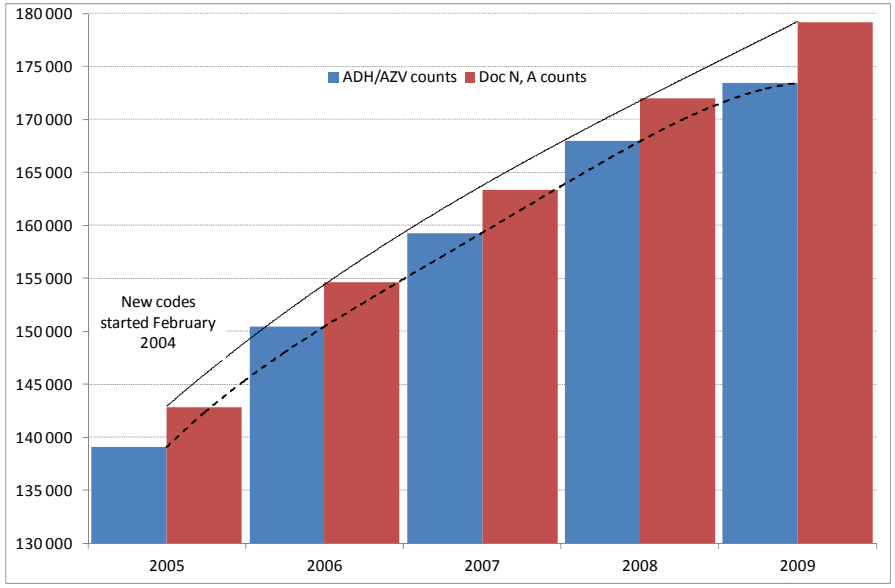
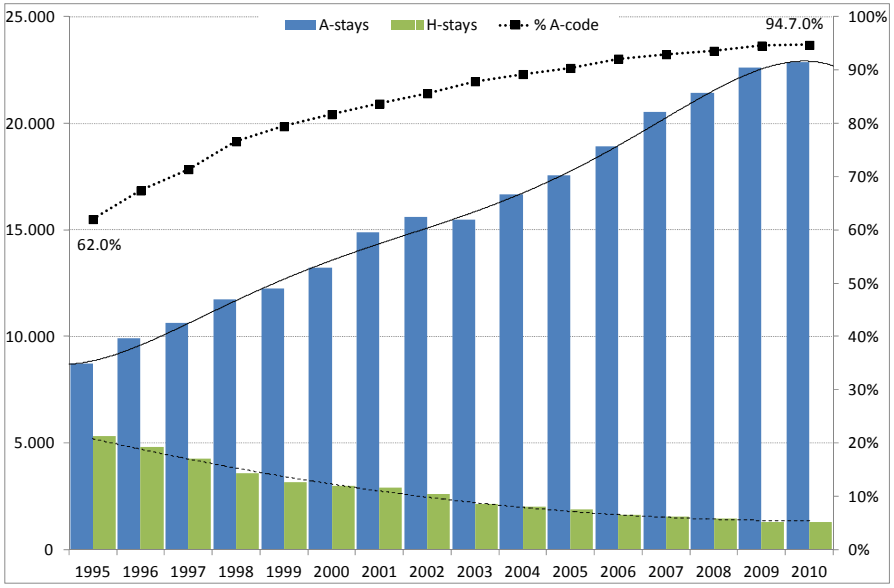


Figure 83 – Doc N circumcision A- and H-code counts and A-fractions, 1995-2010

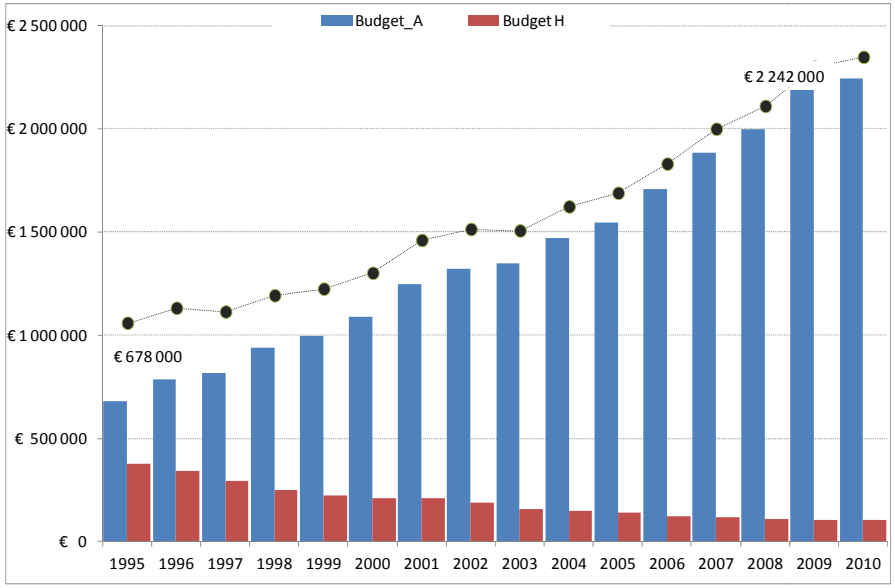


6.3.4 Surgical circumcision

The rising of circumcision cases has drawn recent attention from some Belgian authorities. The reason seems obvious if we look at Figure 83: over 16 years there has been a 72% increase in reimbursed cases (A-code and H-code combined) and in the political field speculations were made on possible ethno-religious influences. However, data are lacking[w] and, above that, the question surely is out of the scope of present study. Figure 84 gives annual reimbursements for day-care and inpatient, showing a more than threefold increase in day-care reimbursements between 2000 and 2010.

[w] In Belgian Privacy Law collection of personal data on political, racial, ethnical or religious issues is subject to tight restrictions (art. 6)

Figure 84 – Doc N circumcision A- and H-code reimbursements, 1995-2010



Nevertheless, we looked at MKG – RCM data 2004-2009 for recorded indications for circumcision. Most of the day-care stays classified under APR-DRG 484 (Other male reproductive system procedures (89.4%) – see Table 18). Indications for the intervention clearly proofed to be different (1) in day-care versus inpatient stays (Table 19) and (2) with age category of the patient (Figure 85). As expected routine or ritual circumcisions are chiefly found in the ≤ 5 years age group. We should, however, mention that current recommendations from the American Association of Paediatricians (AAP) state that “the health benefits of newborn medical circumcision outweigh the potential risks, and these benefits justify access to circumcision for families who choose it”.

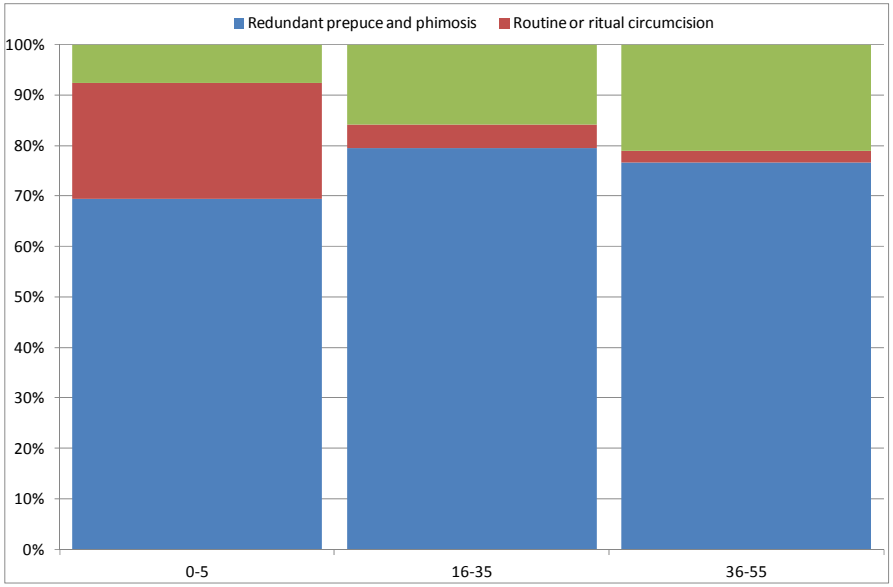
Table 18 – APR-DRG distribution of circumcision stays in MKG – RCM day-care, 2004-2009

APR-DRG group	Percentage
Main APR-DRG = 484	89.4%
Other urological	5.2%
Neonatal APR-DRG	1.8%
Non related	3.6%

Table 19 – Day-care versus inpatient circumcision stay counts MKG – RCM, 2004-2009

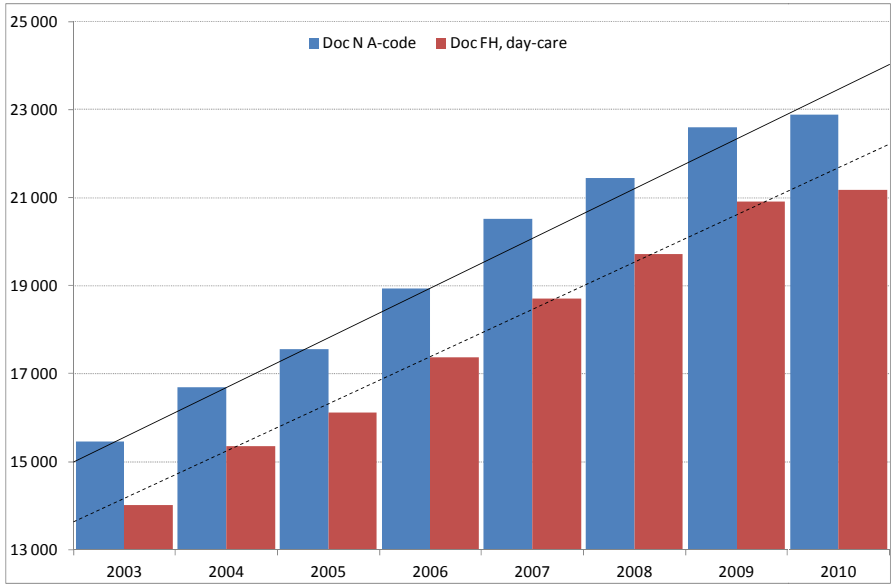
Principal diagnosis	Label diagnosis	Day-care	Inpatients
605	Redundant prepuce and phimosis	86 446	3 431
V502	Routine or ritual circumcision	19 152	
185	Malignant neoplasm of prostate		5 346
Other		2 995	4 386
Total		**108 593**	**13 163**

Figure 85 – Indications for circumcision in day-care per age category – MKG – RCM day-care data, 2004-2009



From 1995 to 2010 the growth of day-care was larger than the shift from inpatient to day-care (Figure 83). Plotting Doc FH data against Doc N A-code data for the years 2003 (2002 was only half a year for day-care) till 2010 brings us back to our point of interest (Figure 95): there is no particular trend towards more ambulatory care even if relative value (coefficient K75) for circumcision is below the K120 threshold (see above).

Figure 86 – Doc FH versus Doc N A-code circumcision counts, 2003-2010

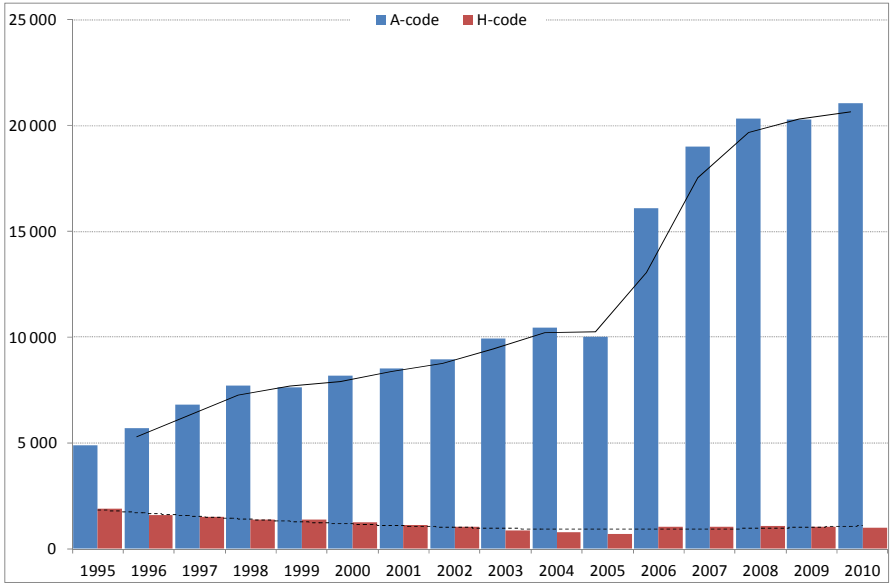


6.3.5 *Carpal tunnel release*

Carpal tunnel syndrome (CTS) is an entrapment neuropathy, causing paresthesia, pain, numbness, and other symptoms in the peripheral innervations area of the median nerve due to its compression in a funnel like anatomical region at wrist level, called ”carpal tunnel”. The causes can be intrinsic (pressure within the tunnel) or extrinsic (pressure exerted from outside the tunnel) but most cases are idiopathic (unknown cause). An international debate regarding the relationship between CTS and repetitive stress injury (RSI) at work is still ongoing and occupational risk factors of repetitive external forces, poor posture and longstanding vibration have been cited. We will however not go in on this debate.

Looking at evolution (Figure 87) of A- and H-code counts for conventional carpal tunnel release (CTR - code pair 287836_ 287840) we see an elongated ”tilted S” configuration of A-code trend line (moving average), pivoting around the year 2005. What happened? Figure 88 gives us the answer: another code for neurolysis under operating room (OR) microscope (code pair 230252_ 230263) gradually came in till 2005. Surprisingly this ascent was followed by a sudden decline in 2006-2007. DGEC – SECM[x] officials have indeed in that period pursued a thorough campaign against excessive billings of neurolysis under operating room (OR) microscope at wrist level, which explains the prompt ”correction” of the neurolysis counts and a renewed ascent of the conventional CTR counts.

Figure 87 – Doc N counts for carpal tunnel release, 1995-2010



x Dienst voor Geneeskundige Evaluatie en controle – Service d’Evaluation et de Contrôle Médicaux: Dept. for Medical Evaluation & Control

Figure 88 – Doc N A-code carpal tunnel release versus OR-microscopic neurolysis counts, 2000-2010

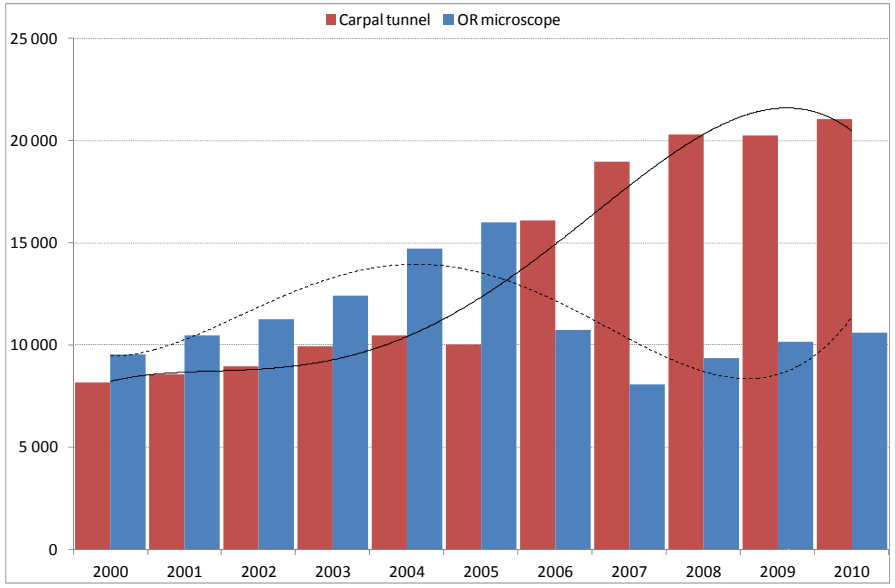
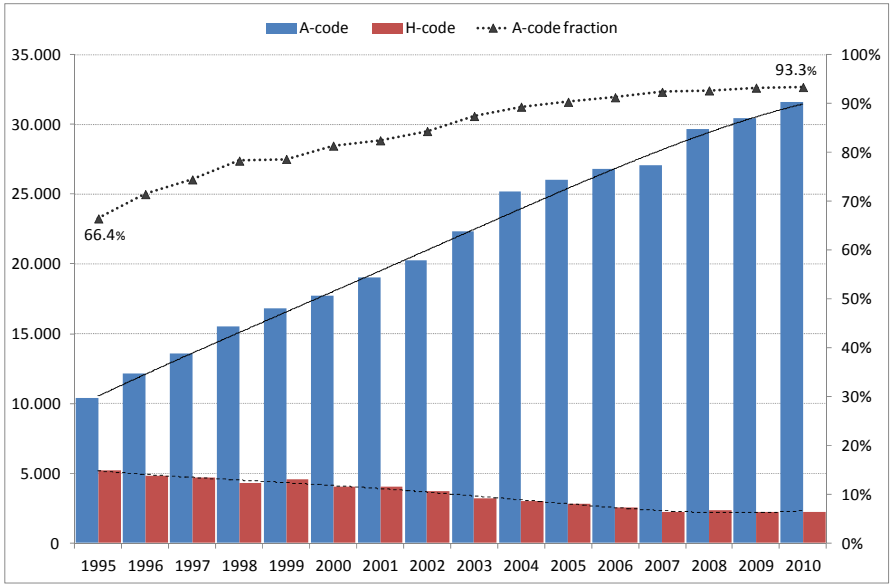
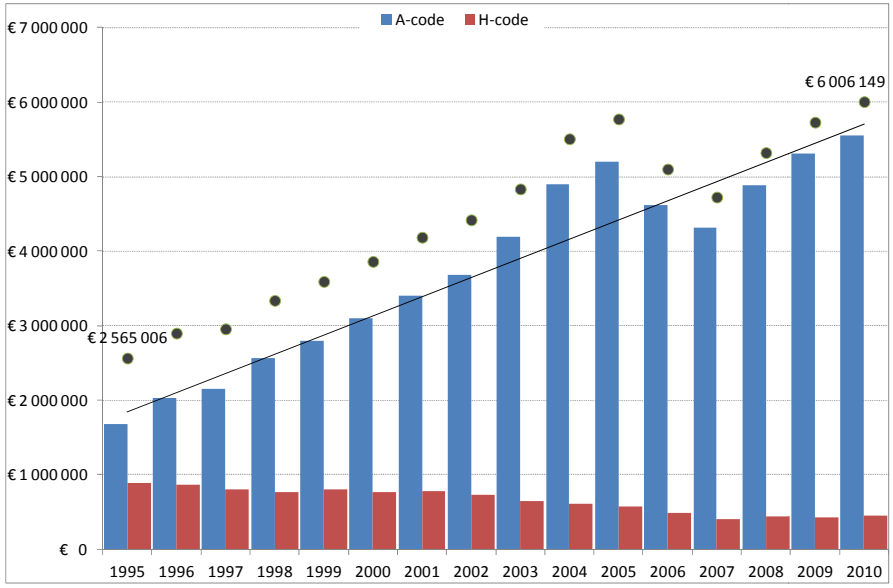


Figure 89 – Doc N counts for all A-code carpal tunnel interventions (release + OR microscopic neurolysis), 1995-2010



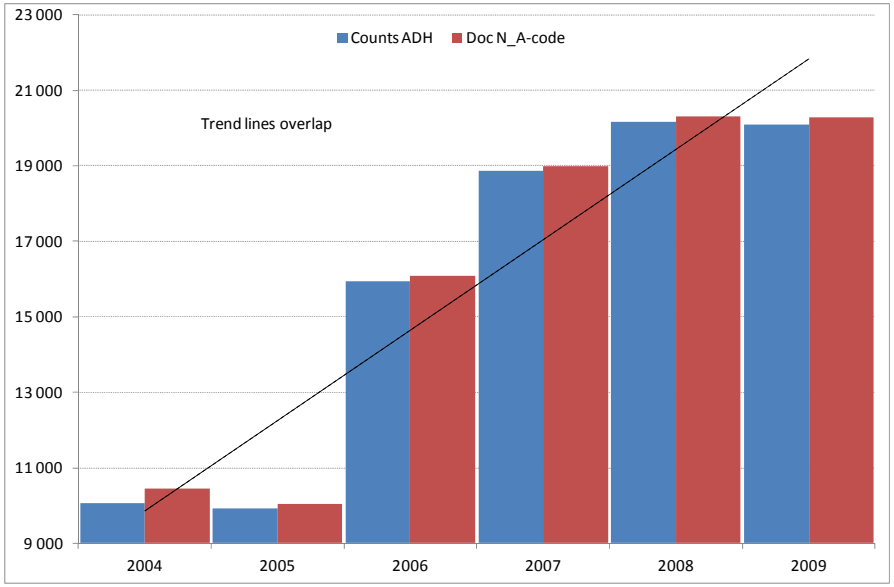
If we combine Doc N counts for both procedures and have a long range look (1995-2010), the trend line falls back into a typical configuration (Figure 89): a threefold and steady increase in A-code numbers over 16 years, along with a decrease of inpatient counts and consequently a definite rise in A-code fraction, indicating a shift from inpatient to day-care, but smaller than the rise of day-care. At the same time overall budgets, A-code and H-code combined, rose by a factor 2.3 (Figure 90). The A-code trend line was intentionally left linear to illustrate the effect after the blocking of OR microscope neurolysis.

Figure 90 – Doc N reimbursements for all carpal tunnel interventions (release + OR microscopic neurolysis), 1995-2010



Finally, Figure 91, shows there is no indication of any shifting between ambulatory and day-care (trend lines overlap).

Figure 91 – Doc ADH – HJA versus Doc N A-code carpal tunnel releases, 2000-2010



6.3.6 Meniscectomy of the knee joint

A tear of a meniscus is a rupturing of one or more intra-articular fibrocartilage strips, called menisci. Such tears occur typically at knee level and can lead to pain and swelling of the knee joint. In younger, sportive patients acute injuries can cause displacements of transversal meniscus tears (the so called “bucket handle” tears) which usually cause mechanical symptoms such as clicking, catching, or locking of the knee joint during motion. Dependent on the needs and status of the patient a conservative treatment involving just physical therapy is possible, but in many cases a surgical intervention is proposed. Depending on the location of the tear a suturing may be possible but in the majority of cases the tear is far away from the centripetal blood supply and any repair is unlikely to heal. In these cases arthroscopic surgery allows for a partial meniscectomy, removing the torn tissue and allowing the knee to function with some of the meniscus missing. In situations where the meniscus is damaged beyond repair or

partial removal, a total meniscectomy is performed. This option is to be avoided at all costs as total meniscectomy leads to an increased risk of osteoarthritis (with loss of cartilage) eventually leading to a need for total knee replacement in later years.

RIZIV – INAMI codes for arthroscopic intervention on the knee are listed in Table 20. Meniscectomy at knee level is since many years a predominantly arthroscopic surgical procedure (Figure 92: note different Y-axis scaling). Only in rare instances open surgery is performed (code pair 290076_290080). Distinct A- and H-code counts in Doc N (Figure 93 as well as annual reimbursements (Figure 94) show a steady ascent of A-code counts, paralleled by an opposite descent of H-code counts, while A+H-code counts remain virtually stable. This indicates a shift from inpatient to day-care. In parallel, A-fractions rose from 63% in 2000 to almost 91% in 2010.

Table 20 – RIZIV – INAMI codes for meniscus and related knee joint surgery

Codes	Label	Key coefficient	Lump sum list
300333 300344	Partial or total (arthroscopic) meniscectomy	N 275	DC surgery
300414 300425	Suture of meniscus tear under age 25	N 275	Group 6
290076 290080	Exeresis of meniscus of knee, internal or external (open surgery)	N 250	None
300274 300285	Diagnostic arthroscopy with minor manipulations	N 90	DC surgery
300296 300300	Excision of plica synovialis / retinaculum patellae / extraction foreign bodies, incl. lose osteochondritic material	N 100	DC surgery
300311 300322	Treatment of osteochondritis by drilling (forage) or cartilaginous lesions by grazing, perforation or spongialisation	N 175	DC surgery

Figure 92 – Doc N counts for arthroscopic versus open meniscectomy of the knee – A- an H-codes combined, fiscal years 1991-2011

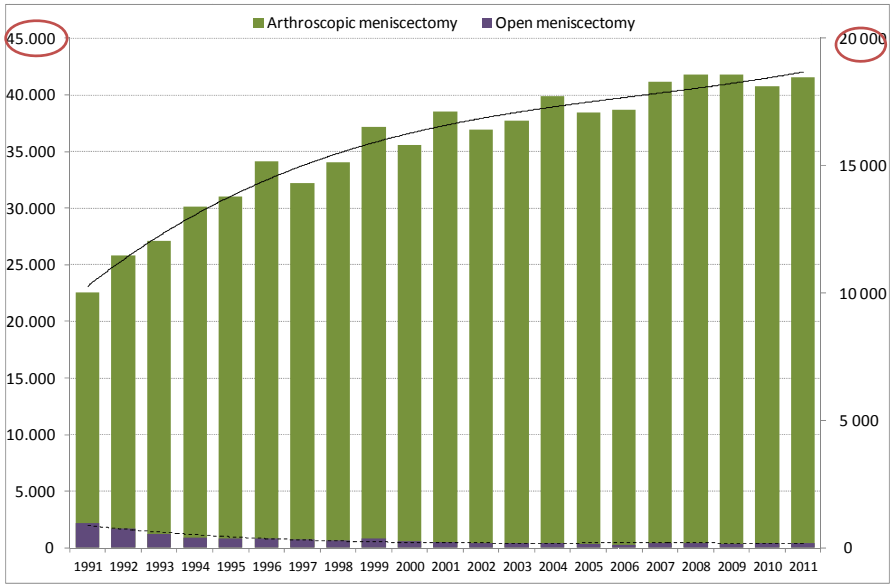


Figure 93 – Doc N A- versus H-code counts for arthroscopic meniscectomy, 2000-2010

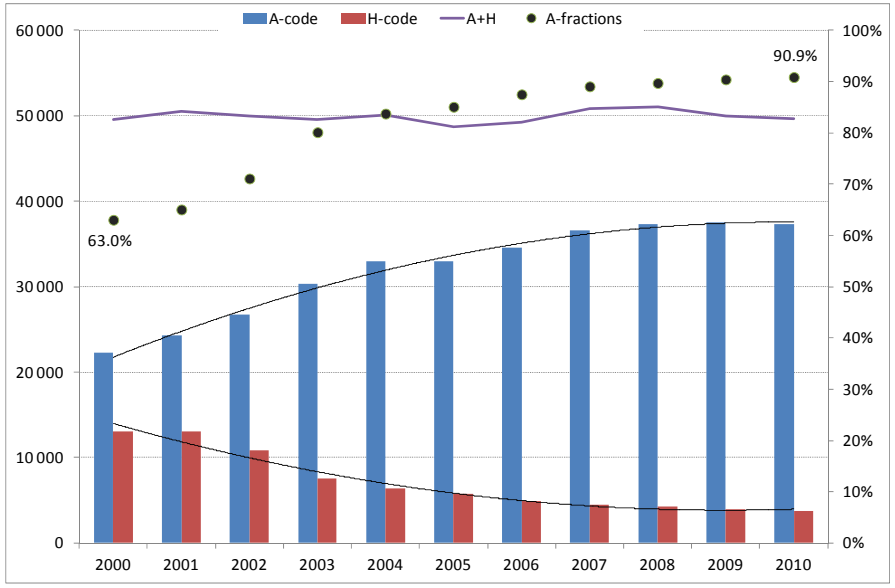
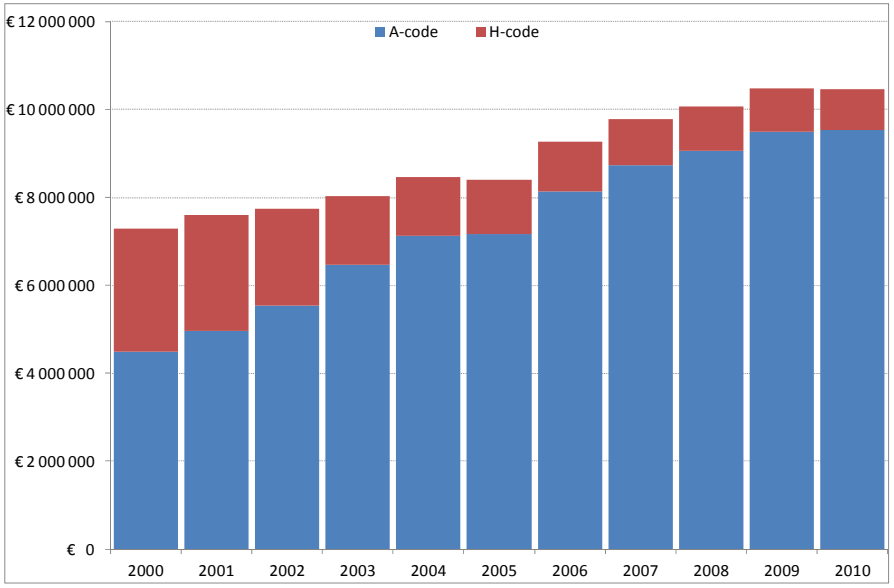
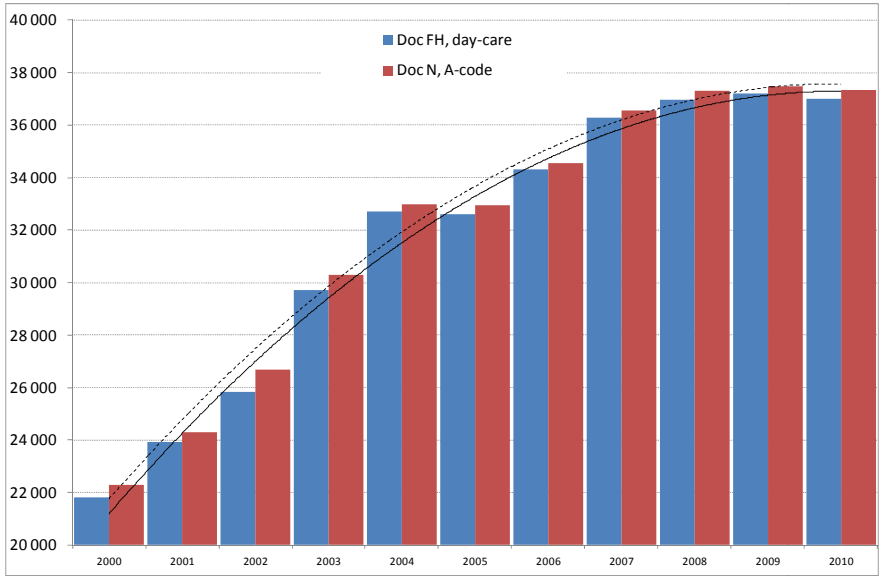


Figure 94 – Doc N A- versus H-code reimbursements for arthroscopic meniscectomy, 2000-2010



Looking at trend line plots for Doc FH day-care counts versus Doc N A-code counts (Figure 95), there is little indication for shifts from ambulatory to day-care.

Figure 95 – Doc FH versus Doc N A-code partial or total meniscectomy counts, 2000-2010



6.3.7 *Inguinal hernia repair*

An inguinal hernia is bulging of intra-abdominal fat or part of the small intestine through a weak area in the lower abdominal musculature at the groin. An inguinal hernia can occur any time from infancy to adulthood and is for obvious anatomical reasons much more common in males than in females. Inguinal hernias tend to become larger with time and in adults inguinal hernias that grow, cause symptoms or become incarcerated are treated surgically. In infants and children inguinal hernias are always surgically repaired to prevent such potentially life threatening incarceration from occurring. Related types of peritoneal cavity herniations are femoral and obturator herniae, both in a deeper intra-abdominal location. Surgical techniques have evolved in past decennia in search of lesser invasive techniques aiming at lesser postoperative pain and complications as well as shorter times to return to normal activity and work. This objective was obtained in two ways: (1) use of mesh grafts instead of deep musculo-tendinous suturing and (2) either open repair under local anaesthesia, either laparoscopic repair (with mesh grafting).

RIZIV – INAMI nomenclature provides a set of seven code pairs for hernia surgery (Table 21), five of them were rescinded on 1 January 2012 and replaced by two new ones.

Table 21 – RIZIV – INAMI nomenclature for abdominal hernia repair

Codes	Label	Date start	Date end
241054 241065	Repair of incarcerated hernia or eventration with intestinal resection	1 Apr 1985	1 Jan 2012
241113 241124	Repair of incarcerated hernia without intestinal resection	1 Apr 1985	1 Jan 2012
241150 241161	Any surgical repair of hernia	1 Apr 1985	1 Jan 2012
241312 241323	Repair of hernia / eventration, incarcerated or not	1 Oct 1995	1 Jan 2012
241334 241345	Repair of bilateral hernia, incarcerated or not	1 Oct 1995	1 Jan 2012
241872 241883	Repair of unilateral inguinal, femoral or obturator hernia	1 Jan 2012	
241894 241905	Repair of bilateral inguinal, femoral or obturator hernia	1 Jan 2012	

In the U.S. (inguinal) hernia surgery is usually done on a day-care basis (or even in private surgeries, under local anaesthesia). In Belgium and some other European countries this trend has been delayed as is clearly shown in Figure 96: Doc N A-code fractions have slowly climbed from 7.1% in 1995 to 32.4% in 2010, with some acceleration in 2002. Simultaneously, inpatient cases decreased slowly, indicating a true shift from inpatient to day-care. Almost all A-code interventions in Belgium are performed in hospital day-care (Figure 97), hence there is no indication for shifts between ambulatory and day-care. We should however point out that surgical technique preferences played a marked role in the choice of admission type: open inguinal hernia repair (OIHR) with Lichtenstein technique etc., which can be done under local anaesthesia, versus

laparoscopic hernia repair (LIHR) necessitating a usually general anaesthesia, be it inpatient or day-care.

Figure 96 – Doc N annual A- and H-code counts and A-code fractions for abdominal hernia repair, 1995-2010

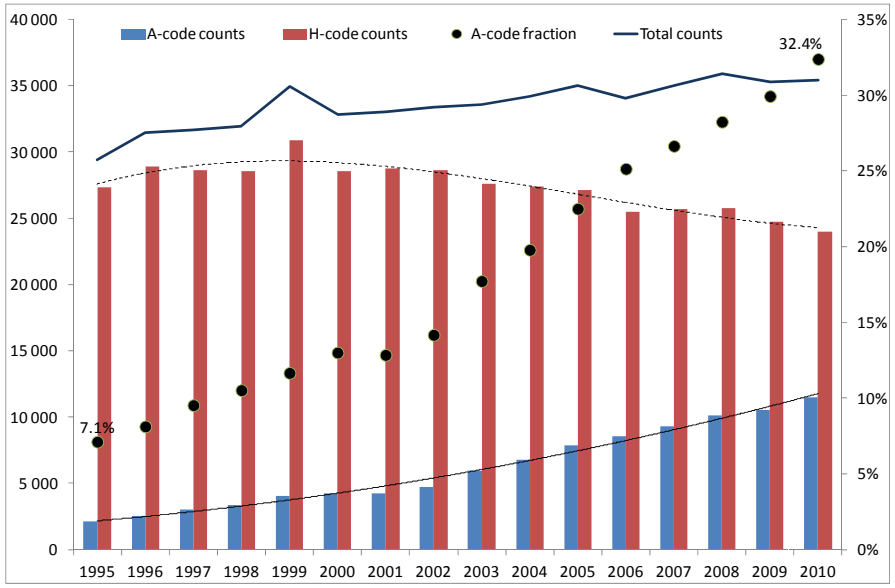
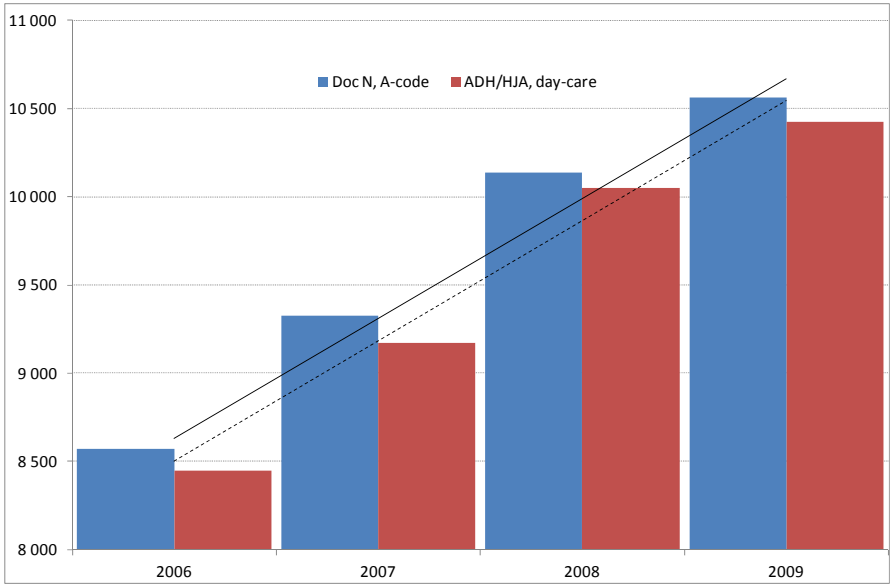


Figure 97 – HBR day-care versus Doc N A-code inguinal hernia repair counts, 2006-2009

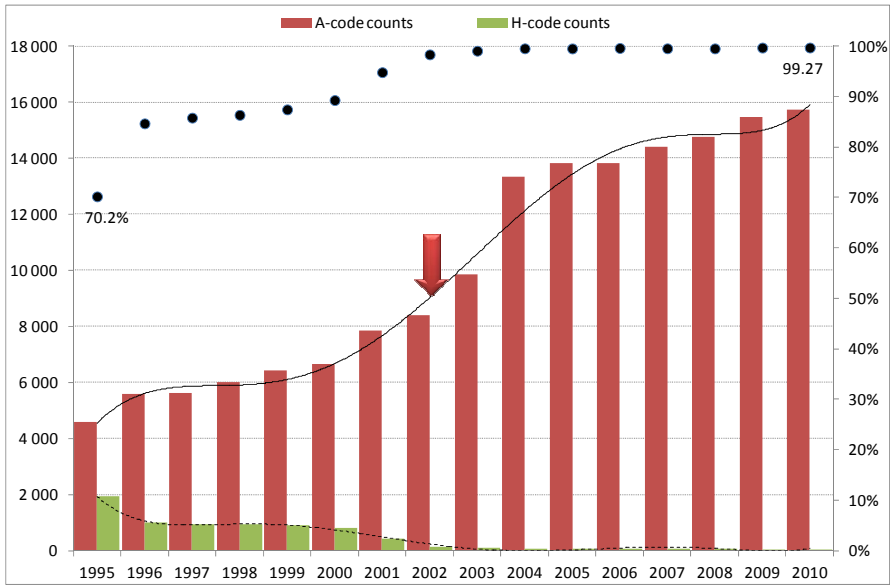


6.3.8 Follicle aspiration by laparoscopy or trans-vaginally under ultrasonographic guidance

Follicular aspiration is a procedure that aims to retrieve oocytes from the follicles for in vitro fertilization (IVF). It can be performed through a puncture of the ovary with a needle which is introduced through the vagina and guided inside the follicles using ultrasound vision. From a pure technical point of view, this procedure only requires local anaesthesia and hence it can be done entirely ambulatory. Other techniques are a trans-abdominal (percutaneous) ultrasound-guided follicular aspiration in case the ovaries are not trans-vaginally accessible. Yet, laparoscopy is still a commonly used procedure for oocyte retrieval and this technique requires a more extensive anaesthesia (general or epidural).

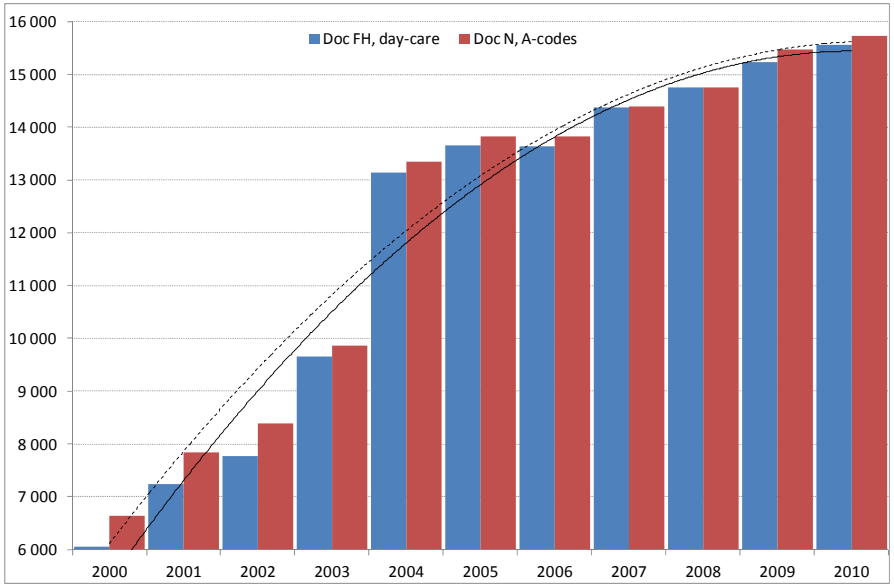
In Belgium follicle aspiration has increased a lot and has quickly become an almost exclusively intramural day-care procedure (Figure 98), illustrating the direct effect of reimbursement policies on hospital practices (see the 2002 arrow). Indeed, both trans-vaginal and laparoscopic techniques are entitled to a surgical day-care remuneration (BFM –BMF List A), whereas at least trans-vaginal aspiration can be done in extramural settings, be it under the condition that proper infrastructure is well provided for.

Figure 98 – Doc N A- and H-code counts and A-code fractions for laparoscopic or US guided follicle aspiration, 1995-2010



Looking at trend line plots for Doc FH day-care counts versus Doc N A-code counts, we see a shift from ambulatory to day-care in 2002 (Figure 99), as IVF centres tended to become intramural after the 2002 reform.

Figure 99 – Doc FH day-care counts versus Doc N A-code counts for US guided follicle aspiration, 2000-2010



6.3.9 Total hysteroscopic endometrial resection (THER)

Destruction of endometrial tissue, i.e. the internal epithelial lining of the uterus, by trans-cervical hysteroscopic resection or ablation is an effective alternative to hysterectomy for heavy menstrual bleeding interfering with a woman's quality of life. First-line therapy has traditionally been medical (hormonal) therapy but this frequently gives unsatisfying results. Hysterectomy is highly effective in stopping bleedings permanently, but also ends fertility and has all the risks of major surgery including infection and blood loss. Endometrial resection and other methods of ablation are less invasive surgical methods that aim to remove the entire thickness of the endometrium, but leaving the muscular uterus untouched. The initial cost of endometrial destruction is significantly lower than hysterectomy but, since re-treatment is often necessary, the cost difference narrows over time. Related RIZIV – INAMI codes are shown in Table 22.

Top 10 indications representing 95% of all cases in HBR day-care records (2008-2009) are listed in Table 23 and in Table 24 for inpatient indications.

Table 22 – RIZIV – INAMI nomenclature for non-cancer interventions on the uterus

Codes	Start code	Label code	Key coeff
431270 431281	1 Apr 1985	Total abdominal hysterectomy	K 225
431292 431303	1 Apr 1985	Subtotal hysterectomy	K 180
431314 431325	1 Apr 1985	Total vaginal hysterectomy, incl. colporaphia anterior and/or posterior	K 225
432456 432460	1 Jan 1991	Total hysteroscopic resection of endometrium (THER)	K 180
432655 432666	1 Nov 1998	Subtotal hysterectomy with anatomopathological examination	K 180
432670 432681	1 Nov 1998	Laparoscopic + vaginal hysterectomy with anatomopathological examination	K 225
432736 432740	1 Apr 2003	Total laparoscopic hysterectomy with anatomopathological examination	K 225

Table 23 – Primary diagnosis for THER day-care stays in linked MKG – RCM with ADH – HJA data, 2008-2009

3-digit diagnosis	Stays%	Cumulative%
Disorders of uterus, NEC	52.49%	52.50%
Disorders of menstruation and other abnormal bleeding from female genital tract	17.54%	70.00%
Uterine leiomyoma	9.89%	79.90%
Endometriosis	5.02%	84.90%
Menopausal and postmenopausal disorders	4.95%	89.90%
Non-inflammatory disorders of cervix	1.45%	91.30%
Other benign neoplasm of uterus	1.38%	92.70%
Sterilization	1.07%	93.80%
Inflammatory diseases of uterus, except cervix	0.64%	94.40%
Missed abortion	0.50%	94.90%
Other	5.10%	100.00%

Table 24 – Primary diagnosis for THER inpatient stays in linked MKG – RCM with AZV – SHA data, 2008-2009

3-digit diagnosis	Stays%	Cumulative %
Disorders of uterus, NEC	39.03%	39.00%
Disorders of menstruation and other abnormal bleeding from female genital tract	12.25%	51.30%
Uterine leiomyoma	11.72%	63.00%
Endometriosis	9.35%	72.40%
Menopausal and postmenopausal disorders	3.74%	76.10%
Pain and other symptoms associated with female genital organs	2.32%	78.40%
Female infertility	1.71%	80.10%
Encounter for contraceptive management	1.45%	81.60%
Other benign neoplasm of uterus	0.96%	82.50%
Congenital anomalies of genital organs	0.89%	83.40%
Other	16.58%	100.00%

In Belgium the procedure itself has been approved for reimbursement since January 1991 but only since 1 July 1 2007 the code was taken up in the group 6 nominative list for day-care lump sum reimbursement. Doc N crude reimbursements, A and H-codes, are presented in Figure 100; counts in Figure 101. We clearly see a tapering of both trend lines indicating a shift towards day-care procedures and Doc N A-code fractions for THER rose indeed from 45.3% in 2000 to 78.8 % 2010. Moreover, if we take all non-cancer uterine resections together (Figure 102), we clearly see a shift from other, more invasive uterine resection (descending H-code counts, the less numerous inpatient THER inclusive) towards day-care THER (ascending A-code counts).

Figure 100 – Doc N annual A- and H-code reimbursements for THER, 2000-2010

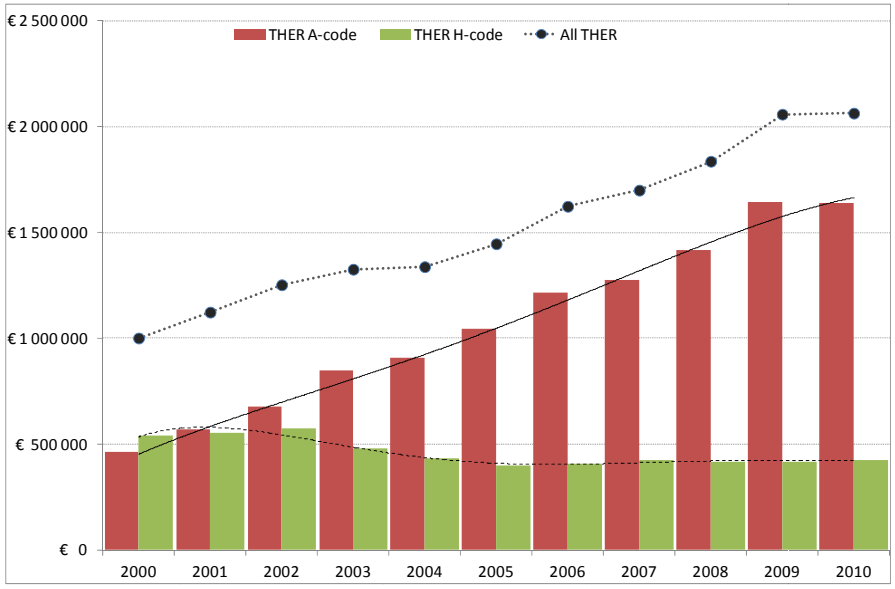


Figure 101 – Doc N annual A- and H-code counts for THER, 2000-2010

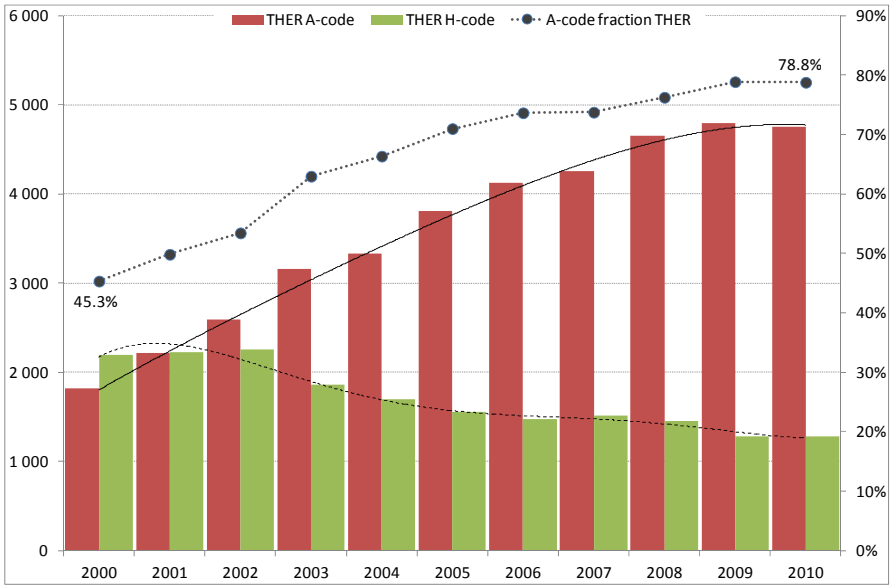


Figure 102 – Doc N annual A- versus H-code counts for non-cancer uterine resections, 2000-2010

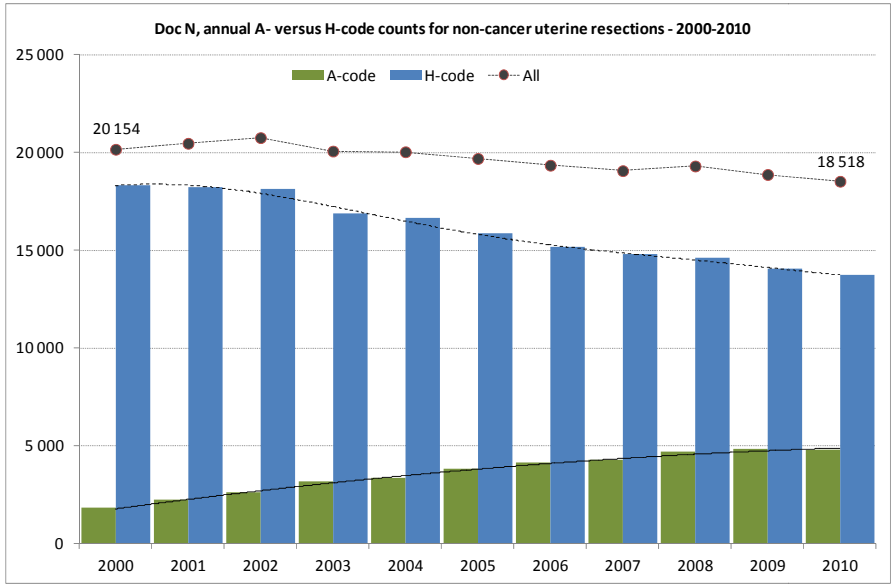
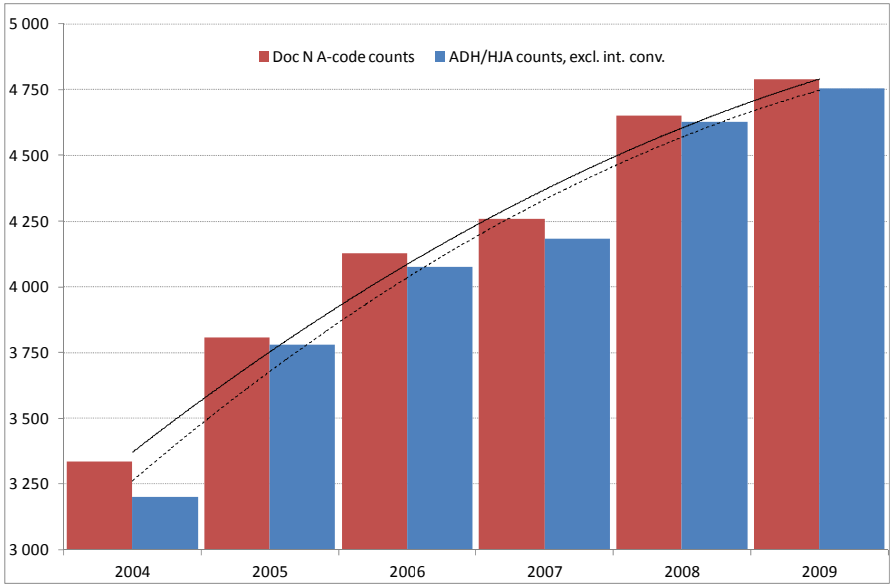


Figure 103 – HBR day-care versus Doc N A-code counts for THER, 2004-2009



Finally, comparing Doc FH code counts to Doc N A-code counts (Figure 103) shows a predominantly hospital day-care procedure, and no clear shift between ambulatory and day-care.

6.3.10 *Extracorporeal shock wave lithotripsy*

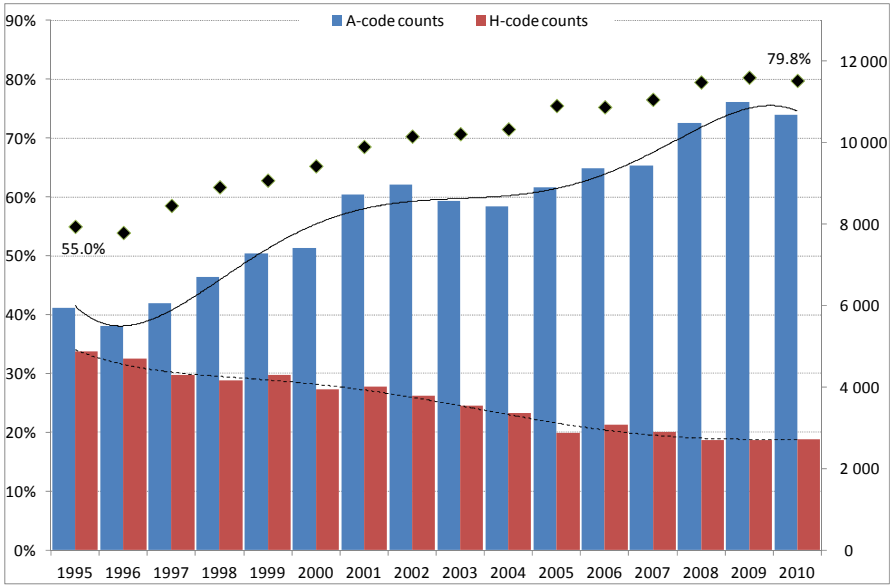
Extracorporeal shock wave lithotripsy (ESWL) is an alleged non-invasive treatment for kidney or gallstones (stones in the gallbladder or in the bile ducts) using an acoustic pulse. Lithotripsy and the lithotripter were developed in the early 1980s and came into widespread use with the introduction of the HM-3 lithotripter in 1983. Within a few years ESWL became a standard treatment of calculosis, particularly urinary stones[28]. For gallstones, too frequent complications[y] caused virtual abandonment of the technique in that particular indication (Table 25). Belgian reimbursement approval came in 1991 and, since capital expenditure for lithotripter purchase is considerable, many smaller Belgian hospitals engaged in group purchases of ambulatory itinerant lithotripters.

Table 25 – Linked MKG – RCM to HBR day-care counts for ESWL per primary diagnosis, 2006-2009

Subgroup	2006	2007	2008	2009
Urinary stones	7 631	8 144	9 967	10 467
Gallstones	5	12	5	8
Other	174	249	195	209

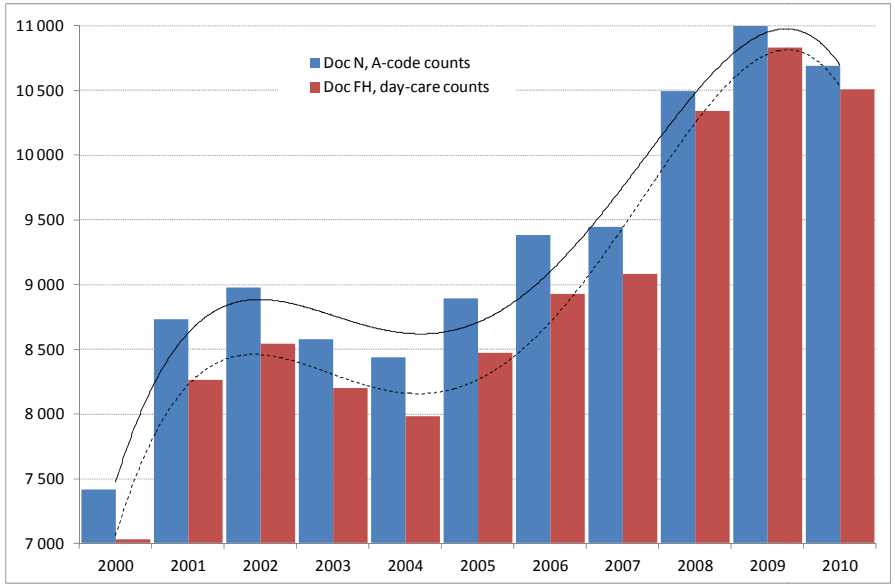
Figure 104 illustrates the Belgian case: predominantly a day-care hospital procedure, with a shift from inpatient to day-care but smaller than the growth of day-care and an extra boost by the 2007 reform (uptake in day-care group 7; before ESWL was in the former Maxi lump sum list, less rated for most of the hospitals). It is however somewhat reassuring that 2010 levels tend to readjust. Besides this, Figure 105 shows a shift from ambulatory to day-care from 2007 onwards, indicating a potential effect of the 2007 reform on a shift from ambulatory lithotripters to intramural lithotripters.

Figure 104 – Doc N A- and H-code counts and A-code fractions for ESWL, 1995-2010



[y] Complications with ESWL for cholelithiasis develop in about 30% to 40% of patients[29].

Figure 105 – Doc FH day-care versus Doc N A-code counts for ESWL, 2000-2010



6.3.11 Tonsillectomy by dissection and related ORL interventions

Tonsillectomy (also called amygdalectomy) is an ancient, 3 000-year-old[z] surgical procedure in which sick tonsils are removed from either side of the throat. Typically the procedure is performed in patients with recurrent episodes of acute tonsillitis or adenoids, or – less frequently – peri-tonsillar abscesses. In children commonly coinciding nasopharyngeal adenoid vegetations are removed at the same time (a procedure called adenoidectomy). In case of chronic, relapsing middle ear effusions, insertion of a tympanostomy prosthetic tube into the eardrum is added too (tympanostomy drainage). For adults the latter two interventions are not common. Although tonsillectomy is being performed less frequently than in the 1950s, it remains one of the most common surgical procedures for children in the United States, as well as in Belgium (Table 26). Historically, removal of the tonsils by use of a forceps and scissors with a wire loop called a "snare" was the most common method practiced, but has been largely replaced in favour of dissection techniques. In fact, snare tonsillectomy nowadays is to be regarded as an obsolete technique.

Table 26 – Top 5 interventions in children A- and H-codes combined, 2008-2009

Group	2008-2009 A+H counts
Dental surgery (*)	130 800
Trans-tympanic prosthetic drainage	59 472
Adenoidectomy < 18 yr.	45 414
Tonsillectomy by dissection	35 754
Circumcision	31 232

(*) Grouped codes

RIZIV – INAMI nomenclature provides three code pairs for tonsillectomy (Table 27) related intervention are often associated trans-tympanic prosthetic drainage and adenoidectomy < 18 yr. (removal of nose polyps). All codes are under the hospital confinement threshold and consequently claims in ambulatory settings cannot be refuted. Above listed interventions can be classified in three groups: (1) tonsillectomy ± adenoidectomy, (2) eardrum drainage and (3) simple adenoidectomy (in children). However, for simple eardrum paracentesis a code accessible to GPs is available (144535_144546).

z http://en.wikipedia.org/wiki/Tonsillectomy; The procedure is first mentioned in Hindu "medicine" about 1000 BC

Table 27 – RIZIV – INAMI nomenclature for tonsillectomy and related interventions

Code pair	Key coeff	Major Group
257390_257401	K 100	Tonsillectomy ± adenoidectomy
256491_256502	K 50	Tonsillectomy ± adenoidectomy
256535_256546	K 100	Tonsillectomy ± adenoidectomy
257471_257482	K 70	Eardrum drainage
256513_256524	K 50	Adenoidectomy

Doc N counts, A- and H-codes combined, for the three groups are plotted in Figure 106; crude reimbursements in Figure 107. A-code fractions for the tonsillectomy group evolved from near 55% in 1995 to 94% in 2010 (Figure 108).

Figure 106 – Doc N combined A- and H-code annual counts for three frequent ORL intervention groups, 1995-2010

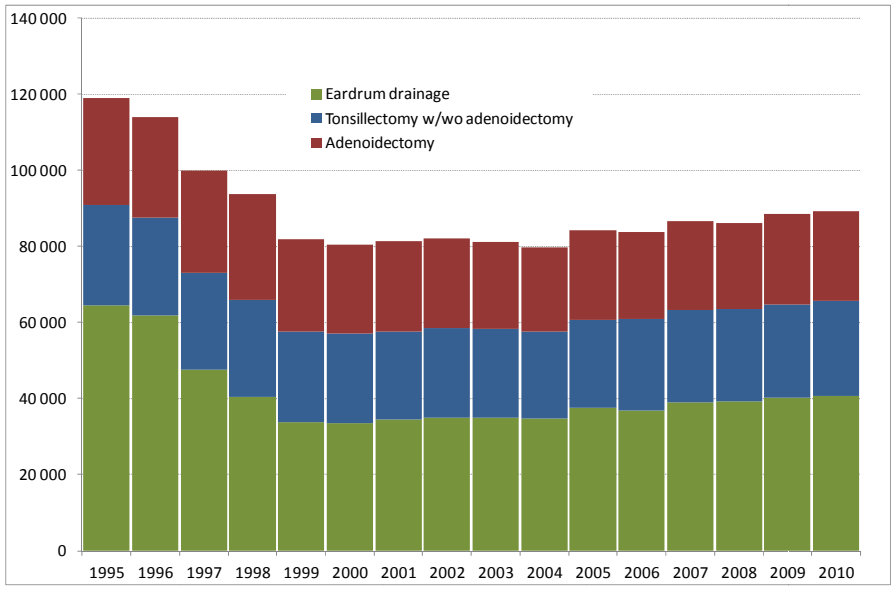


Figure 107 – Doc N combined A- and H-code annual budgets for three frequent ORL intervention groups, 1995-2010

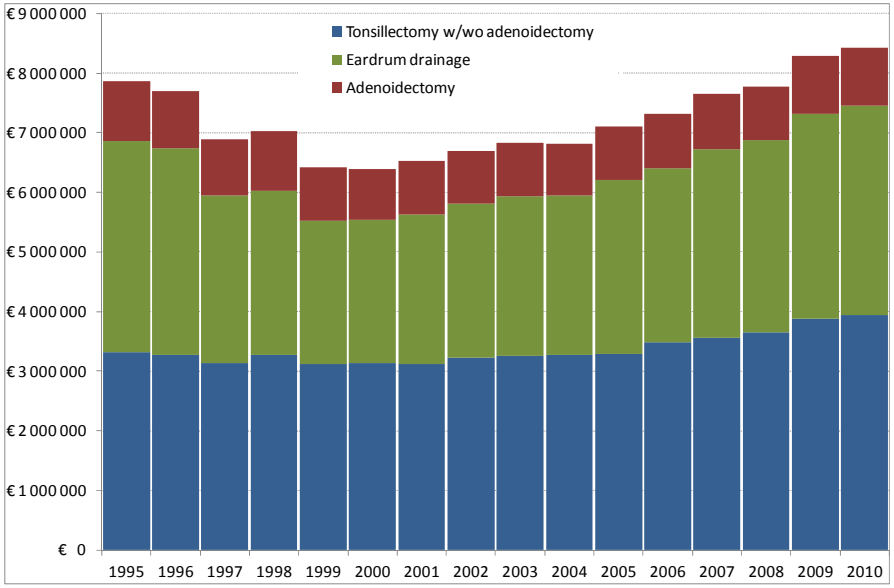
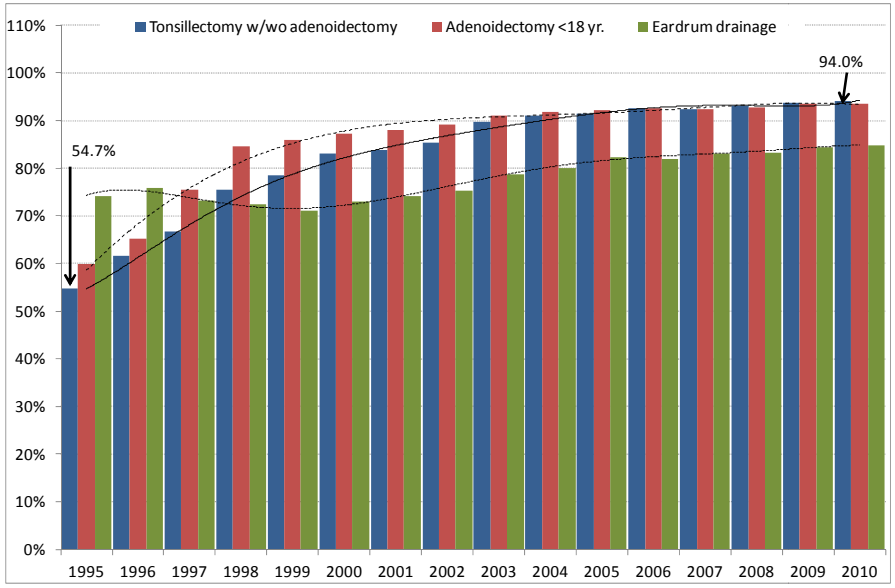


Figure 108 – Annual A-code fractions for three frequent ORL intervention groups, 1995-2010



If we isolate the 3 tonsillectomy codes (see Table 27), however, we see a definite pattern of shift from inpatient to day-care (Figure 109).

Figure 109 – Annual Doc N A- and H-code counts for tonsillectomy subgroup, 1995-2010

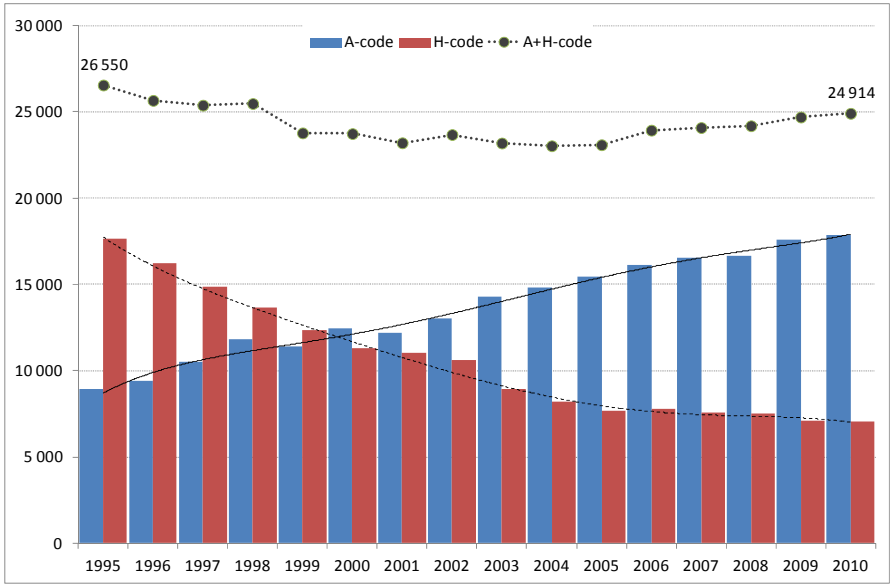


Figure 110 shows us no indication of shift tendencies towards ambulatory care (parallel trend lines) for the tonsillectomy group, even if this intervention has a relative value less than K 120 (under hospital confinement threshold). Convergent trend lines are however obtained in the tympanostomy drainage group (even if coefficient value is K 70 - Figure 111).

Figure 110 – HBR day-care versus Doc N A-code tonsillectomy counts, 2004-2009

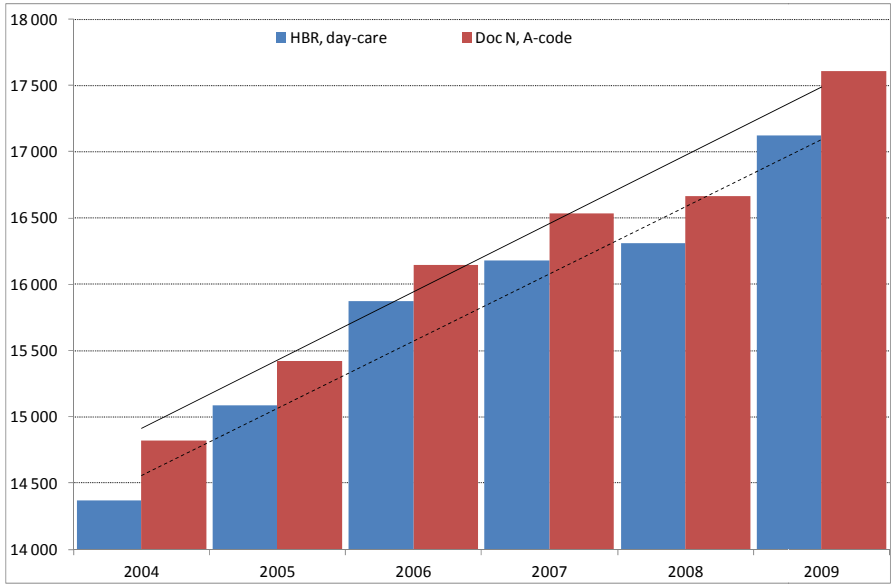
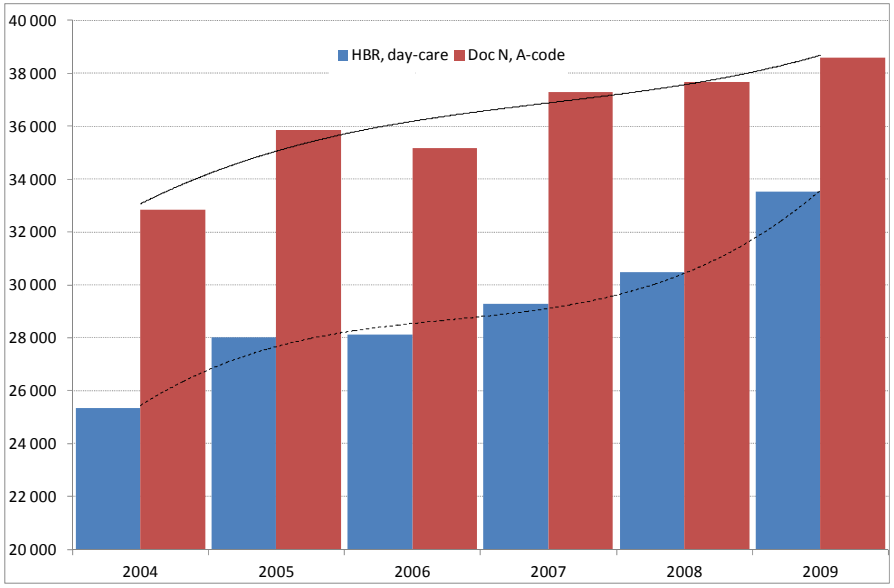


Figure 111 – HBR day-care versus Doc N A-code counts for tympanostomy drainage, 2004-2009



This trend to a shift from ambulatory to day-care has definitely been boosted by the 2007 uptake of tympanostomy drainage in the day-care lump sum system: from Mini lump sum to – much higher priced – group 7 (see Table 4).

6.3.12 *Subcutaneous portal system implant for administration of medication*

In medicine, a port (commonly referred to as portacath) is a small medical appliance that is implanted beneath the skin along with a catheter connecting the port to a central vein. Different brands are on the market[30], but all have, under the skin, a thick silicone septum through which drugs can be injected and blood samples can be drawn repeatedly, usually with less discomfort for the patient than a more typical "needle stick". Ports are typically used to treat haematology and oncology patients who require frequent blood sampling. Recently ports have also been adapted for haemodialysis patients[31]. The more scientific term ”totally implantable venous access system” (TIVAS) is also used.

In Belgium the device has become quite popular since the early nineties (Figure 112) and both inpatient and ambulatory cases increased strongly until 2007. From 2006 onwards there is a shift from inpatient to day-care, but smaller than the growth of day-care. The uptake of the procedure code in the BFM – BMF List A in 2002 has definitely created an incentive for shifting from ambulatory care towards intramural day-care (Figure 113). This trend seems to stabilise after 2007. Reimbursements per fiscal year are shown in Figure 114.

Figure 112 – Doc N A-code and H-code counts for subcutaneous portal implant, 1990-2010 (fiscal years)

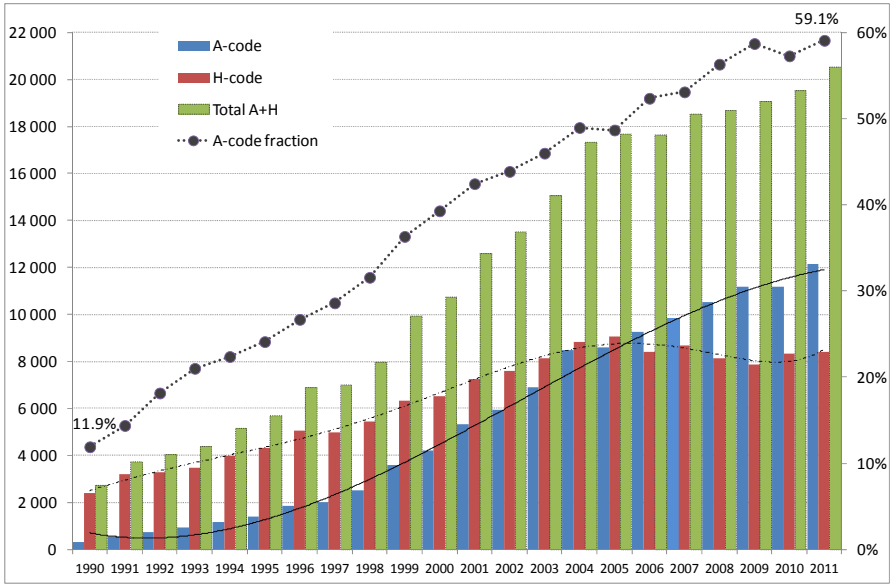


Figure 113 – Doc FH versus Doc N A-code counts for subcutaneous portal implants, 2000-2010

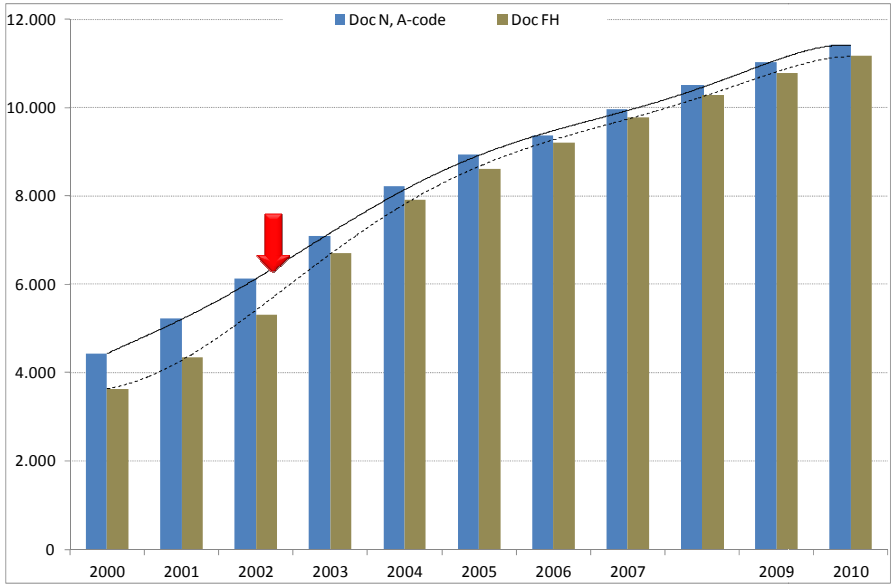
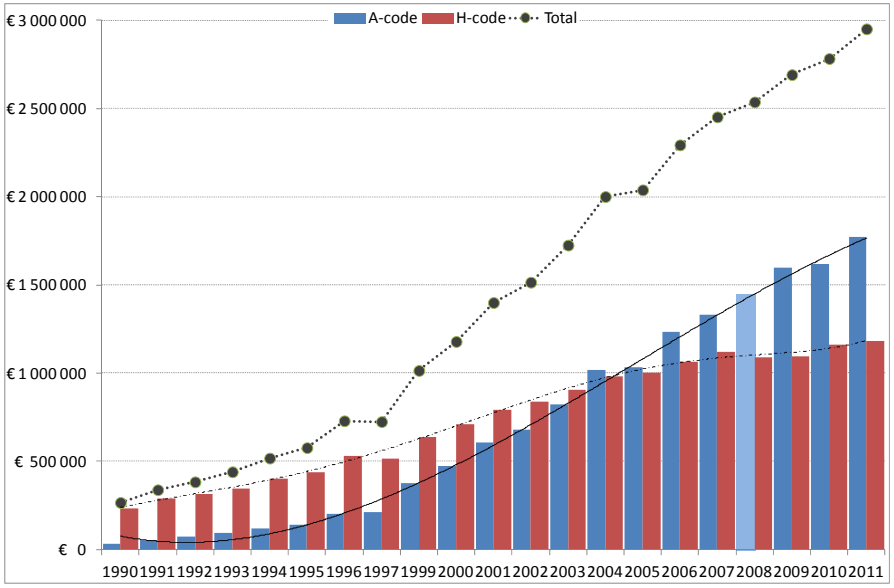


Figure 114 – Doc N A-code and H-code budgets for subcutaneous portal implant, 1990-2010 (fiscal years)



6.3.13 Therapeutic epidural infiltration

In minimal-invasive treatment for back pain local anaesthetic and anti-inflammatory drugs are injected through puncture needles carefully inserted to the 'locus dolentiae' (painful lesion). Common targets are the intervertebral facet joints of the cervical or lumbar spine and the ileo-sacral joints. A similar injection therapy is applied in case of nerve roots irritated by protruded discs or stenoses of the intervertebral foramina (sciatic pain). This peri-radicular therapy (PRT) consists of epidural infiltration, under fluoroscopy or CT guidance, of the tissues surrounding the affected nerve root. Besides compression, an inflammatory aetiology is also suspected, which has stimulated the use of epidural corticosteroids as a treatment, usually in conjunction with long acting local anaesthetics.

The technique has a long standing history going back to the early sixties of the previous century, internationally as well as in Belgium. However, only starting on 1 July 2007 two specific RIZIV – INAMI reimbursement code

pairs, one for lumbar and the other for cervico-thoracal infiltrations, were introduced and added to the group 3 chronic pain lump sum nominative list. Before this date the procedure had to be billed under the (non-specific) label of a paravertebral infiltration (PVI) with a reimbursement code 144292_144303, accessible to GPs as well as specialists and a very low fee (€6.67 in 2007). The code pair was rescinded on 1 July of that year.

The vast majority (around 95%) of reimbursed therapeutic epidural infiltrations is billed as day-care procedures and they show a striking rise in both counts (Figure 115) and reimbursements (Figure 116) since their introduction in July 2007, but from 2008 on further ascent slowed down to approximately 3% per year. Doc FH day-care counts parallel Doc N A-code counts, indicating no particular direct shifting from ambulatory to day-care (Figure 117). Yet, and somewhat contrary to our initial warning not to focus on absolute numbers, we cannot help noticing the remarkable gap between the two data sources, certainly since refund conditions for the two epidural infiltration codes impose hospital confinement. Consequently, on a formal base all Doc N A-code counts should be in day-care. Since Doc N data do not include identification of the site where procedures were performed, we were not able to verify if the latter condition was always met. This could be a task for DGEC – SECM officials.

Figure 115 – Doc N combined code counts and A-code fractions (%) for epidural infiltrations, 2007-2010 (42 months)

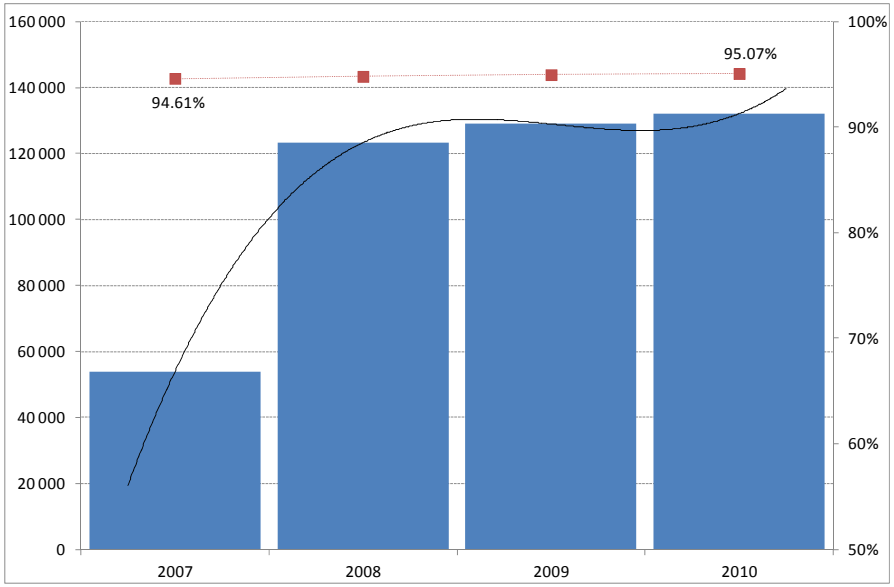


Figure 116 – Doc N combined code reimbursements for epidural infiltrations, 2007-2010 (42 months)

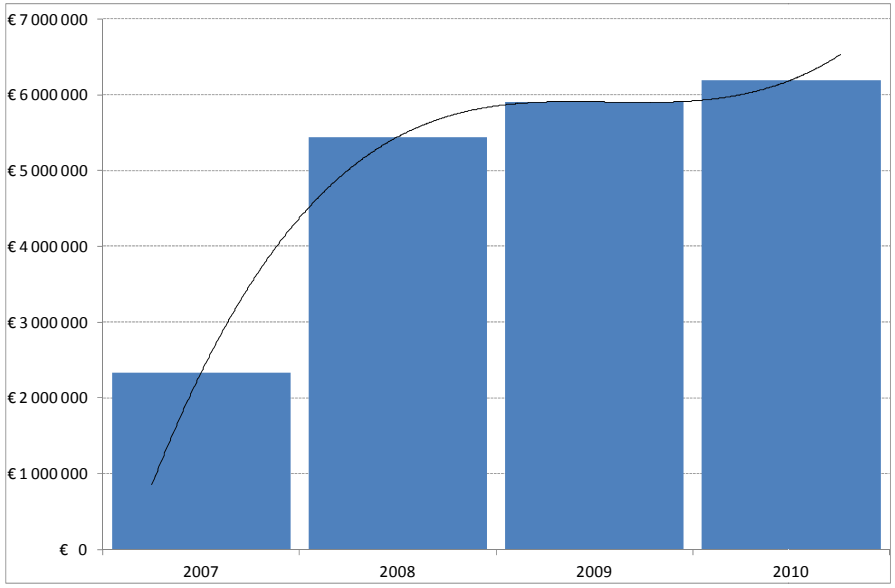
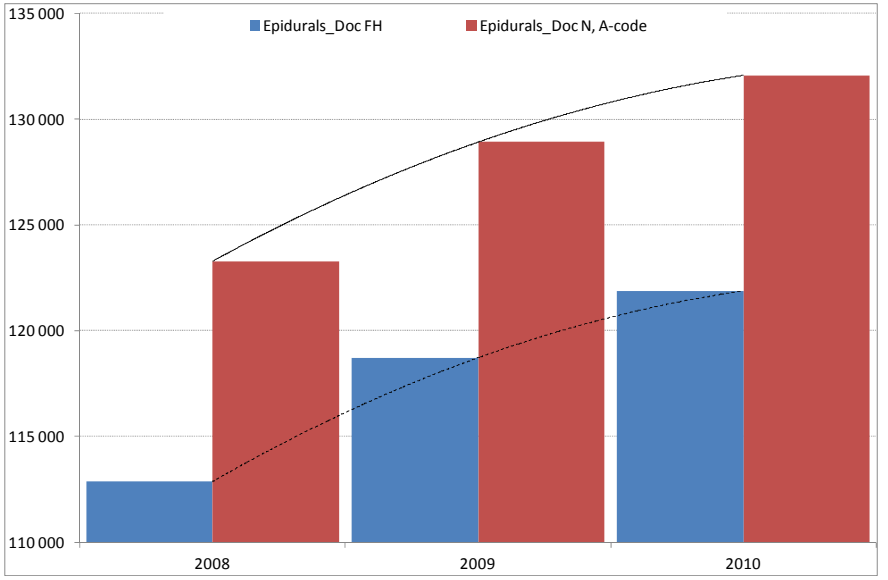


Figure 117 – Doc FH versus Doc N A-code counts for epidural infiltrations, 2008-2010



Next, there is another phenomenon we should look at: what about PVI counts before the advent of specific PRT codes? Doc N extractions for the former are shown in Figure 118 (counts) and Figure 119 (reimbursements). Taking both, old PVI codes and new PRT codes together we see a rather spectacular descent of combined counts (Figure 120). Yet, looking at combined budgets (Figure 121), we see quite an inverse phenomenon. It seems clear that we face here another kind of indirect extramural to intramural shift, by way of switch over from old to new codes. Indeed, PVI was a predominantly ambulatory procedure (nearly 99% of counts in 2006-2007[aa]) and the PRT is, by rule, intramural. Such indirect shifts are of course in a sense induced by regulatory changes, in present case

aa We counted PVI cases in 2006-2007 day-care HBR data at our disposal and corrected for incompleteness: overall 82.2% of all day-care stays. Expressed in fraction of 2006-2007 Doc N A-code counts we found 99% ambulatory (range= 98.77-98.99%).

alterations in RIZIV – INAMI nomenclature, with new and above all higher much rated PRT codes.

Figure 118 – Doc N annual counts for paravertebral infiltrations, 1995-2010

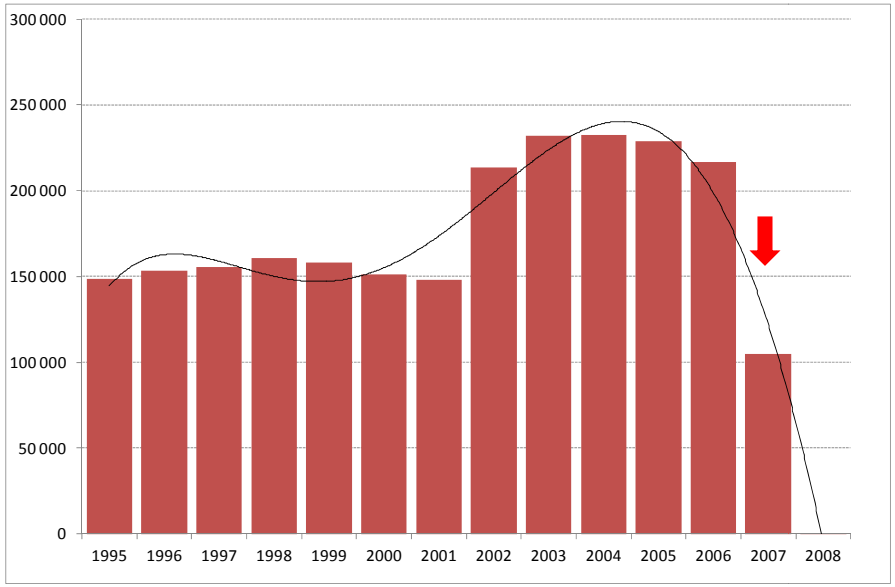


Figure 119 – Doc N annual reimbursements for paravertebral infiltrations, 1995-2010

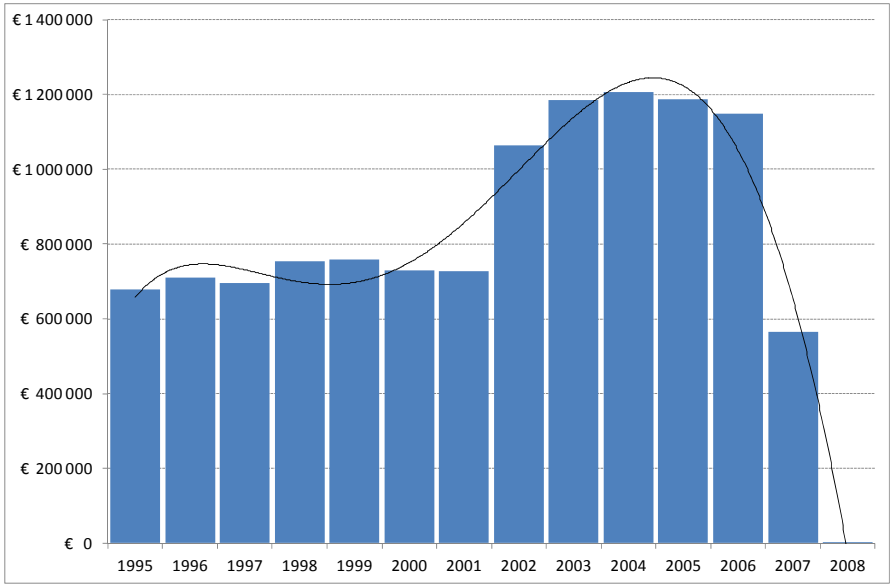


Figure 120 – Doc N annual counts for therapeutic epidural and paravertebral infiltrations combined, 1995-2010

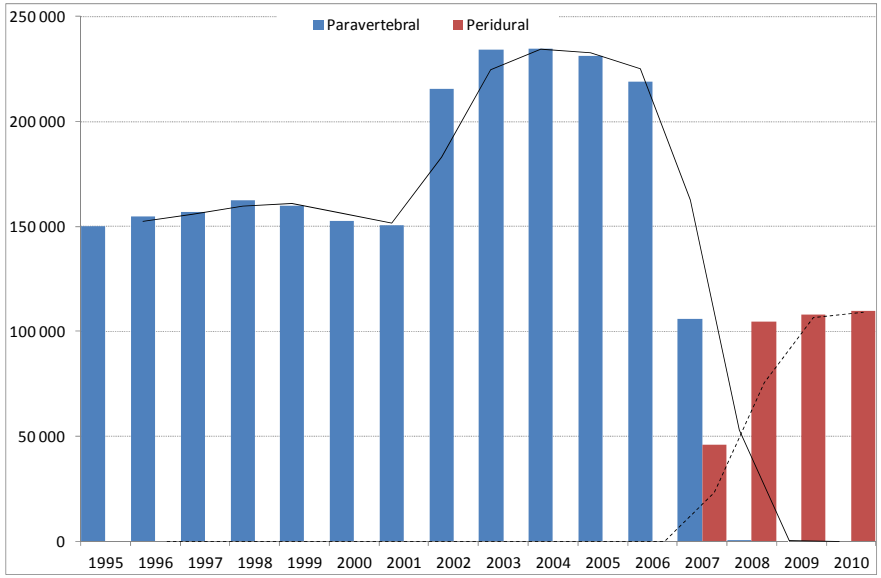
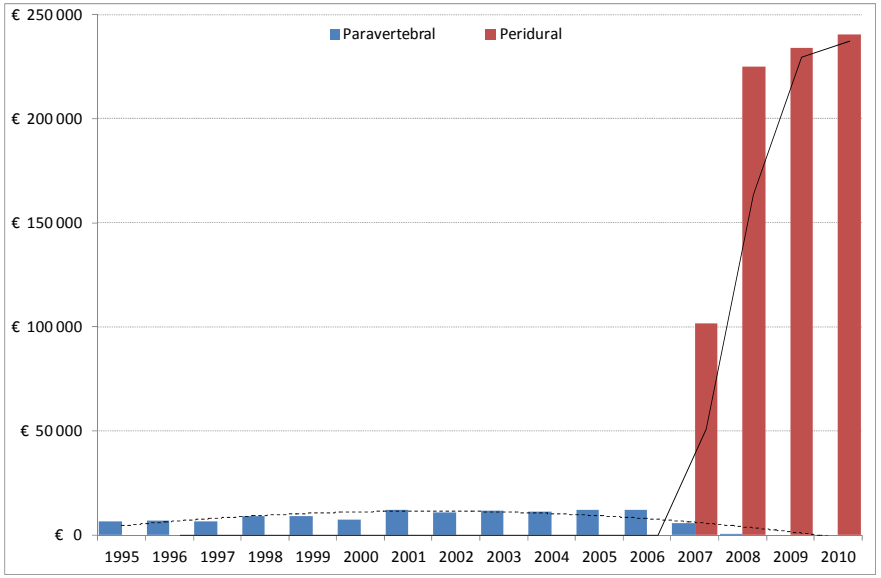


Figure 121 – Doc N annual reimbursements for therapeutic epidural and paravertebral infiltrations combined, 1995-2010



6.3.14 Varicose vein surgery

Varicose veins are most commonly known to occur in the superficial veins of the legs, related to intravascular pressure rising in the upright position. Besides being a cosmetic problem, varicose veins, in more advanced stages, can cause complaints of weariness and even aching in the legs, especially when standing. Veins have leaflet valves to prevent blood from flowing backwards (retrograde flow or reflux). Leg muscles, on exercise, 'massage' the veins helping the blood to ascend to the heart against gravitational forces (the calf muscle pump mechanism). When the leaflets of the valves no longer fit close, causing the valves to not work properly (valvular incompetence), the veins dilate and gradually become varicose. This allows blood to flow backwards causing the veins to enlarge even more. Severe long-standing varicosis can lead to leg swelling, venous eczema, skin thickening (lipo-dermatosclerosis) and ulceration. Superficial thrombophlebitis is a common, acute inflammatory complication that, if

expanding to the deep venous system, eventually can cause pulmonary embolism by dislodged blood clots.

Nonsurgical treatments include sclerotherapy, external compression stockings, leg elevation and exercise. The traditional surgical treatment has been vein stripping to remove the affected veins. Newer, less invasive treatments which seal the main leaking vein are available (leaflet reconstruction). Alternative techniques, such as ultrasound-guided foam sclerotherapy, radiofrequency ablation and endovenous laser treatment, are available as well[32]. Because most of the blood in the legs is returned by the deep veins, the superficial veins, which return only about 10 per cent of the total blood of the legs, can usually be removed or ablated without serious harm to the effective circulation.

For surgical extirpation or ablation of lower limb varicose veins RIZIV – INAMI provides a set of nine billing code pairs (Table 28), depending on the extent of the intervention represented by its coefficient value. Codes can be classified into three surgery classes: minor, medium and major. Somewhat strangely only four code pairs are listed in the day-care surgery list (BFM A-list), whereas three others are listed in day-care Group 6 (commonly referred to as 'non-surgical' day-care). The lightest (ligature, fulguration or resection of 1 varicose vein) and the heaviest (resection of sapheno-femoral junction with total extirpation of one saphenous vein and dermo-epidermal skin grafting, which shows very low frequencies) do not appear in any day-care lump sum list.

Table 28 – RIZIV/INAMI nomenclature for varicosis surgery

Codes	Label	List	Key coeff	Range	Surgery class
238070 238081	Ligature, fulguration or resection, 1 varicose vein	None	N 50	N50-N90	Minor
238092 238103	Ligature, fulguration or resection, 2 to 3 varicose veins	Group 6	N 90	N50-N90	
238114 238125	Ligature, fulguration or resection, > 3 varicose veins	List A	N 125	N125	Medium
238136 238140	Total extirpation of short saphenous vein	Group 6	N 125	N125	
238151 238162	Resection of the cross of the long saphenous vein	Group 6	N 125	N125	
238173 238184	Resection of sapheno-femoral junction with total extirpation of one saphenous vein	List A	N 200	N200-N300	Major
238195 238206	Resection of major saphenous vein cross with ligature, fulguration or step-by-step varicose vein resections	List A	N 200	N200-N300	
238210 238221	Resection of sapheno-femoral junction with total extirpation of both saphenous veins	List A	N 250	N200-N300	
238232 238243	Resection of sapheno-femoral junction with total extirpation of one saphenous vein and dermo-epidermal skin grafting	None	N 300	N200-N300	

Nevertheless, any analysis of varicosis surgery should be done on the major + medium grade surgery spectrum together. Annual A- and H-code counts as well as A-code fractions for combined interventions are plotted in Figure 122, corresponding annual reimbursements in Figure 123. We can see a steady ascent of A-code counts, paralleled by an opposite descent of H-code counts, while A+H-code counts remain virtually stable until 2008; illustrating a shift from inpatient to day-care. From 2008 onwards, the growth of day-care is larger than the shift from inpatient to day-care. A-code fractions rose from 44.9% in 2000 to 86.5% in 2010.

Figure 122 – Doc N annual A- versus H-code counts and A-code fractions for combined lower limb varicosis surgery, 2000-2010

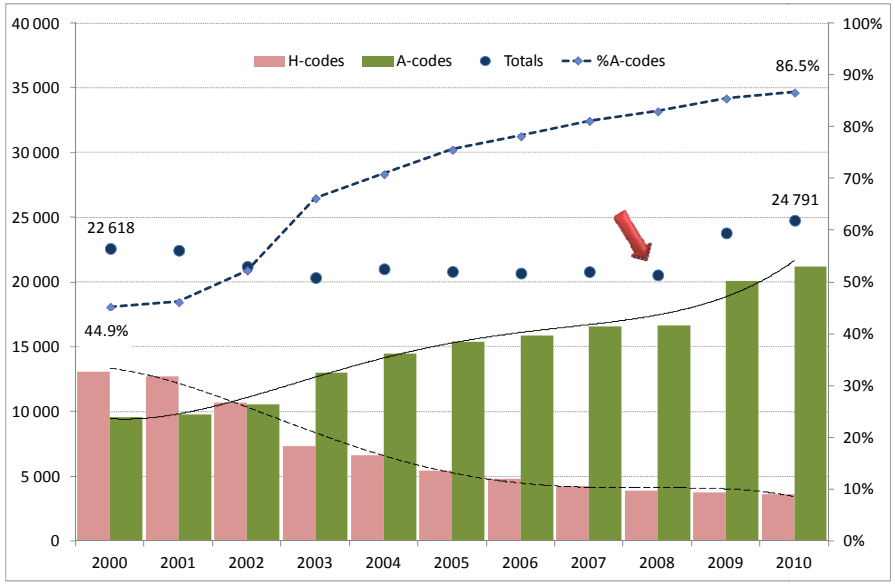
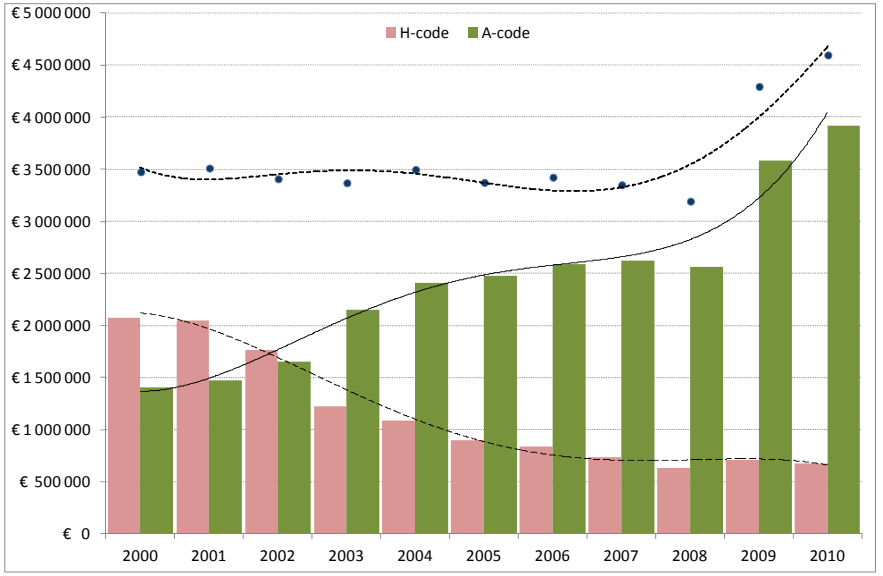


Figure 123 – Doc N annual A- and H-code reimbursements for combined lower limb varicosis surgery, 2000-2010



Looking, however, at the results per surgery class this overall observation can be refined. As for counts (Figure 124) and reimbursements (Figure 125), we see that after 2007-2008 there has been a clear swing from (decreasing) medium and minor surgery counts to sharply rising major surgery counts. All classes show an increase in A-code fraction, but this is most pronounced in medium and even more in major surgery cases (Figure 126), whereas for minor surgery there is undoubtedly a ceiling effect, i.e. very little margin to further growth. If we classify per lump sum group (Figure 127) we see a marked ascent of BMF – BMF List A interventions with two periods of particular boost: the 2002-2003 transition (start of surgical day-care lump sum) and the 2007-2008 transition (July 2007 reform). The latter has another particularity: while BMF – BMF List A counts go up, group 6 counts stagnate and even show a tendency to wane. Since day-care surgery definitely has a better refunding than fixed group 6 lump sum, a shift towards more (anatomically) extensive treatments (becoming less cumbersome for patients with the introduction

of newer, less invasive techniques, resulting in less denial of the surgery option), can be suspected.

Figure 124 – Doc N combined annual A- and H-code counts for lower limb varicosis surgery – per surgery class, 2000-2010

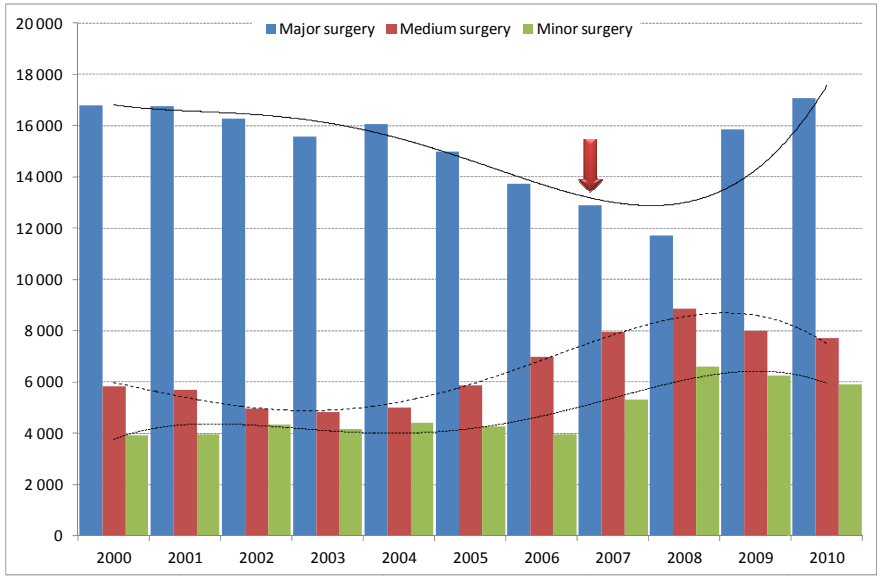


Figure 125 – Doc N combined annual A- and H-code reimbursements for lower limb varicosis surgery – per surgery class, 2000-2010

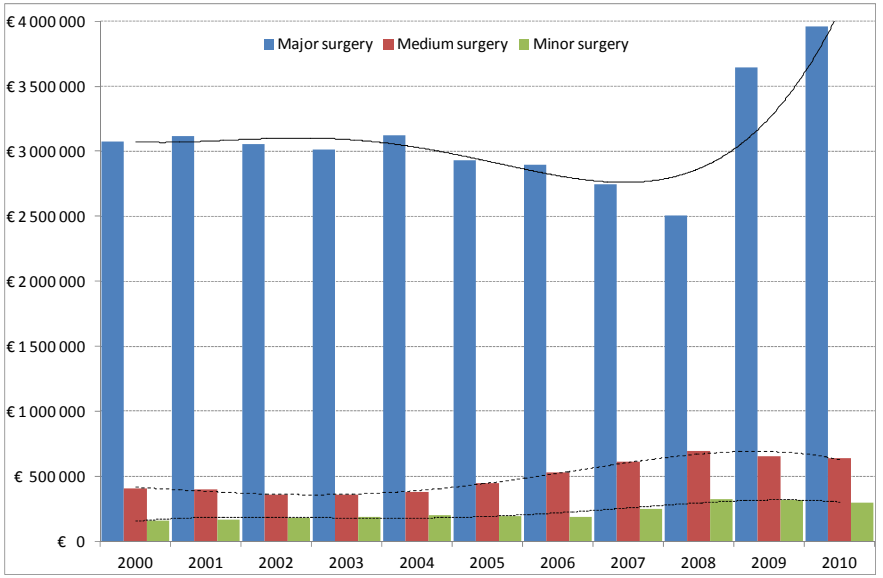


Figure 126 – Doc N annual A-code fractions for lower limb varicosis surgery – per surgery class, 2000-2010

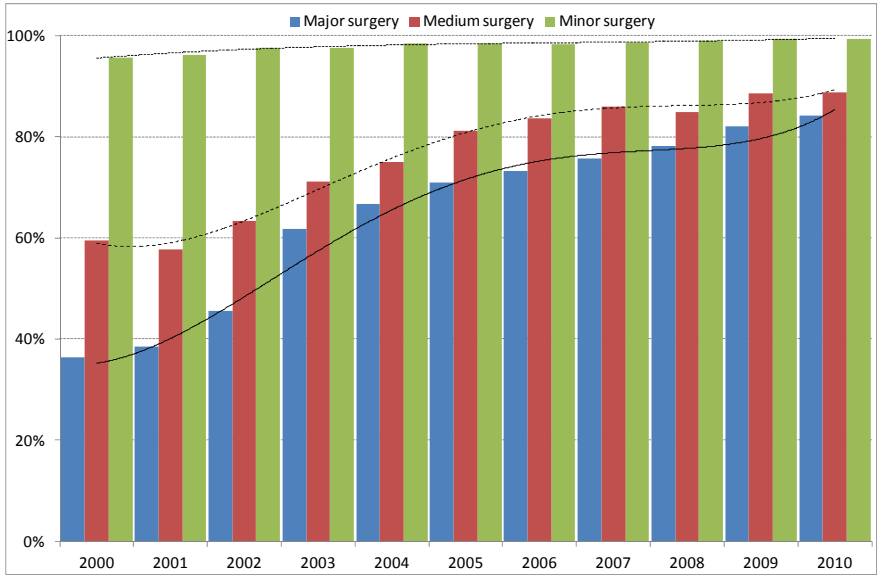
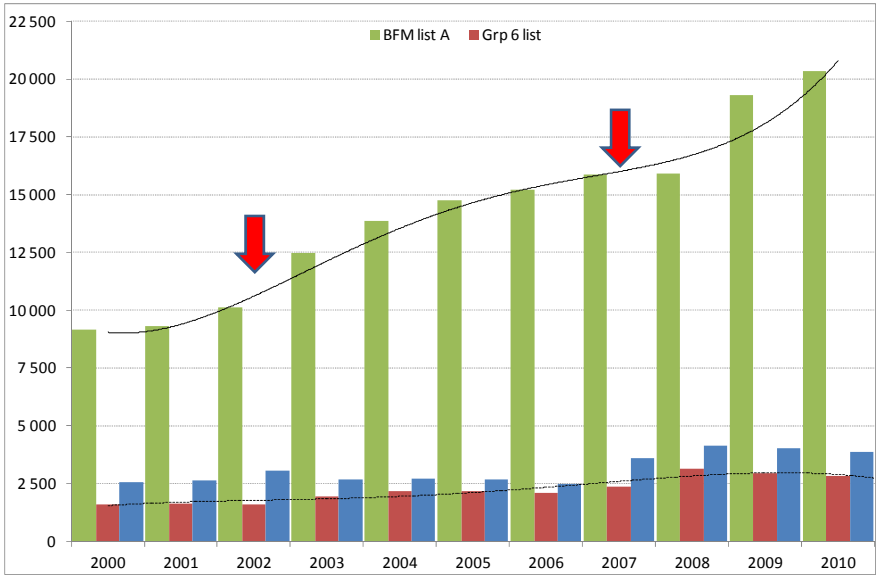


Figure 127 – Doc N annual A-code counts for lower limb varicosis surgery – per day-care lump sum list, 2000-2010



This presumption finds some additional grounding when investigating possible shifts from extramural to intramural care or vice versa. While trend lines for Doc N A-code versus HBR day-care counts for major grade lower limb varicosis surgery (Figure 128) virtually overlap (indicating absence of shifts), this is clearly not the case for medium grade lower limb varicosis surgery (Figure 129): trend lines diverge, starting in 2005 and certainly after 2008. Moreover, all medium grade interventions have a coefficient value under N200 (all are N 125 actually – see Table 28), which is under the ”hospital confinement” threshold.

In summary, varicose surgery has followed the general trend of a shift from inpatient care to day-care. Yet, disparate lump sum regimes – surgical day-care for major surgery and group 6 lump sum for medium grade surgery – may have induced a shift from the latter (less refund claims) to the former (more claims).

Figure 128 – Doc N A-code versus ADH day-care counts for major grade lower limb varicosis surgery, 2004-2009

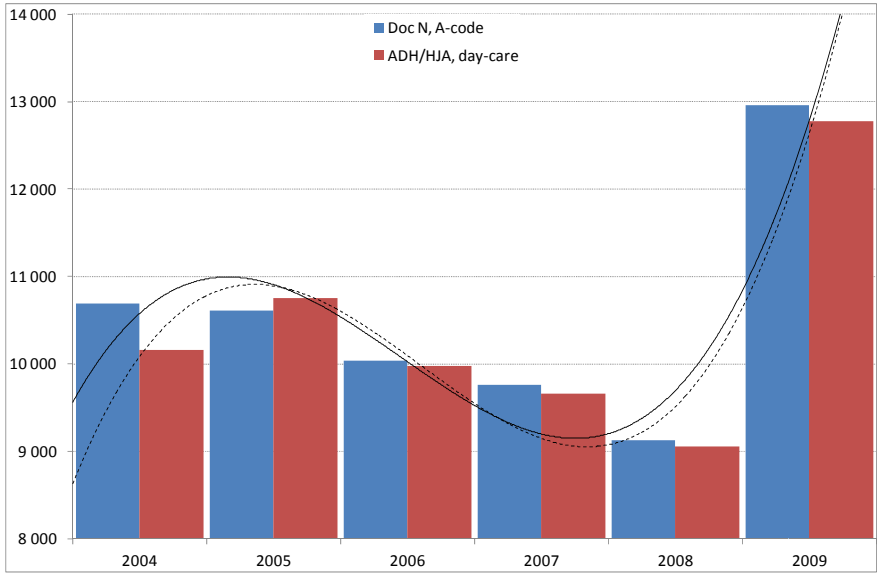
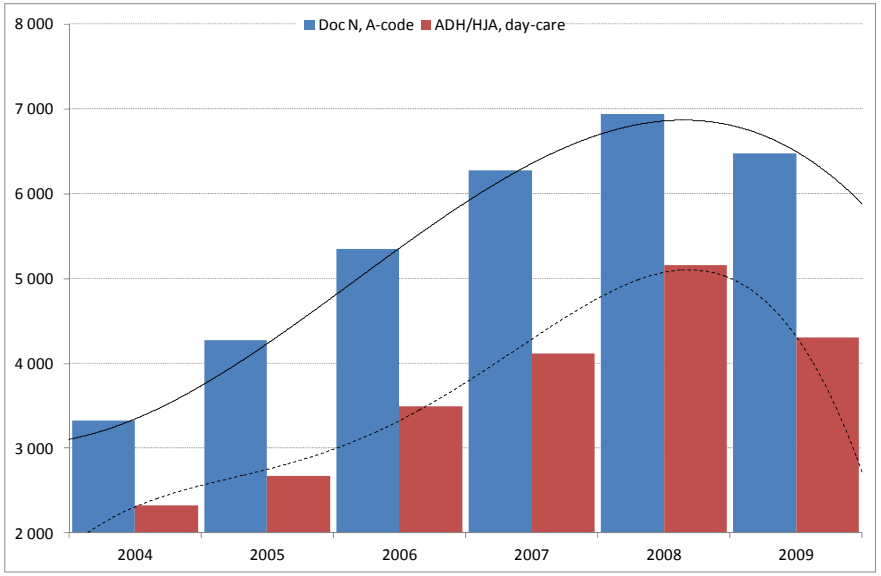


Figure 129 – Doc N A-code versus ADH day-care counts for medium grade lower limb varicosis surgery, 2004-2009



6.3.15 Removal of intra-corporeal osteosynthesis material

It has been since many decades standard practice to treat (dislocated) fractures of (long) bones with rigid plate and screw fixation. The technique began[33] in 1886 when the Hamburg surgeon Carl Hansmann presented his experiences with the plate and screw system, which he had developed. Subsequently[34], Lambotte in 1909 and then Sherman in 1912 introduced their versions of the internal fracture fixation plate. Because of the high rate of complications, especially pseudo-arthrosis, plate and screw osteosynthesis was not generally accepted for a long time. This changed when the Belgian surgeon Robert Danis in 1949 introduced the principle of axial compression of the fracture ends. Other techniques of fracture repositioning and immobilization are the intra-medullary nailing[35], cortical screwing or external fixation[36].

Intra-corporeal osteosynthesis material (plates & screws, nails, rods,..), unless implanted deeply in the body and difficult to get to, are usually

removed once the fracture has sufficiently healed. RIZIV – INAMI provides a set of five billing code pairs (Table 29), depending on the extent of the intervention represented by its coefficient value. Codes can be classified into two surgery classes: superficial and deep. Only the last category figures in BMF – BMF List A and hence corresponding codes are eligible for day-care surgery lump sums claims.

Table 29 – RIZIV – INAMI nomenclature for removal of osteosynthesis material

Codes	Class	Key coeff	Label	DC financing
280011 280022	Superficial	N 15	Removal percutaneous osteosynthesis material	None
280033 280044	Superficial	N 30	Removal subcutaneous osteosynthesis material	None
280055 280066	Deep	N 100	Removal deep osteosynthesis material : screws, steel wire or bone staples	DC surg
280070 280081	Deep	N 150	Removal deep osteosynthesis material : intra-medullary nails of femur neck	DC surg
280092 280103	Deep	N 200	Removal deep osteosynthesis material : plates ± nails	DC surg

Annual Doc N A- and H-code counts for deep and superficial groups are presented in Figure 130, reimbursements in Figure 131. Evidently reimbursements for removal of deep osteosynthesis material exceed by far those of the superficial group. Differential A- and H-code counts for the former show a quite familiar constellation (Figure 132): swift ascent of A-code volumes and descent for H-codes, indicating once more a shift from inpatient to day-care. A-code fractions evolved from 40% in 1995 to 71% in 2010 (Figure 132). Comparing trend lines of Doc N A-code counts to HBR day-care counts does not reveal significant tendencies for ambulatory to day-care shifting (Figure 133).

Figure 130 – Doc N A- and H-code counts for removal of deep versus superficial osteosynthesis material, 1995-2010

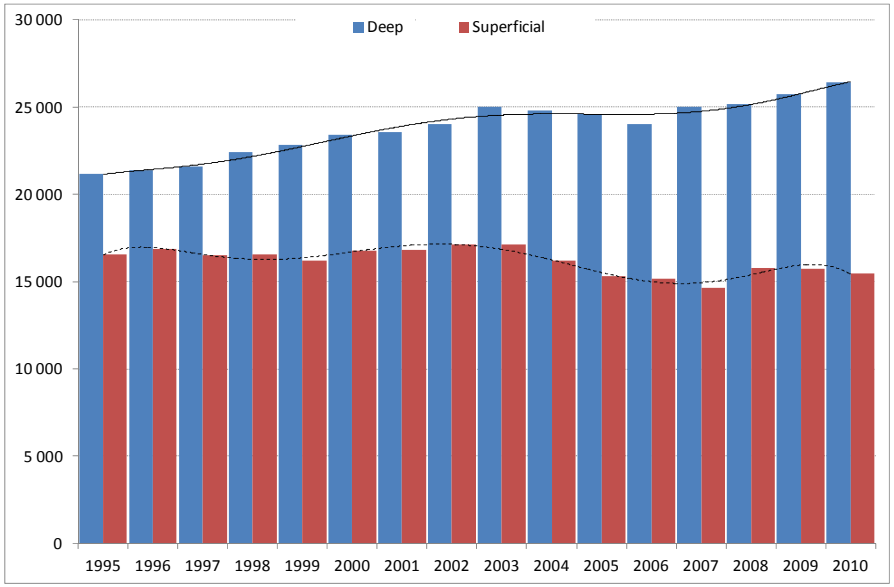


Figure 131 – Doc N A- and H-code reimbursements for removal of deep versus superficial osteosynthesis material, 1995-2010

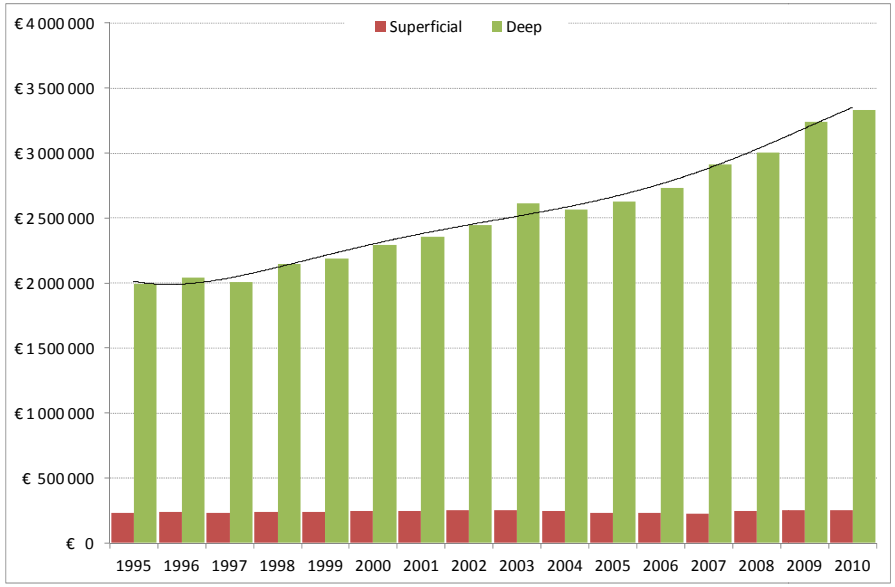


Figure 132 – Doc N A- versus H-code counts for removal of deep osteosynthesis material, 1995-2010

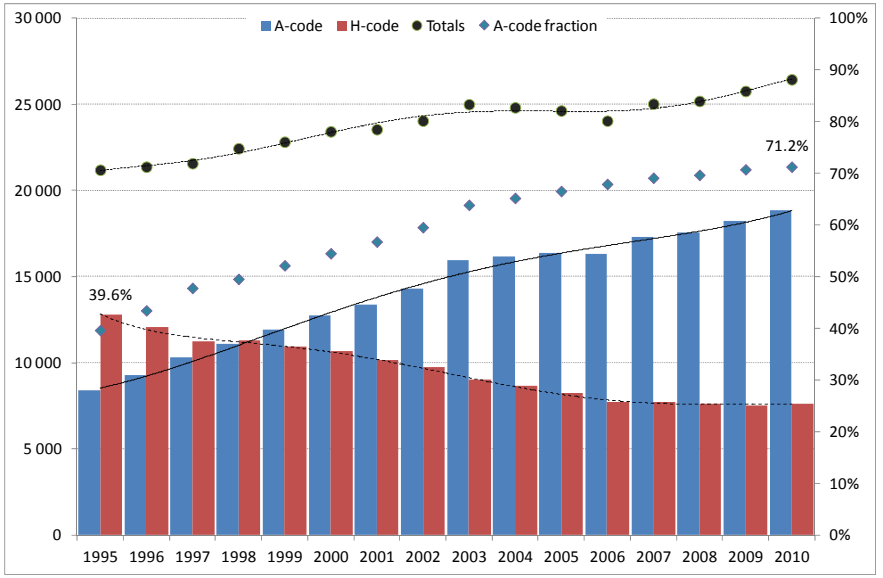
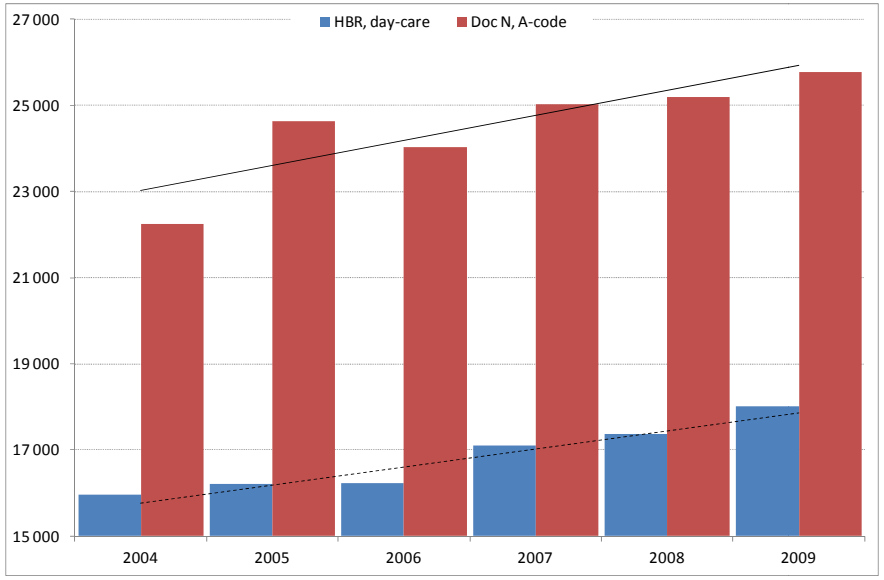


Figure 133 – Doc N A-code versus HBR day-care counts for removal of deep osteosynthesis material, 2004-2009



6.3.16 Cardio-angiography: angiocardio-pneumography and coronarography

The following cardio-angiography study is, in present context, a rather peculiar case, since it does not involve considerable day-care volumes, as we will discuss further. Nevertheless, the case presents some interesting aspects at micro-level concerning complex coding rules and ensuing managerial problems.

Angiocardio-pneumography (ACPG) is a rather intricate designation for a roentgen imaging procedure using catheter contrast injection[37] that, in fact, covers 2 usually successive cinematographic phases: (1) an in principle right sided ventriculography aiming at visualizing morphologic disorders of the ventricle of the heart as e.g. with congenital heart disease and (2) a right sided outflow tract angiogram for detection of morphological disorders of the pulmonary artery system, such as pulmonary AV malformations and various other indications, congenital or not. Hence, right ventriculography (1st phase) and pulmonary angiography or arteriography (2nd phase) are frequently used shorter and more directly understandable' synonyms for a technique that, in both indications, essentially is the same: right sided contrast injection into the heart through a central venous approach.

RIZIV – INAMI nomenclature provided (till 1 January 2012) 2×2 code pairs for ACPG: (1) for cardiologists: 464074_464085 for single angle angiographies and 464096_464100 for bi- or multi-angle angiographies and (2) for radiologists: 453073_453084 for single angle angiographies and 453095_453106 for bi- or multi-angle angiographies. All four were introduced on 1 November 1994 but Doc FH data proved procedures were predominantly performed by cardiologists (93.5%).

The isolated ACPG A-code fractions plot in (black line in Figure 60) shows an odd, excavated course, that raises some questions. There is, however, a much wider angle to consider: the angiocardio-pneumography technique indeed appears to be closely entangled with that of the coronarography. An overview of all ACPG and coronarography codes effective until 1 January 2012 is presented in Table 30, related cardiac catheterization codes are listed in Table 31. In anticipation of high incidences of joint billings a set of "cut off" codes (plafondcodes in Dutch, codes de plafond in French) was simultaneously introduced in 1994. Such cut off codes drew a maximum threshold above which all additional reimbursements were truncated. Before 2006, however, Doc N instructions did not request detailed reporting of underlying angiography codes in cases where the cut off codes were registered, losing by this any direct view on the actual angiography practice. This is the reason why in Doc N prior to 2006 only combined budgets (Figure 134) on the above mentioned codes can readily be extracted. It was not until 2006 that Doc N instructions were adapted, with the introduction of a so called "norm" code, permitting correct direct counting of cases along with correct reimbursement bookkeeping. Before 2006, corrections are to be made to obtain correct counts and derived A- versus H-code fractions (Figure 135). Indeed, if we want to plot ACPG counts separate from coronarographies in Doc N data, we need first to correct counts for the 2 cut off code pairs: one cut off code 464951_464962 in Doc N equals one 464074_464085 (angiocardio-pneumography, single angle) + one 464133_464144 (coronarography, ≤ 2 coronaries, ≥ 2 angles); the same principle applies to the other N720 cut off code. Budget separation, however, remains problematic, since we

would have to decide on a distribution ratio for the cut off codes (0.4-0.6 for N585 budgets and 0.53-0.47 for the N720 budgets).

Table 30 – RIZIV – INAMI codes for conventional cardio-angiographic imaging

Code pair	Short code description	Nominative list	List In	List Out	Key coeff
453073 453084 464074 464085	Angiocardio-pneumography, single angle	Maxi	1 Nov 1994	1 Jul 2007	N300
		Group 3	1 Jul 2007	1 Jan 2012	
464096 464100 453095 453106	Angiocardio-pneumography, 2 or more angles	Maxi	1 Nov 1994	1 Jul 2007	N500
		Group 3	1 Jul 2007	1 Jan 2012	
464111 464122	Coronarography, ≤ 2 coronaries, single angle	Super	1 Nov 1994	1 Apr 1998	N270
		Group D	1 Apr 1998	1 Jul 2007	
		Group 3	1 Jul 2007	1 Jan 2012	
464133 464144	Coronarography, ≤ 2 coronaries, ≥ 2 angles	Super	1 Nov 1994	1 Apr 1998	N450
		Group D	1 Apr 1998	1 Jul 2007	
		Group 3	1 Jul 2007	1 Jan 2012	
464951 464962	Billing maximum per day, N 585 threshold for combination of 464074_464085 and 464133_464144	None			N585
464973 464984	Billing maximum per day, N 720 threshold for combination of 464096_464100 and 464133_464144	None			N720

Table 31 – RIZIV – INAMI codes for related cardiac catheterizations

Code pair	Short code description	Start code	End code
476151 476162	Computerized calculations of left ventricular functions	1 Apr 1985	1 Mar 2001
476173 476184	Quantitative computer analysis of ventriculogram with calculation of at least ESV, EDV and EF	1 Apr 1985	1 May 2007
476195 476206	Cardiac catheterization in view of angiocardio- or angiopneumographies	1 Apr 1985	1 Jan 2012

Figure 134 – Doc N national budgets for ACPG and coronarography combined, 1995-2010

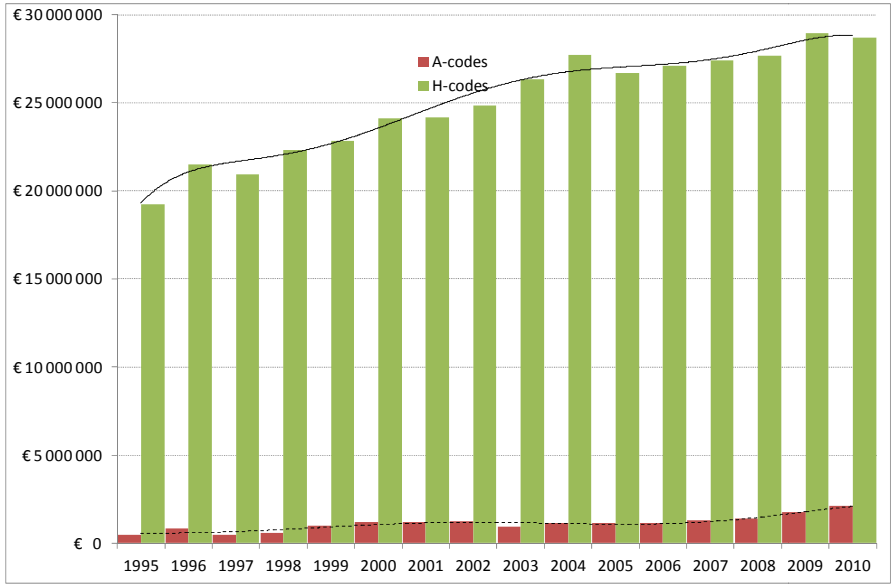


Figure 135 – Doc N national counts for ACPG and coronarography combined, 1995-2010

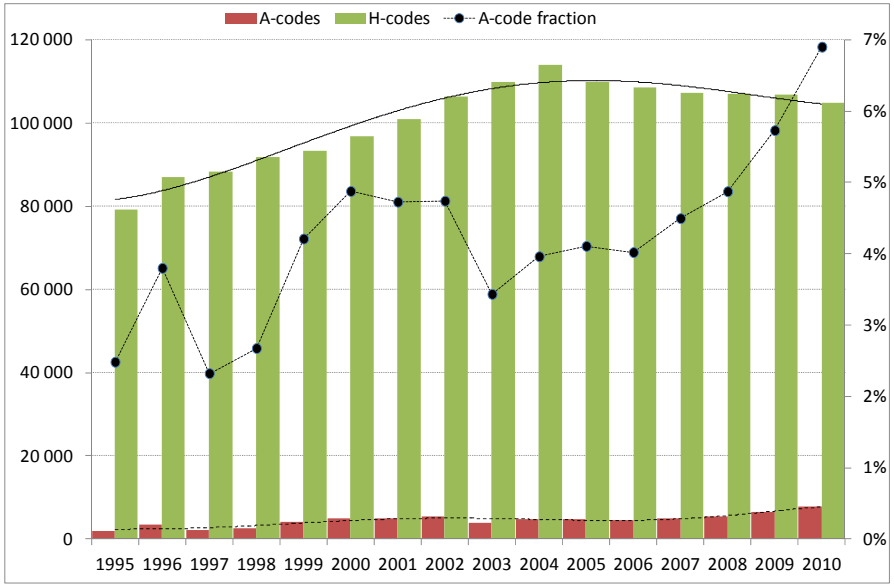
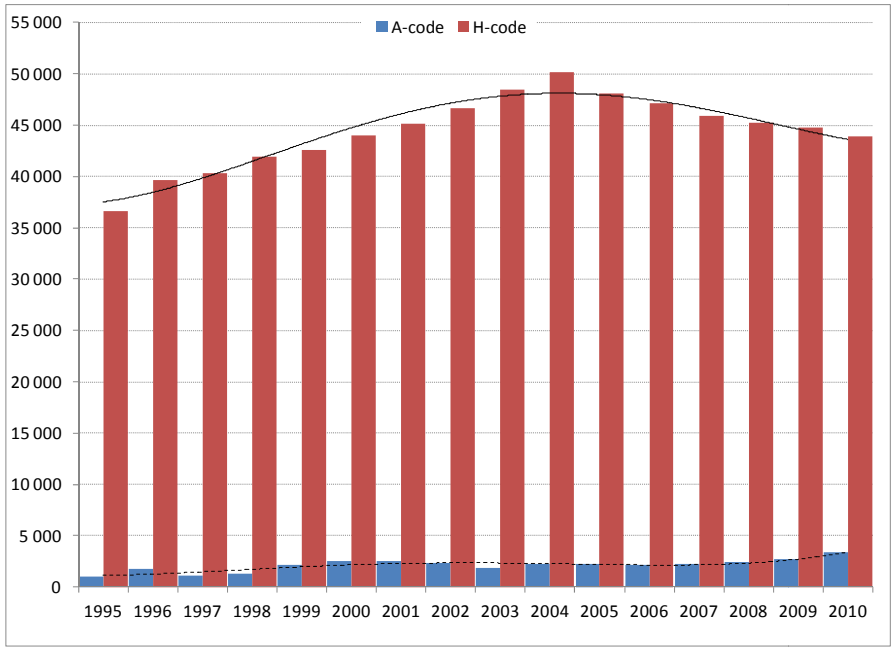


Figure 136 shows us the corrected Doc N counts for A- and H-code ACPG performed by cardiologists over an eleven year interval (2000-2010 data). The H-code trend line in this last plot reveals two apparent parts: the first shows an upwards slope till 2004 and the second goes downwards from 2005 on. What happened? Inquiry at concerned RIZIV – INAMI officials learns that in the 2005-2007 era there has been a lot of dispute in the circle of concerned medico-technical committees of both radiologists and (interventional) cardiologists, based on a warning report issued[bb] by RIZIV – INAMI officials (DGEC – SECM) on observed high frequencies (73%) of joint ACPG and coronarography reimbursement claims by (interventional) cardiology centres in the 2003-2004 inpatient hospital billing data (AZV – SHA - day-care data were not readily available at that

[bb] 17 August 2006; ref: : 4221-HQ-D/06001739-1

time). Based on those findings DGEC – SECM had started an inquiry and feedback campaign at outlier cardio-catheterization centres in the 2005-2006 eras. The same report also mentioned the ubiquitous association of related cardiac catheterization codes 476055-476066 (left sided heart catheterization) and 476173-476184 (quantitative analysis of left ventriculogram incl. calculation of ejection fraction, rescinded on 1 May 2007) with coronarographies. Both seem medically justified, but, above that, some hospitals showed a high occurrence of additional code 464236 – 464240 claims in conjunction with coronarography, which they justified by the fact that renal angiographies were needed for patients suffering from serious hypertension (15% of patients in one major centre). We may conclude that the angiocardio-pneumography technique is indeed closely entangled with that of the coronarography.

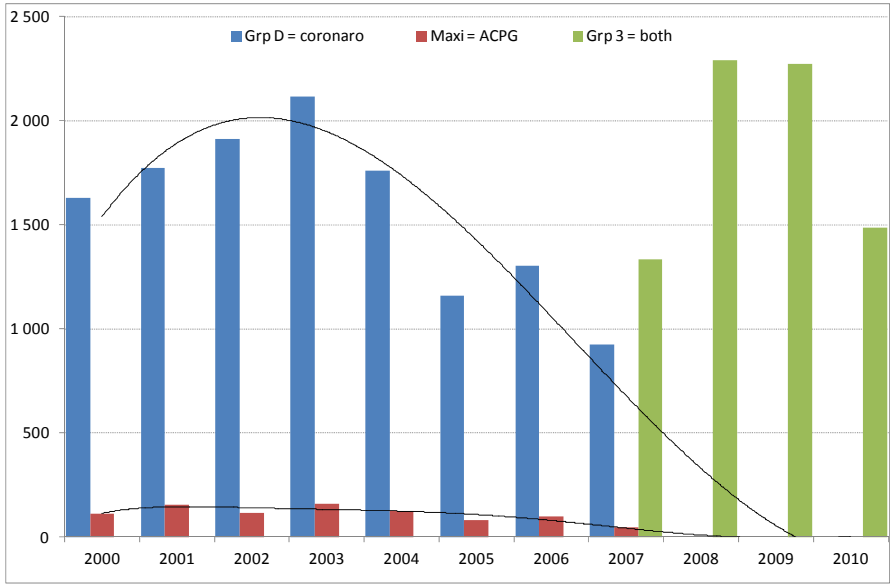
Figure 136 – Doc N A- and H-code counts (corrected) for angiocardio-pneumography by cardiologists, 2000-2010



There are some other important issues to emphasise concerning this group of codes:

1. Rather surprisingly ACPG show better reimbursement rates than coronarographies (see Table 30). In Figure 137 we looked at both ACPG and coronarographies in Doc FH data (i.e. day-care): since July 2007 all ACPG as well as all coronarographies were billed under group 3 lump sums and group 3 rates are the highest (see Table 4). Before this last date coronarographies were found under the group D lump sum (at present rescinded but also high rated), while ACPG appeared in the Maxi lump sum group.
2. The descriptions of the above mentioned ACPG codes do not explicitly state right nor left entrance way to the heart, leaving space for creative interpretation, one of the grounds for the above mentioned warning signals issued by DGEC – SECM officials. In the clinical area we notice that a left ventriculography performed during a coronarographic investigation is considered a correct clinical indication by Belgian cardiologists, arguing that it reveals ventricular ejection fraction (EF), and thus ventricular function, as well as potential aortic valve (dys) functioning.

Figure 137 – Doc FH evolutions of day-care ACPG & coronarography separately, 2000-2010



If we look at day-care counts per hospital for ACPG and coronarography in Doc FH data, we find that ACPG and coronarographies were registered by 82 different hospitals[cc]. However, 78% of all coronary and 80% of all pulmonary angiograms were claimed by 32 hospitals (Figure 138). This seems logical since ACPG requires the presence of a cardio-catheterisation roentgen lab, and those are confined by federal planning to hospitals having at least a B qualification. Nevertheless, it is certainly striking that 28 of the 32 hospitals (87.5%) having both ACPG and coronarography billings are in the Flanders region of our country and only 2 in the Wallonia region and 2 in the Brussels Capital region. This suggests regional divergences on either indications, either interpretation of RIZIV – INAMI labelling of ACPG codes (not explicitly mentioning only right sided ventriculography is intended).

[cc] As opposed to only 48 recognised B cardiology centers in 2009, 41 in 2010. Since ACPG and coronarography both need a catheterisation lab infrastructure that only can be found in hospitals with a B-type recognition, we have great difficulties in assuming that the other interventions would be performed (and billed) outside such confinement (explaining the other 22%/20% respectively). A possible explanation could be that B-centers, all having joint venture agreements with surrounding not B-equipped hospitals and thus offering their facilities to invited cardiologists, leaving billing of lump sum code with its related code to the invited cardiologist.

Figure 138 – Doc FH counts for day-care angiocardio-pneumography or coronarography for top 32 hospitals, 2000-2010

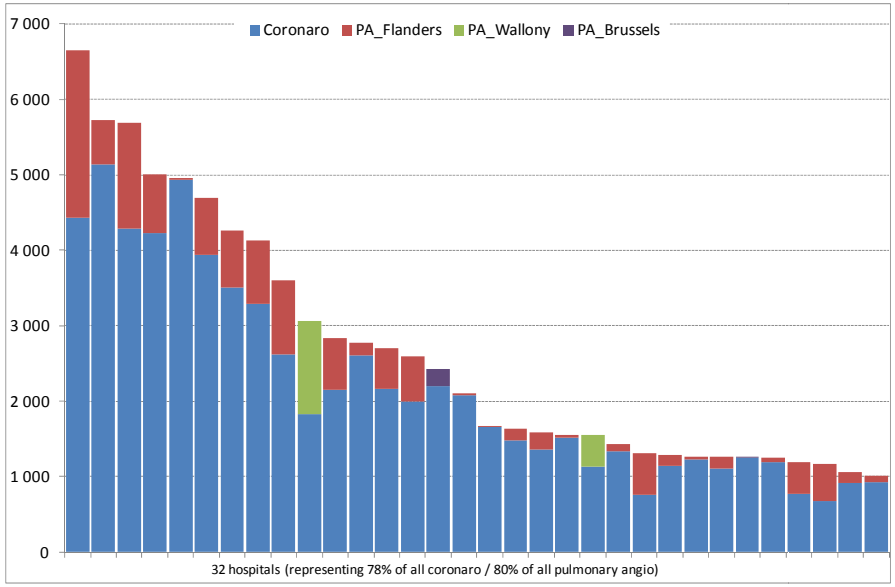
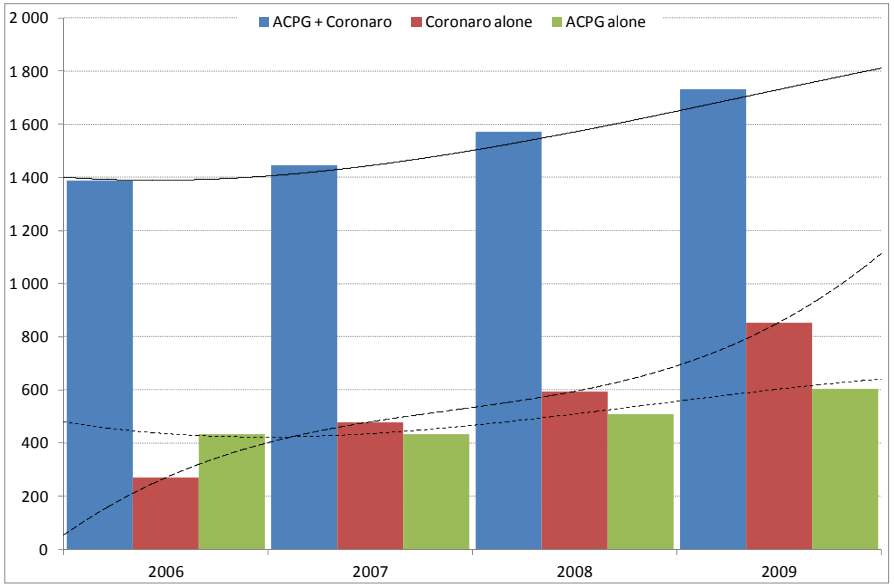
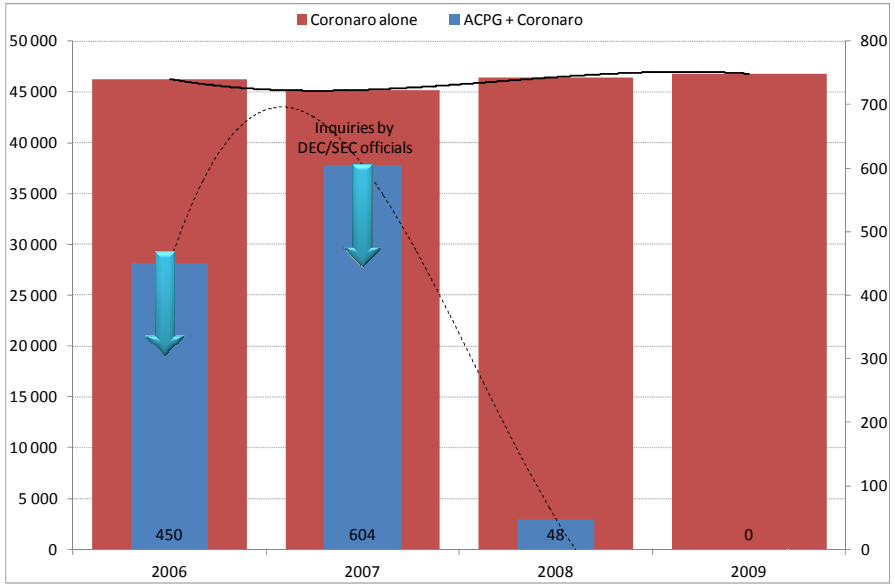


Figure 139 – HBR day-care counts for ACPG and coronarography, subgrouped, 2004-2009



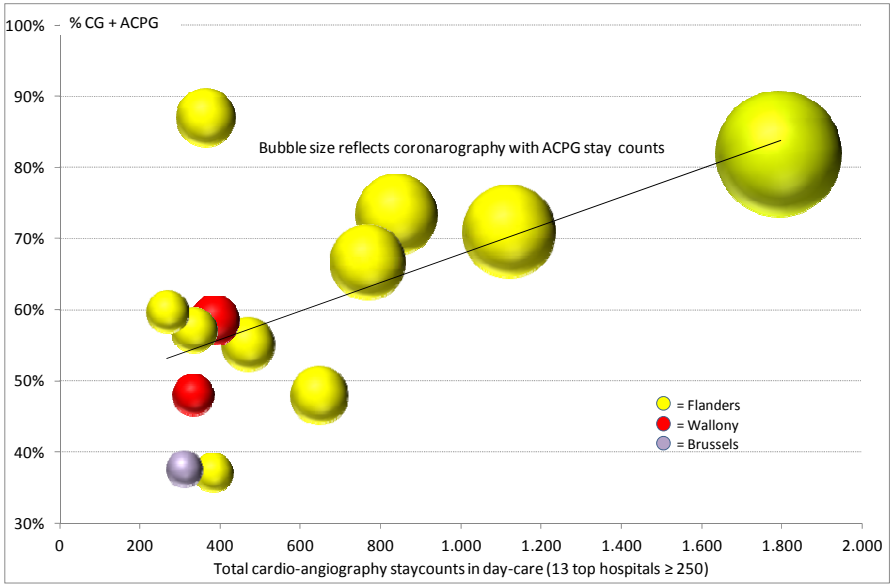
In depth analyses on HBR 2004-2009 data provide some more details on hospital practices and corresponding reimbursement claims in day-care compared to inpatients. Separate stay counts for ACPG alone, coronarography alone and joint ACPG and coronarography billings in day-care and inpatient stays are given in Figure 139 and Figure 140 respectively. The most striking difference between the latter charts is that (1) in day-care ACPG is predominantly billed in combination with coronarography (Figure 139) and (2) in inpatient stays this trend has reversed after 2007 to a point where combined claims even disappeared in 2009 (Figure 140). The above mentioned DGEC – SECM ”flash light” report, that indeed only concerned inpatient data since day-care stay data (ADH – HJA) were not yet available at that time, has been the main drive for the latter swing (personal communication).

Figure 140 – HBR inpatient counts for ACPG and coronarography, subgrouped, 2004-2009



Alerted by Doc FH data for a possible inter-hospital variability in the cardio-angiographic field (Figure 138), we looked at per hospital percentages for coronarography with ACPG reimbursement claims in ADH – HJA data (2006-2009). For clearer visualisation, volume threshold filters were applied: ≥ 250 stays per hospital for day-care and ≥ 1 000 for inpatients. We need however to emphasise that data at our disposal only covered 82.2% of all 2004-2008 day-care stays. Statistically, however, such sample size should be amply representative for present purposes. The resulting bubble plot (Figure 141) is quite remarkable: the coronarography with ACPG claims wave seems to prevail in the Flanders region but could in part be related to the volume of total angio-cardiography. Moreover, this persists after the 2006-2007 campaign by DGEC – SECM officials at hospital level. Anyway, both plots confirm our hypothesis concerning *regional divergences* on either indications, either (lucrative) interpretation of imprecise RIZIV – INAMI definitions & rules concerning do's and don'ts in code combination(s) with cardio-angiographic investigations.

Figure 141 – Percentage coronarography with ACPG versus total cardio-angiography stay counts in day-care, 2006-2009



Finally, it took some 2 years more (2010-2011) before all concerned parties agreed to rescind all four above mentioned ACPG code pairs (1 January 2012 – see Table 32). At the same time all conventional coronarography codes were also rescinded, as well as cut off codes for angiography procedures, in accordance with adapted cardio-angiographic guidelines. Simultaneously, new, *less rated* codes were introduced for digital *right* (explicitly) ventricle angiography with or without pulmonary angiography as well as for digital coronarography, the latter being *higher rated*. Noteworthy also is the introduction, on 1 June 2011 of 2 other code pairs: 458570_458581 (CT of the heart & coronaries w. contrast) and 458592_458603 (CT of the heart & great thoracic vessels w. contrast in children with congenital heart anomalies) which - strictly spoken - are not angiographic (catheterization) procedures.

In summary: cardiac angiographies - ACPG and coronarography - remain predominantly inpatient procedures; with so far little shift to day-care. Global annual budgets are considerable and they increased by a factor 1.6 from 2000 till 2010. Data from 2012 on will have to be awaited to evaluate effects of recent and profound changes in related nomenclature.

Table 32 – New cardio-angiography & related CT codes on 1 January 2012

Codes	Code description	Start code	List	Key coeff
464170 464181	Digital coronarography by cardiac catheterization	1 Jan 2012	Group 3	N 850
464192 464203	Digital coronarography by cardiac catheterization, ≥ 2 sequences	1 Jan 2012	Group 3	N 950
464155 464166	Digital angiography right ventricle and/or pulmonary artery	1 Jan 2012	Group 3	N 270
458570 458581	CT of the heart & coronaries w. contrast	1 Jun 2011	Mini (KVO)	N 330
458592 458603	CT of the heart & great thoracic vessels w. contrast, children with congenital heart anomalies	1 Jun 2011	Mini (KVO)	N 330

6.3.17 Summary appraisal of shifts

Table 33 gives some descriptive statistics and a summary appraisal of the shifts studied in the 16 selected case studies.

Table 33 – Summary appraisal of shifts

Clinical group	Change: 2010 - 2000[a]			% day-care stays of total stays			Appraisal of shifts		
	inpatient stays	day-care stays	total	2000[a]		2010	Inpatient → day-care	Ambulatory → day-care	Day-care → ambulatory
Eye lens surgery	-10 856	+62 543	+51 687	71.7%	→	93.96%	Day-care growth larger than shift	No shift	Tendency to shift from 2009 onwards
Lower GI fiber optic endoscopy	+2 170	+87 047	+89 217	68.3%	→	81.86%	Prior to 2005: day-care growth without shift From 2005: day-care growth with shift	No shift	No shift
Dental surgery	-12 054	+93 777	+81 723	86.6%	→	97.95%	Day-care growth larger than shift	Shift in 2004-2005 (rescinding of 3 codes pairs for surgical tooth extractions by dentists)	Tendency to shift from 2009 onwards
Surgical circumcision	-1 691	+9 638	+7 947	81.7%	→	94.72%	Day-care growth larger than shift	No shift	No shift
Carpal tunnel release	-1 804	+13 894	+12 090	81.3%	→	93.32%	Day-care growth larger than shift	No shift	No shift
Meniscectomy of the knee joint	-9 315	+15 053	+5 738	63.0%	→	90.88%	Shift: day-care growth ≈ inpatient decrease	No shift	No shift
Inguinal hernia repair	-4 568	+7 213	+2 645	13.0%	→	32.39%	Shift: day-care growth ≈ inpatient decrease	No shift	No shift
Follicle aspiration by laparoscopy or trans-vaginally under ultrasonographic guidance	-749	+9 083	+8 334	89.3%	→	99.68%	Global growth. From 2002 onwards, quasi total replacement by day-care	Shift in 2002 (IVF centres → intramural)	No shift
Total hysteroscopic endometrial resection	-916	+2 928	+2 012	45.3%	→	78.77%	Day-care growth larger than shift	No shift	No shift
Extracorporeal shock wave lithotripsy	-1 236	+3 275	+2 039	65.3%	→	79.78%	Day-care growth larger than shift	Shift from 2007 onwards	No shift

Clinical group	Change: 2010 - 2000[a]			% day-care stays of total stays			Appraisal of shifts		
	inpatient stays	day-care stays	total	2000[a]		2010	Inpatient → day-care	Ambulatory → day-care	Day-care → ambulatory
Tonsillectomy by dissection and related ORL interventions	-7 140	+15 961	+8 821	70.5%	→	83.12%	Shift: day-care growth ≈ inpatient decrease	No shift except for tympanostomy	No shift
Subcutaneous portal system implant for administration of medication	+1 855	+6 995	+8 850	40.4%	→	57.67%	Global growth. From 2007 onwards day-care growth larger than shift	Shift in 2002	No shift
Therapeutic epidural infiltration	+5 557	+104 144	+109 701	94.5%	→	94.93%	Insufficient data (only 3.5 years of data available)	Shift (paravertebral infiltration to periradicular therapy)	No shift
Varicose vein surgery	-9 594	+13 747	+4 153	50.2%	→	88.21%	Shift prior to 2009: day-care growth ≈ inpatient decrease From 2009: day-care growth larger than shift	Tendency to shift for medium grade surgery	No shift
Removal of intra-corporeal osteosynthesis material	-4 254	+5 967	+1 713	67.9%	→	79.34%	Shift: day-care growth ≈ inpatient decrease	No shift	No shift
Cardiac angiography	+40 858	+415	+41 273	5.0%	→	6.98%	No shift	No shift	No shift

[a] *For "therapeutic epidural infiltration", the first year is 2007 instead of 2000*

7 INTERNATIONAL COMPARISON

The objective of this chapter is to determine how Belgium performs in terms of day-care surgery, compared to other western countries, and to examine some incentives implemented for the development of day-care in a short selection of neighbouring countries.

After an international overview, we studied in more depth the situation in France, England en Denmark. The selection of these countries was based on two criteria. The first criterion is the availability of information on this country in French, Dutch, or English. The second is existence of an established, preferably national activity-based hospital financing system.

Several countries were excluded: Norway (only 40% activity-based; little information in English); Italy and Spain (too much regionally subdivided health care); Austria (regional subdivision and limited information); United States of America (limited to patients >65 years under the Medicare programme); the Netherlands (limited external applicability and still in development phase).

7.1 International overview

The International Association for Ambulatory Surgery (IAAS) conducts every two years an international survey on prevalence of day-surgery. The numbers of ambulatory procedures in relation to inpatient procedures are collected for a basket of 37 procedures. These procedures are specified by their common names and by their international codes (ICD-9-CM or NOMESKO Classification of Surgical Procedures (NCSP)).

The results of this international comparison need to be interpreted with caution because the database and definitions used for calculation vary among countries. Moreover, some ICD-9-CM codes cover heterogeneous procedures with various day-surgery rates[38]. We restrained the comparison to relatively homogenous procedures. The day-surgery rates for these procedures can be found in Table 37.

Table 34 – International comparison of day-surgery rates, 2009

Procedure	Belgium	France	England	Netherlands	Denmark	U.S.A. (2007)
Myringotomy (transtympanic prosthetic drainage)	96%	96%	87%	98%(2007)	75%	98%
Tonsillectomy	74%	63%	30%	32%	385%	90%
Cataract surgery	93%	78%	97%	99%	99%	99%
Squint correction	93%	33%	92%	97%	84%	84%
Endoscopic female sterilisation	75%	57%	85%	94%	91%	92%
Dilatation + curettage	85%	63%	85%	70%	94%	86%
Arthroscopic meniscectomy	90%	74%	81%	93%	96%	98%
Carpal tunnel release	95%	84%	95%	94%	93%	98%
Laparoscopic cholecystectomy	3%	1%	20%	6%	58%	53%
Inguinal hernia repair	35%	20%	59%	67%	81%	86%
Pilonidal cyst excision	45%	19%	58%	91%	92%	91%
Circumcision	95%	90%	83%	95%	94%	91%
IAAS basket	78%	45%	77%	68%	86%	85%

** List of 37 procedures*
Source: France: Cash et al. (2011)[39]; Belgium: own calculations; other countries: Toftgaard (2012)[38]

Table 37 shows that the U.S.A. and Denmark report the highest level of day-surgery. The development of day-surgery in France is lagging behind compared to other countries.

Variations of day-surgery rates between countries can be attributed to different factors, which can be grouped in three major categories[40]:

- Health care organisation: low number or lack of inpatient hospital beds, supply of home nurses;
- Financing system of day-care versus inpatient care (clear financial incentives for the development of day-surgery);
- Medical habits and education, resistance to change.

On average, Belgium shows day-surgery rates comparable to other countries. Nevertheless, the day-surgery rate for laparoscopic cholecystectomy is far behind the rate of England, Denmark and the U.S.A. Also the day-surgery rate for inguinal hernia repair is far behind rates of England, the Netherlands, Denmark and the U.S.A. These Table 35shows the DRGs concerned.

In 2009, DRGs were split in a different way: day-care or inpatient care (one night or more). Each inpatient care DRG was split according to the severity degree of the case (1 to 4). A single tariff was implemented for day-care and inpatient care (severity degree 1) for 18 DRGs (Table 35). This tariff is calculated on the basis of a mean of the former day/short-stay tariff and inpatient tariff, weighted by the national proportion of each type of hospitalisation.

In 2012, a single tariff was added for 21 DRGs. These DRGs were selected according to the following criteria : at least one third of common acts between day-care and inpatient (severity 1) stays and positive advice of medical experts of scientific associations. These DRGs include for example retina surgery , rhinoplasty, testis surgery > 17 years, transurethral prostatectomy and cholecystectomy without exploration of the biliary tract.

From 2008 onwards, but especially since 2009, some surgical interventions must have a prior approval of the French health insurance to be performed in inpatient hospital care (Table 35). An approval is automatically given if the patient has an ASA (American Society of Anesthesiologists) score>= 3, if there is no access to a phone, or no

different rates can be explained by different factors. Laparoscopic cholecystectomy is not in List A. Therefore, there is no clear incentive for day-surgery. Inguinal hernia repair is in List A, but surgical technique preferences played a marked role in the choice of admission type (see section 6.3.7).

7.2 France[39, 41]

The case mix-based payment system (“Tarification à l’Activité” – T2A) implemented in 2004, allowed lower DRG tariffs for day or short-stay care (0 or 1 night) than for inpatient care (more than 1 night). There was therefore no clear incentive for the development of day-care. Moreover, hospitals were discouraged to admit patients for only one night, as the tariff was the same for day-care as for one-night stays.

In 2007, the gap between day or short stay care and inpatient tariffs was reduced by 50% for 15 DRGs, with a lowering of the inpatient tariff and a raise of the day-care tariff. Table 35 List B.

accompanying adult in the direct postoperative phase, or if the travel length between the hospital and the home is greater than or equal to one hour. If these surgical interventions are performed in inpatient hospital care without approval, they are reimbursed on the basis of the day-care tariff. This incentive can be compared to the Belgian List B.

Table 35 – French incentives for the development of day-care, by DRG or intervention

	Reduction of gap between tariffs for day/short stays care and inpatient care (2007)	Single tariff for day and inpatient care (severity 1) (2009)	Prior approval of French health insurance to provide inpatient care (2009)
Cataract	X	X	X
Carpal tunnel release	X	X	X
Tonsillectomy and/or adenoidectomy	X	X (<18 years)	
Adenoidectomy alone			X
Varicose veins	X	X	X
Inguinal hernia repair	X	X	X
Local bone resection or removal of internal fixation device	X		
Hand bone cysts removal	X		X
Other hand surgery	X	X	X (Dupuytren's contracture surgery + hand ligaments and tendons repair)
Arthroscopy	X		
Knee arthroscopy		X	X (except ligamentoplasty)
Testis surgery	X	X (< 18 years)	X
Circumcision	X	X	
Surgery of the vulva, vagina or cervix	X	X	X
Dilatation and curettage	X	X	
Endoscopic female sterilisation	X		

	Reduction of gap between tariffs for day/short stays care and inpatient care (2007)	Single tariff for day and inpatient care (severity 1) (2009)	Prior approval of French health insurance to provide inpatient care (2009)
Surgical removal of tooth	X	X	X
Myringotomy		X	
Anal surgery		X (except haemorrhoidectomy)	X (except haemorrhoidectomy)
Breast biopsy or local excision		X	X
Cornea surgery (pterygion)			X
Squint correction			X

The development of financial incentives for day-care in France is lagging behind compared to Belgium and other countries. Most of actual and clear incentives were developed in 2009, with an acceleration in 2012. The impact of these incentives was weaker than expected. A lack of knowledge of these incentives has been observed in a majority of hospitals[39]. Managers had a confused view of the tariffs because of their complexity and their frequent changes. It seems that the mechanism of prior approval to perform surgical intervention in inpatient care was the most successful incentive.

7.3 England[42, 43]

To promote the move to day-care where appropriate, the majority of Health Resource Groups (HRGs – i.e. British DRGs) tariffs have been set on the average of day-care and ordinary inpatient elective costs, weighted according to the proportion of activity in each.

In 2010, the National Health Service (NHS) has introduced a new incentive to promote day-care, by means of “best day-care practice tariffs” for a selection of procedures. The tariff for these procedures is higher for day cases than for ordinary elective cases. With this approach, day-care procedures are overreimbursed and ordinary elective procedures are underreimbursed, but NHS considers that as long as hospitals perform broadly in line with the target rates, they will overall be adequately funded.

The selection of procedures was based on recommendations of the British Association of Day Surgery (BADS). BADS publishes every year a directory of procedures that are amenable to day-care along with rates that they believe are achievable in most cases. These day-care rates are obtained following consultation with hospitals recognised as leaders in day-surgery. NHS selected from this directory procedures:

- with a high volume (more than 5 000 admissions);
- and with day-case rates that vary significantly between providers and are nationally below the BADS “potential” or “best practice” rates;

NHS best practice rates are based on BADS best practice rates but can in some cases be lower.

Table 36 – Procedures with a higher tariff for day-care than for inpatient care, 2012

Procedure	National day-care rate (median) 2012	NHS best practice day-care rate 2012
Excision of breast	52%	75%
Excision of breast with sentinel lymph node biopsy or axillary sample	21%	75%
Simple mastectomy (with or without axillary surgery)	2%	15%
Sentinel lymph node biopsy or axillary sample	54%	80%
Axillary clearance	7%	40%
Tonsillectomy- children	29%	70%
Tonsillectomy - adults	32%	80%
Septoplasty	43%	60%
Laparoscopic cholecystectomy without CC.	39%	60%
Repair of umbilical hernia	71%	85%
Primary repair of inguinal hernia	68%	95%
Repair of recurrent inguinal hernia	52%	70%
Primary repair of femoral hernia	67%	90%
Operations to manage female incontinence	33%	80%
Therapeutic arthroscopy of shoulder – subacromial decompression	55%	80%
Bunion operations, with or without internal fixation and soft tissue correction	61%	85%
Dupuytren's fasciectomy	81%	95%
Endoscopic resection of prostate (TUR)	0%	15%
Resection of prostate by laser	1%	90%

7.4 Denmark[44]

Day-cases are grouped according to the Danish Ambulatory Grouping System (DAGS). DRGs which can be treated as inpatient as well as in day-care have been defined as "grey zone" DRGs and are paid a specific tariff, irrespective of the fact that the patient is treated as an inpatient or as an ambulatory patient. The grey zone tariff is calculated on basis of the DRG and DAGS tariffs using the following formula: $R = (N_i * R_i)+(N_j * R_j)/(N_i+N_j)$, where N_i is the number of discharges in DRG_i, N_j is the number of visits in $DAGS_j$, R_i is the tariff for DRG_i and R_j is the tariff for $DAGS_j$.

Hospitals that perform more day-care than the national average are therefore favoured.

8 EXPLORING MODALITIES FOR A MORE GLOBAL FINANCING OF DAY-CARE

Countries studied in the previous chapter have already introduced an all-inclusive, pathology-based financing system for hospital care. Each of these countries has implemented a single tariff for day-care and inpatient care for a selection of pathologies or for all pathologies. By doing this they created a clear financial incentive to promote day-care, as hospitals that perform more day-care than the national average are favoured.

All-inclusive hospital financing has already been thoroughly studied in KCE report 121[3], but the question to be explored in this report is to what extent this alternative way to finance day-care could be applicable in Belgium. In other words, if all-in pathology financing were to be introduced in Belgium, would equal price setting for inpatient and day-care be advisable? Or should we advice – at least for a selection of split price setting? And if a single tariff was preferred, should it be implemented for all pathologies, for a selection of pathologies or for subgroups of pathologies?

From a fundamental point of view, the keystone for classification of hospitals stays in "diagnosis related groups" (DRG) and their subsequent use for pathology-based hospital remuneration is the requirement that DRGs should be based on economically as well as clinically meaningful groups. Economically, patients within one group should have "homogeneous" costs. Clinically, cases allocated to one group should form a distinguishable entity based on main diagnosis, severity, co-morbidity and/or treatment performed. The DRG "granularity", i.e. how broadly or tightly DRGs should be defined, is a persistent and quite universal concern. Broad diagnosis groups (lower granularity) give powerful incentives to efficiency, and minimize the scope for data manipulation. However, they also give strong incentives for "cream skimming" lower cost patients and even, to a certain extent, incentives for "quality skimping". Narrowly defined categories (higher granularity) reduce these adverse incentives, but in turn introduce incentives to "upcoding" or even "overtreatment" aiming at "tipping over" the stay into a DRG with a higher remuneration.

To investigate the issue of equal price setting for inpatient and day-care, we performed a first set of simulations on Belgian clinical and cost data. This first set of simulation exercises was made on a selection of 6 sufficiently frequent APR-DRG-SOIs and calculated standard statistical parameters on costs and LOS. Costs were – of course – based on (historical) remuneration (= pricing) data and not on economical cost registration data, that are at present scarce in Belgium and certainly not obtained on a sufficiently sized and stratified sample of Belgian hospitals. Based on the results we pursued with a series of clinical as well as statistical homo- c.q. heterogeneity appraisals. This heterogeneity should be complemented by overall intra DRG heterogeneity assessments (both inpatient and day-care).

Unfortunately, not all data sets of the MKG/RCM-HBR databases were at our disposal: especially the missing of "à l'acte" lab tests data as well as hospital pharmaceuticals data were felt as a major handicap. As a consequence clinical costs were restricted to fee-for-service remunerations claimed by (clinical) health care professionals. Results could therefore be biased and we choose not to present them in this report. Methodology and results can nevertheless be found in appendix 6. Further studies, on complete data and including a comparison of the day-care/inpatient heterogeneity in addition to standard intra DRG heterogeneity survey, should be made in order to give objective recommendation about DRG price setting.

9 CONCLUSION AND DISCUSSION

For a growing number of surgical and non-surgical treatments it is medically no longer needed to keep a patient in hospital for a number of days. Moreover, hospital services delivered on a same-day basis are cheaper for society. Hence, from these two observations, we would expect significant savings in hospital reimbursements for public authorities in the last decade. However, the results of the global analyses and of the case studies contradict this prediction. The increase in day-care expenditures was not compensated by a decrease in inpatient expenditures. Although the number of inpatient days decreased due to a general and continuing trend towards lower lengths of stay for inpatient stays, the number of inpatient stays and inpatient expenditure did not drop.

From a theoretical point of view the increase in hospital day-care spending can be the result of shifts between care settings, an overall medical practice growth, or price inflation. Indeed, those three factors can work separately or in combination and are the result of technological innovation, medical practice evolution, but also of health care policy decisions.

We also want to note that although Belgian legislation uses the term “lump sum”, it is a form of fee-for-service. Each lump sum requires a specific health service or package of services to be performed. But to conform to legislation use, we use the term “lump sum” in this report.

9.1 Evolution of day-care services: a mixed picture of shifts and growth

Three patterns of day-care activity can be observed.

A first typical pattern is when day-care activity rises ”at the expense” of inpatient care and, consequently, the number of stays remains virtually stable so that one can assume that **a shift from inpatient to day-care** is taking place. In some cases, like arthroscopic meniscectomy, tonsillectomy, and removal of deep osteosynthesis material, technology remained basically unchanged and shifts have a regulatory footing. In other cases, new technology for a similar cure acted as a driver: mesh grafts for inguinal hernia repair and new, less aggressive techniques for vein eradication. In one studied case, the shift was not within a similar intervention type, but from invasive uterine extirpations to organ-saving techniques.

In the majority of cases the reduction of inpatient care is accompanied by a larger rise in day-care services. **The increase of day-care can only partially be explained by a shift from inpatient care**. For some interventions a clear shift from ambulatory to day-care was observed, e.g. for medium–grade varicose vein surgery (isolated) and ultrasound-guided or laparoscopic follicle aspiration (before 2002). For other interventions no clear shift between care settings was found, e.g. for eye lens surgery, lower gastrointestinal fibre optic endoscopy, carpal tunnel surgery, extracorporeal shock wave lithotripsy (ESWL), circumcision and cardiac angiography. A widening of indications (e.g. due to demographic changes) or a move from “non-interventional care” to “interventional care”, whether or not enhanced by changes in the financing system, are the most plausible explanations.

Finally, besides rising day-care services, inpatient services can rise as well, reflecting **overall practice growth**. An example is subcutaneous portal system implant for administration of medication (until 2005).

If all previous cases implied shifts towards hospital day-care, shifts can occur in the other direction: away from hospital care. Such shifts from hospital day-care to ambulatory care are more difficult to document and reflect even more subtle interactions between both medical market, technological innovation as well as evolving clinical practice and hospital–related public health policies with possible conflicts of interests between hospital managers and medical specialists. Two examples were found: eye lens surgery and dental surgery, both only very recently (since 2009). From a purely budgetary point of view, there is undeniably much to say in favour of such evolutions. From a public health managerial and socio-political position, on the contrary, there are concerns about the quality of care provided and equity for underprivileged patients.

9.2 Impact of the financing system and regulation

Since financing of health care services is not implemented in a controlled environment, it is difficult to isolate its effect from other policies which were introduced concomitantly. In addition to the financial incentives, regulation can also facilitate (or block) the development of surgical and non-surgical day-care activities. Of course, regulation and financial incentives are often intertwined. For example, List A and List B, for day-surgery interventions, combine regulation and financial incentives as drivers for day-care activities. Hospital choice between inpatient and day-care treatment is guided by financial incentives for interventions on List A and financial disincentives for interventions on List B. The content of both lists is primarily determined by regulation.

The 2002 reform induced some shifts from inpatient to day-care for a number of interventions, such as ultrasound-guided or laparoscopic follicle aspiration, inguinal hernia repair and subcutaneous portal system. For the first example, the reform also induced a shift from ambulatory to day-care with an intramural migration of IVF centres.

The effect of the 2007 reform, introducing 7 new groups of lump sums (and barring others) is visible in the global analyses as well as in some of the case studies. Globally speaking, the effect consists of a price effect (on average around 15% rise for the 7 groups, over 34% for surgical day-care) and a volume effect (near 24% increase overall) from 2007 on. As for the case studies, examples are lower gastrointestinal fibre optic endoscopy, extracorporeal shock wave lithotripsy and therapeutic epidural infiltration. The sudden explosion of therapeutic epidural infiltrations, with a huge shift from the former paravertebral infiltration (PVI) to modern peri-radicular therapy (PRT), is a perfect example of a voluntarily induced shift from mostly ambulatory infiltrations to pin-pointed techniques under well-equipped medical imaging guidance in an intramural setting. The picture is quite similar for lithotripsy.

9.3 Limitations of the study

Electronic records of hospital admissions have evolved from a monitoring tool for tracking hospital activity to a tool for conducting research. Yet, some publications warn of their potential inaccuracy.

Administrative datasets typically contain information for a large number of patients and cover long time periods. For most analyses on expenditures and number of stays data were available for the period 2000 to 2010. However, sometimes the observation period was too short to draw firm conclusions. Examples are the lump sums that were introduced on 1 July 2007 or some recently introduced nomenclature codes suggesting a shift between settings of care (e.g., extra capsular lens extraction by US or laser introduced on 1 May 2007).

Next, all our analyses were descriptive and the shift effects were not quantifiable, rendering any statistical testing difficult and causal inference somewhat speculative.

Furthermore, we did not study effects of other, surrounding factors. Broader organisational issues, such as communication with home care (community nurses, general practitioners) for one, were scarcely brought up. Socio-economic status (underprivileged population groups), patient-to-hospital distance, geographical spread and availability of hospital beds are other pertinent examples. Further in-depth analysis of explanatory factors of increasing volume or expenditures for day-care should take account of all factors summarized in Figure 1.

9.4 Evaluation of current day-care financing

9.4.1 Lack of transparency

Day-care financing in Belgium is mainly the result of successive political choices and stakeholder agreements to provide financial incentives for hospitals to endorse day-care activity. Its structure is complex and lacks coherence.
One can indeed observe a double dichotomy in Belgian day-care financing:

- A part of the financing (i.e. surgical day-care) is included in the BFM - BMF which is a closed budget. The other part is financed by means of a series of lump sums, which are in fact "per service remuneration" of hospitals, with less stringent budgetary control.
- A part of the financing is hospital dependant: surgical day-care, Mini and Maxi lump sums, all related to the B2 part of the BFM – BMF. The other part is hospital independent (e.g. fixed lump sums 1 to 7 for non-surgical day-care and lump sums 1 to 3 for chronic pain treatments, all introduced in 2007).

The logic of this double dichotomy is not clear. For example, day-care surgical interventions are mostly financed through the BFM – BMF, yet some are through lump sums.
Complexity and incoherence may lead to confusion when applying the rules. For instance, the nominative list associated with group 7 includes a considerable number of interventions that normally are performed under general or loco-regional anaesthesia and, hence, fall under the Maxi lump sum ruling. It took the hospitals some time to realise that the group 7 fixed lump sum offered better reimbursement than the traditional Maxi lump sum they were used to claim.
Another example of the lack of clarity of the current system, concerns insufficiently discriminating nomenclature code labelling. For example, general descriptions such as "any condition requiring intravenous infusion" (1993) or "any keep vein open (KVO) infusion for therapeutic reasons" (2007) resulted in maximizing KVO instructions for day-care services.

9.4.2 Lack of scientific evidence supporting choice of care setting

Although the world of medical technology is rapidly evolving, the initial selection of interventions in List A dates from 2002 with – except for the year 2007 – hardly any new interventions added to the list.
The distinction between surgical and non-surgical day-care continues to be based on historical and meanwhile obsolete listings, and no formalised efforts were made to produce an overall listing of day-care approved interventions based on scientific evidence, irrespective of their classification as surgical or non-surgical. Currently, the obsolete nature of List A has a restraining effect on day-care surgery activities. For example, the percentage day-surgery for laparoscopic cholecystectomy equals 3% in Belgium, while it exceeds 50% in some other countries. Cholecystectomy is not on List A and, hence, hospitals have no financial incentives for switching it to day-care.
Since 2007, new interventions are financed by attributing them to one of the 7 groups of fixed lump sums. We have found no published rationale for the choice of which new interventions to add.

9.5 Possible directions for the future

9.5.1 A global plan for hospital activities

Since the end of the eighties of the previous century, day-care activities have been stimulated in Belgium, but without an explicit, global plan for the development of day-care activities or their financing. A first step in such plan would consist of drawing up a list of scientifically approved day-care interventions by a scientific committee, as was done in the National Health Service system of England. This step should be taken, whatever the financing system of day-care activities.
A second step concerns the financing of the selected interventions. Since there are no rational arguments to finance part of hospital activities within and part outside the hospital budget (BFM – BMF), all hospital activities should be financed by the same source. For budgetary control reasons, the hospital budget seems to be the most adequate financing source. Thirdly, the financing should be adapted regularly to take account of medical and technological progress.

9.5.2 Following the international trends in day-care financing

One of the major reforms in the hospital sector since the beginning of the 1990s is the worldwide implementation of prospective payment systems where hospitals are paid a fixed amount per case, regardless of the actual costs of the provided services. In most countries some variant of the Diagnosis Related Group (DRG) method is used as a measure of the hospital case-mix. In an increasing number of countries, day-care and even ambulatory activities are financed by DRG-based payments. Moreover, many of them apply a single tariff for inpatient and day-care, at least in selected DRGs. Proponents argue that by creating incentives for day-care it will increase efficiency and reduce costs. Opponents will emphasise a possible danger of cream-skimming the healthier patients. In any case, the advantages and disadvantages of different systems should be carefully weighed against each other to incentivise providers in line with social objectives.

Of course, a case-based payment system is not the only way to increase coherence, transparency and efficiency in the current hospital financing system. But the current way of financing with different sources (BFM –BMF and lump sums) is certainly not the way to proceed.

If a hospital case-based payment system were to be introduced in Belgium, it would be important to determine if an equal price setting for day-care and inpatient cases, as seen in other countries, is advisable. It would also be necessary to decide whether a single tariff would be implemented for all DRGs or only for a selection. Simulations on Belgian data should therefore assess cost and clinical heterogeneity, both within each DRG and between day-care and inpatient stays.

REFERENCES

1. Vlaams Agentschap Zorg & Gezondheid. Evolutie van het aantal daghospitalisaties en klassieke ziekenhuisopnames. 2011. Available from: http://www.zorg-en-gezondheid.be/v2_default.aspx?id=21863
2. European Union. Joint report on health systems. 2010. Occasional papers 74 Available from: http://europa.eu/epc/pdf/joint_healthcare_report_en.pdf
3. Van de Sande S, De Ryck D, De Gauquier K, Hilderson R, Neyt M, Peeters G, et al. Feasibility study of the introduction of an all-inclusive case-based hospital financing system in Belgium : - Supplement. 121S ed. Brussels: KCE = Federaal Kenniscentrum voor de Gezondheidszorg = Centre fédéral d'expertise des soins de santé = Belgian Health Care Knowledge Centre; 2010.
4. MedicineNet.com. Definition of Outpatient [WebMD Network [cited 30 October 2012]. Available from: http://www.medterms.com/script/main/art.asp?articlekey=4700
5. Mirriam-Webster.com. Outpatient [Encyclopedia Brittanica [cited 30 October 2012]. Available from: http://www.merriam-webster.com/medical/outpatient
6. Omzendbrief aan de algemene ziekenhuizen: Nieuwe nationale overeenkomst tussen de ziekenhuizen en de verzekeringsinstelligen (ZH/2007), RIZIV-INAMI 2007. Available from: http://www.riziv.fgov.be/care/nl/hospitals/pdf/hospitals084.pdf
7. Wet op de ziekenhuizen, gecoördineerd op 7 augustus 1987, B.S. 7 oktober 1987.
8. Cleemput I, Beguin C, de la Kethulle Y, Gerkens S, Jadoul M, Verpooten G, et al. Organisation and financing of chronic dialysis in Belgium. Health Technology Assessment (HTA). Brussels: Belgian Health Care Knowledge Centre (KCE); 2010 10/02/2010. KCE Reports 124C (D/2010/10.273/13) Available from: http://kce.fgov.be/index_en.aspx?SGREF=9470&CREF=14964
9. Koninklijk besluit betreffende de vaststelling en de vereffening van het budget van financiële middelen van de ziekenhuizen, B.S. 25 april 2002.

10. WHO Collaborating Centre for Drug Statistics Methodology. ATC: structure and principles [[updated 25 March 2011]. Available from: http://www.whocc.no/atc/structure_and_principles/
11. RIZIV-INAMI Vergoedbaarheid van geneesmiddelen [[cited 30 October 2012]. Available from: http://www.inami.be/drug/nl/drugs/general-information/refunding/index.htm#p2
12. Encyclo: Online encyclopedie. Lump sum [Slot Webcommerce bv [cited 30 October 2012]. Available from: http://www.encyclo.nl/begrip/lump%20sum
13. Wikipedia contributors. Lumpsum [Wikipedia, The Free Encyclopedia. [updated 23 October 2012]. Available from: http://nl.wikipedia.org/w/index.php?title=Lumpsum&oldid=32547732
14. RIZIV-INAMI Verpleegdagprijs ziekenhuizen [[cited 30 October 2012]. Available from: http://www.riziv.fgov.be/care/nl/hospitals/specific-information/prices-day/index.htm
15. Omzendbrief aan de algemene ziekenhuizen: Forfaits dagziekenhuis en chronische pijn en mogelijkheid tot aanrekenen van een raadpleging en/of toezichtshonorarium en/of coördinatiehonorarium en/of permanentiehonorarium en/of forfaitair honorarium klinische biologie, Available from: http://www.riziv.fgov.be/care/nl/hospitals/pdf/hospitals086.pdf
16. Van De Sande S, De Wachter D, Swartenbroekx N, Peers J, Debruyne H, Moldenaers I, et al. Inventaris van databanken gezondheidszorg. Objective Elements - Communication (OEC). Brussel: Federaal Kenniscentrum voor de Gezondheidszorg (KCE); 2006 19/05/2006. KCE Reports 30A (D2006/10.273/14) Available from: http://kce.fgov.be/index_nl.aspx?SGREF=5269&CREF=6829
17. Wet tot bescherming van de persoonlijke levensfeer ten opzichte van de verwerking van persoonsgegevens, B.S. 18 maart 1993.
18. Programmawet (I), B.S. 31 december 2002.
19. Yardley Hospital Management Consulting. Different DRG Systems. 2009. Available from: http://www.ymsolutions.com/Download/DRG%20Groupers%20Used%20in%20United%20States%20Hospitals.pdf
20. Wikipedia contributors. Diagnosis-related group [Wikipedia, The Free Encyclopedia. [updated 23 October 2012]. Available from: http://en.wikipedia.org/wiki/Diagnosis-related_group
21. Wikipedia contributors. Severity of illness [Wikipedia, The Free Encyclopedia. [updated 23 October 2012]. Available from: http://en.wikipedia.org/wiki/Severity_of_illness
22. Cleemput I, Neyt M, Van de Sande S, Thiry N. Belgian guidelines for economic evaluations and budget impact analyses: second edition. Health Technology assessment (HTA). Bruxelles: Belgian Health Care Knowledge Centre (KCE); 2012. KCE Reports 183C (D/2012/10.273/54) Available from: https://kce.fgov.be/sites/default/files/page_documents/KCE_183C_economic_evaluations_second_edition_0.pdf
23. RIZIV-INAMI De begroting van de verzekering voor geneeskundige verzorging en uitkeringen in cijfers [[cited 30 October 2012]. Available from: http://www.riziv.be/information/nl/accounting/budgets/index2.htm#2
24. Technische Cel voor de verwerking van de gegevens met betrekking tot de ziekenhuizen. Financiële feedback per pathologie [[cited 30 October 2012]. Available from: https://tct.fgov.be/webetct/etct-web/anonymous?lang=nl
25. Koninklijk besluit tot wijziging van het koninklijk besluit van 14 september 1984 tot vaststelling van de nomenclatuur van de geneeskundige verstrekkingen inzake verplichte verzekering voor geneeskundige verzorging en uitkeringen, B.S. 24 september 1998.
26. Koninklijk besluit tot wijziging van het artikel 15, §2, van de bijlage bij het koninklijk besluit van 14 september 1984 tot vaststelling van de nomenclatuur van de geneeskundige verstrekkingen inzake verplichte verzekering voor geneeskundige verzorging en uitkeringen, B.S. 16 maart 2009.

27. De Laet C, Neyt M, Vinck I, Lona M, Cleemput I, Van De Sande S. Health Technology Assessment. Colorectale Kankerscreening: wetenschappelijke stand van zaken en budgetimpact voor België. Health Technology Assessment (HTA). Brussel: Federaal Kenniscentrum voor de Gezondheidszorg (KCE); 2006 20/12/2006. KCE Reports 45A (D/2006/10.273/57) Available from: http://kce.fgov.be/index_nl.aspx?SGREF=5269&CREF=8408

28. Wikipedia contributors. Extracorporeal shock wave lithotripsy [Wikipedia, The Free Encyclopedia. [updated 23 October 2012]. Available from: http://nl.wikipedia.org/w/index.php?title=Lumpsum&oldid=32547732

29. American Society for Gastrointestinal Endoscopy. Technology status evaluation report: Biliary and pancreatic lithotripsy devices. Gastrointestinal Endoscopy. 2007;65(6):750-6.

30. BCEMS. Broviac, Hickman, Port-a-cath Access Review [[cited 30 October 2012]. Available from: http://emsstaff.buncombecounty.org/inhousetraining/broviac/brovac.asp

31. Buerger T, Gebauer T, Meyer F, Halloul Z. Implantation of a new device for haemodialysis. Nephrol Dial Transplant. 2000;15(5):722-4.

32. Allen F, Kroes M, Mitchell S, Mambourg F, Paulus D. Diagnosis and treatment of varicose veins in the legs. Good Clinical Practice (GCP). Brussels: KCE = Federaal Kenniscentrum voor de gezondheidsdzorg = Centre fédéral d'expertise des soins de santé = Belgian Health Care Knowledge Centre; 2011. KCE Reports 164C (D/2011/10.273/52) Available from: http://kce.fgov.be/Download.aspx?ID=3405

33. Miclau T, Martin RE. The evolution of modern plate osteosynthesis. Injury. 1997;28 Suppl 1:A3-6.

34. Uhthoff HK, Poitras P, Backman DS. Internal plate fixation of fractures: short history and recent developments. J Orthop Sci. 2006;11(2):118-26.

35. Bong MR, Koval KJ, Egol KA. The history of intramedullary nailing. Bull NYU Hosp Jt Dis. 2006;64(3-4):94-7.

36. Paul GW. The history of external fixation. Clin Podiatr Med Surg. 2003;20(1):1-8, v.

37. De Carvalho L. Angiocardiopneumography. CHEST Journal. 1950;17(3):312-36.

38. Toftgaard C. Day Surgery Activities 2009: International Survey on Ambulatory Surgery conducted 2011. Ambulatory Surgery. 2012;17(3).

39. Cash E, Cash R, Dupilet C. Etude sur la réactivité des établissements de santé aux incitations tarifaires. Direction de la recherche, des études, de l'évaluation et des statistiques; 2011. Série Etudes et Recherches 106 Available from: http://www.drees.sante.gouv.fr/la-reactivite-des-etablissements-de-sante-aux-incitations-tarifaires,9121.html

40. Kroneman MW, Westert GP, Groenewegen PP, Delnoij DM. International variations in availability and diffucion of alternatives to in-patient care in Europe: the case of day surgery. Ambulatory Surgery. 2001;9:147-54.

41. Haute Autorité de Santé (HAS). Ensemble pour le développement de la chirurgie ambulatoire: Rapport d'évaluation technologique. 2012. Available from: http://www.has-sante.fr/portail/upload/docs/application/pdf/2012-04/rapport_-_socle_de_connaissances.pdf

42. Department of Health Payment by Results team - NHS. Payment by Results Guidance for 2011-12. 2011. Available from: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_126157.pdf

43. Department of Health Payment by Results team - NHS. Payment by Results Guidance for 2012-13. 2012. Available from: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_133585.pdf

44. Bilde L, Ankjær-Jensen A. Approaches for Cost and Price Assessment in the Danish Health Sector. DSI Danish Institute for Health Services Research; 2005. Work Package 6, HealthBASKET

project Available from: http://www.ehma.org/files/WP-6-HealthBASKETSP21-CT-2004-501588_D17_Denmark.pdf