

“Global Payment with Standardization: prospective financing of medical specialists for hospital stays in low variability clusters in Belgium”

Dr. Peter Heirman ¹
Niovis Figuerola-Heirman ²
Dr. Nicolas Berg ³

¹ Centre Hospitalier Régional de la Citadelle, peter.heirman@chrcitadelle.be, Belgium

² niovisfigo@hotmail.com, Belgium, Cuba

³ Centre Hospitalier Régional de la Citadelle, nicolas.berg@chrcitadelle.be, Belgium

Abstract: Payment of medical doctors according to a lumps-sum model instead of a fee-for-service model is an important subject in healthcare. Belgium has had a long tradition of paying for medical services provided by medical specialists by a fee-for-service sum. Only a limited number of lump sum fees have been introduced over the years. However, a major reform of the system will be happening in 2018. For low-complexity care all medical specialists will receive a lump sum per pathology, to be shared between the different specialists. 371,2 million EURO in medical fees will be attributed in Belgium via this new a lump sum system. We discuss in this article the effects of this new Global Payment System on our hospital. Although on a global budget level the impact is limited, on the individual level of a medical specialist or a patient we observe a definitive impact.

Key words: financing, medical specialists, lump-sum, case mix

I. INTRODUCTION

A. *Fee-per-service*

Financing of the Belgian healthcare system is - like in many countries - quit complex (1). Belgian medical specialists are momentarily payed with a fee-for-service. A small part of this fee is payed for by the patient, the major part is payed for by the INAMI (“Institut National d'Assurance Maladie-Invalidité”), which is the national insurance for social security. Every legal resident of the country, is required to join a health insurance fund (“mutuelle”) if he/she is older than 25 years of age or under 25, but working or receiving benefits. Children are covered by their parents’ insurance until they reach the age of 25, unless they are fiscally independent. Yearly negotiations between the different stakeholders (medical doctors, hospitals, government) determine the fees reimbursed for rendered medical services. Medical services are identified by a 6-digit number pair (one for services rendered in a classical hospital stay and one used in one-day and ambulatory settings). There are 27.266 different INAMI number-pairs in use, each with its own reimbursement fee. For example, “229585-229596” means “Myocardial revascularisation by anastomosis using the arteria mamalia interna, using the two arteriae mamaliae internae or implantation of the arteria mamalia interna in the form of sequential bypassing”. The INAMI classification is divided by Chapter, Section, Article, Sub article (2). The example is Chapter V, section 5, art 14, sub e.

Advantage of this fee-for-service system include that the Belgian government has an overview of services rendered to the population, medical specialists are payed for services rendered and patients receive reimbursement by the national insurance based on this system. However, like in all fee-for-service system an overproduction in healthcare is observed, the system has become overly complex, inequities between medical specialists based on historic negotiation skills have been observed and the distribution of physician fees within the hospital results in a struggle for money (3). Paediatricians for example are payed significant less than other specialists.

B. *Lump-sum in Belgium*

For many other areas in healthcare financing Belgium has followed the international trend (4) to base hospital payments on the case-mix of a hospital. A different fee per DRG is paid for the use of medication, medical imaging, clinical biology, nursing personnel, ... (5).

For each hospital stay in Belgium hospitals the necessary ICD-10 codes (International Statistical Classification of Diseases, 10th Revision) are registered for diagnoses and procedures. The World Health Organisation (WHO) is responsible for maintaining the base set of these codes. The Belgium version of ICD-10 is the ICD-10-BE and is a combination based on the ICD-10-Clinical Modification (CM) for diagnosis and the ICD-10-Procedure Coding System (PCS) for procedures. (6)

The different ICD-10 codes of a hospital stay are grouped together in Diagnosis Related Groups (DRG) per stay. Belgium has chosen for the All Patient Refined DRG (APR DRG) Classification System from 3M™-Belgium. There is one DRG and Severity of Illness attributed to every hospital stay. The total of the different DRG/SoI represents the case mix of the hospital.

C. Lump-sum for medical specialists' fee

Starting in September 2018 the reimbursement of medical specialists will be based on the case mix system via a system called Global Payment System (GPS). This will start with a subset of hospital stays, called the low variability cluster. It will replace the fee-for-service system for these pathologies (7).

In April 2015 the Belgian Minister of Social Affairs and Healthcare Dr. Maggie De Block proposed a global reform of the hospital sector. The base of this reform will be the classification of patient populations in three clusters (low, medium and high) based on their variability of care per DRG. For the patients' belonging to a DRG's of the low variability cluster, the medical fee's will be a lump sum.

Table 1 Total spending and number of stays for the 54 patient Groups (data 2014) (8)				
	54 patient groups		all Belgium hospital visits	
	€ Medical fee's	Nr. of Stays	€ Medical fees	Nr. of Stays
Hospital Stay	318.444.384	254.762	2.497.393.537	1.797.830
One Day	52.776.769	147.671	724.354.659	2.520.214
Total	371.221.152	402.433	3.221.748.196	4.318.044

The 54 patient groups of the low cluster consume € 371,2 million in medical fees (8), which constitutes 11,52% of medical specialists' fees of all hospital stays (12,75% of classical hospital stays and 7,9% for one-day stays).

II. METHODS

The CHR de la Citadelle is a public hospital in Liège, Belgium. It is one of its biggest French speaking hospitals and consists of three sites (Citadelle, Sainte-Rosalie, Château Rouge). It has 3.530 FTE-employees and 490 medical specialists. 565.299 patients a year come for consultations, 35.611 are hospitalised for at least one night, 47.259 are seen in one-day hospitalisations, 322.246 patients are seen by our clinical biology and 164.752 patients receive medical imagining. Its maternity ward had 2.576 births. It's balance total was 356.116.308 € last year (9).

Data from 2012, 2013 and 2014 was used. Data consists of complete ICD, DRG and INAMI information per stay. We compared the INAMI-revenue for the medical specialists of the CHR de la Citadelle in the fee-for-service model to the new national lump sum per pathology group.

To group data per patient the All Patient Refined Diagnosis Related Groups Classification System (APR DRG) version 28 was used. Sub-groups were chosen based on the GPS methodology of the INAMI (8).

III. RESULTS

A Hospital Level

Firstly, we compare the global amount medical specialists receive in the current fee-for-service model and the amount they will receive in the future lump sum model.

Table 2 Annual medical reimbursement of doctors of CHR de la Citadelle in the two systems					
Year	Stays	€ Fee-for-service	€ Lump Sum	Difference	Diff Perc
2012	7.713	7.188.575,70	7.130.354,06	-€ 58.221,64	-0,81%
2013	7.667	7.171.825,45	6.984.383,85	-€ 187.441,60	-2,61%
2014	8.330	7.955.713,24	7.961.111,29	€ 5.398,05	0,07%

The amount of medical fees which will be transferred from one system to the other is roughly 7 to 8 million € for the CHR de la Citadelle. The total difference between the two systems is quite low (0.07 to 2.61%). In regard of the choice of the Belgian government to apply the GPS to hospital stays of the low variability cluster, this was to be expected.

B per Diagnosis Related Group

Although the total differences on the national and hospital level are small, the differences for specific pathology groups are bigger. For appendectomies the medical specialists will be payed 64,56% more than in the current payment system. Small neurosurgical interventions in DRG 26 “Other Nervous System & Related Procedures” will be payed 30,88% less (table 3).

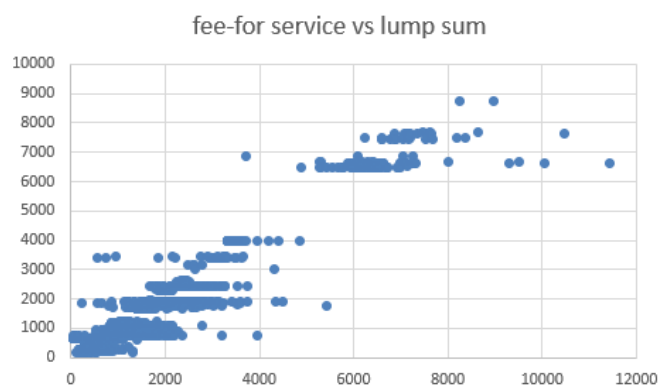
Table 3 annual medical reimbursement of doctors of CHR de la Citadelle per DRG									
DRG		DRG description				STAYS	€ Fee-for-service	€ Lump-Sum	Diff perc
26	OTHER	NERVOUS	SYSTEM	&	RELATED	929	328.259,61	226.904,78	-30,88%
97	TONSIL & ADENOID PROCEDURES					1.300	390.314,20	412.118,09	5,59%
98	OTHER	EAR,	NOSE,	MOUTH	& THROAT	100	20.983,18	16.070,00	-23,41%
120	MAJOR RESPIRATORY & CHEST PROCEDURES					32	90.783,91	109.218,24	20,31%
162	CARDIAC	VALVE	PROCEDURES	W	CARDIAC	6	41.302,69	44.959,74	8,85%
163	CARDIAC	VALVE	PROCEDURES	W/O	CARDIAC	56	390.317,84	382.315,52	-2,05%
165	CORONARY	BYPASS	W	CARDIAC	CATH OR	16	113.509,49	119.194,68	5,01%
166	CORONARY	BYPASS	W/O	CARDIAC	CATH OR	57	354.982,15	369.589,86	4,12%
171	PERM	CARDIAC	PACEMAKER	IMPLANT	W/O AMI,	80	77.864,06	58.588,80	-24,76%
		HEART	FAILURE	OR	SHOCK				

174	PERCUTANEOUS CARDIOVASCULAR PROCEDURES W AMI	238	555.977,69	475.618,47	-14,45%
175	PERCUTANEOUS CARDIOVASCULAR PROCEDURES W/O AMI	653	1.343.179,01	1.469.911,85	9,44%
180	OTHER CIRCULATORY SYSTEM PROCEDURES	155	67.821,27	70.789,16	4,38%
192	CARDIAC CATHETERIZATION FOR ISCHEMIC HEART DISEASE	662	450.134,45	502.702,12	11,68%
225	APPENDECTOMY	139	54.308,09	89.371,74	64,56%
228	INGUINAL, FEMORAL & UMBILICAL HERNIA PROCEDURES	368	242.041,60	238.615,36	-1,42%
263	LAPAROSCOPIC CHOLECYSTECTOMY	215	193.892,44	193.458,95	-0,22%
301	HIP JOINT REPLACEMENT	239	401.817,13	427.302,00	6,34%
302	KNEE JOINT REPLACEMENT	227	385.396,48	412.342,49	6,99%
315	SHOULDER, UPPER ARM & FOREARM PROCEDURES	17	12.430,12	10.208,24	-17,87%
403	PROCEDURES FOR OBESITY	296	438.649,15	445.349,90	1,53%
404	THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES	120	110.828,32	120.246,68	8,50%
446	URETHRAL & TRANSURETHRAL PROCEDURES	82	53.954,74	53.893,78	-0,11%
480	MAJOR MALE PELVIC PROCEDURES	81	129.719,94	143.545,55	10,66%
482	TRANSURETHRAL PROSTATECTOMY	109	92.713,01	99.426,91	7,24%
483	TESTES & SCROTAL PROCEDURES	79	35.042,58	35.962,77	2,63%
484	OTHER MALE REPRODUCTIVE SYSTEM & RELATED PROCEDURES	511	116.492,82	115.827,06	-0,57%
501	MALE REPRODUCTIVE SYSTEM DIAGNOSES EXCEPT MALIGNANCY	85	22.198,15	23.963,70	7,95%
513	UTERINE & ADNEXA PROCEDURES FOR NON-MALIGNANCY EXCEPT LEIOMYOMA	45	51.426,40	47.255,75	-8,11%
519	UTERINE & ADNEXA PROCEDURES FOR LEIOMYOMA	31	32.155,75	32.623,65	1,46%
540	CESAREAN DELIVERY	353	431.089,46	380.402,84	-11,76%
545	ECTOPIC PREGNANCY PROCEDURE	27	20.392,08	20.769,53	1,85%
560	VAGINAL DELIVERY	1.022	905.735,43	812.563,08	-10,29%

C Per visit

We not only see differences if we group our patient visits by DRG, but when we compared the fee-per-service with the lump sum for each of the 8.330 stays we see differences. For 3.185 hospital visits medical specialists will be receiving less, for 5.144 they will be receiving more. The big spread of medical fees per pathology disappeared and was replaced by one lump sum (figure 1)

Figure 1 difference between the two payment systems per individual stay



D per medical specialist

Another difference in the new GPS financing of medical specialist in Belgium will be the repartition of the reimbursement lump sum received from the INAMI amongst doctors. The distribution of the medical fees will have to follow the distribution given by the government, which is based on national averages per speciality per pathology group (5). This implies that there will be no longer an incentive for an individual specialist to increase their revenue by producing more healthcare for a patient. Increasing the number of patients treated will however still increase the fees received.

To illustrate this, we give in table 4 for a laparoscopic cholecystectomy in severity 1 the 10 most expensive medical acts. It has had a total of 828 different medical acts billed national over 41 different medical specialities.

Table 4 Top 10 billed Medical acts for laparoscopic cholecystectomy of Severity of Illness 1

INAMI	€ pay/year	%GPS	€ GPS/stay	short description INAMI
242454 – 242465	13.337.808,59	46,08%	415,74	Cholecystectomy
200196 – 200200	6.242.284,00	21,57%	194,57	Anaesthesia for large intervention
588276 – 588280	4.440.505,01	15,34%	138,41	Anatomopathological
- 591603	958.305,95	3,31%	29,87	Clinical Biology
- 598124	699.577,45	2,42%	21,81	Surveillance, first 5 days
- 460821	513.472,29	1,77%	16,00	Radio diagnostic
599535 – 599546	439.553,54	1,52%	13,70	Supplement weekend
- 598006	180.657,07	0,62%	5,63	Surveillance, first 5 days
459712 – 459723	121.713,41	0,42%	3,79	Imaging total abdomen
459572 – 459583	118.082,06	0,41%	3,68	Tomography abdomen

This obligatory distribution of medical billed lump sums following national averages, will have a significant impact on several specialists of our hospital. The biggest loss in our hospital will be incurred by our anaesthetists, who will lose based on most recent data € 251.851 yearly

Table 5 difference between medical fees per service and lump sum, all hospital stays of GPS combined

	€ Fee-per-service	€ Lump Sum	€ Difference/year
Internal medicine	14,50	6,36	-61.255,40
Physiotherapy	16,62	9,99	-49.893,91
Reanimation	20,52	13,51	-52.812,50
Other	53,01	37,51	-116.684,53
Anaesthetists	188,56	155,09	-251.851,03
Medical Imaging	209,25	191,73	-131.837,88
Surgery	303,69	285,71	-135.328,37
Obstetrics	58,29	57,78	-3.858,10
Clinical Biology	12,38	12,84	3.408,72
Kinesitherapy	0,47	7,09	49.792,40
Anatomopathological	0,00	24,18	182;007,82
Others	0,15	0,00	-1.110,00
Molecular Biology	0,11	0,00	-838,50
Genetics	0,00	0,00	0,00
Radiotherapy	0,00	0,00	0,00

IV. CONCLUSIONS

The conversion of a fee-for-service to a lump sum payment of medical specialists per patient group will have a significant impact on the financing of individual doctors of our hospital and on individual patient bills. Although on a global level the budget for medical specialist services will stay almost the same, the distribution between doctors will significantly change. In a pathology group the distribution of the budget received will have to follow the distribution given by the government, and medical specialists will no longer be free to augment their income by producing more medical acts per visit. Pressure of overconsumption in the Belgian healthcare will diminish for these patient groups. Because the government has chosen to start the new system in low variability clusters, the total budget impact will be limited, but we expect to see a shift towards the new lump-sum system for more and more pathology groups in Belgium.

REFERENCES

1. Durant G. Le financement des hôpitaux en Belgique. Wolters Kluwer.
2. La loi du 9 août 1963 instituant et organisant un régime d'assurance obligatoire contre la maladie et l'invalidité
3. Van de Voorde C, Van den Heede K, Obyn C, Quentin W, Geissler A, Wittenbecher F, Busse R, Magnussen J, Camaly O, Devriese S, Gerkens S, Misplon S, Neyt M, Mertens R. Conceptual framework for the reform of the Belgian hospital payment system. Brussels: Belgian Health Care Knowledge Centre (KCE). KCE Reports 229. 2014
4. Busse R, Geissler A, Quentin W, Wiley M. Diagnosis-Related Groups in Europe: Moving towards transparency, efficiency and quality in hospitals. Copenhagen: World Health Organization on behalf of the European Observatory on Health Systems and Policies; 2011. European Observatory on Health Systems and Policies Series
5. Van de Voorde C, Gerkens S, Van den Heede K, Swartenbroekx N. A comparative analysis of hospital care payments in five countries. Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2013 11/10/2013. KCE Reports 207 (D/2013/10.273/61) https://kce.fgov.be/sites/default/files/page_documents/KCE_207_hospital_financing.pdf
6. Arrêté royal modifiant l'arrêté royal du 27 avril 2007 déterminant les règles suivant lesquelles certaines données hospitalières doivent être communiquées au ministre qui a la Santé publique dans ses attributions, 10 April 2014
7. Devriese S, Van de Voorde C. Clustering pathology groups on hospital stay similarity – Short Report. Health Services Research (HSR) Brussels: Belgian Health Care Knowledge Centre (KCE). 2016. KCE Reports 270C. D/2016/10.273/62.
8. INAMI, GPS systeem FAQ-FR.pdf, October 2017
9. CHR de la Citadelle, Annual report 2016, partie chiffrée
<https://www.chrcitadelle.be/CitadelleWebsite/media/Documents/Rapports%20annuels/Rapport-annuel-2016-partie-chiffree.pdf>