

Financing Day Surgery – An International Perspective

Paulo Lemos

Abstract

Financing day surgery activity is critical for the development of day surgery programmes all over the world. A questionnaire on economical issues was sent to several countries of the world, especially to those countries that are members of the International Association for Ambulatory Surgery (IAAS). The questionnaire asked for general information about financing national health services (NHS), costs of current needs, costs of labour and health staff, and the reimbursement system for a list of common surgical procedures undertaken on a day surgery basis, whatever the surgical regimen used. Eighteen out of 29 countries (62.1%) answered the questionnaire. There was a great

heterogeneity in the wealth and the economic potential of the countries involved. However, usually the countries do maintain their relative position for different purposes: those that are wealthier have increased costs, but do reimburse better the surgical activity than those countries that are poorer. More importantly, those countries that have a strong financial incentive (e.g., Denmark, United Kingdom, etc) achieve a high percentage of day surgery activity compared to other countries where there is no financial incentive at all towards this surgical regimen, as in Germany. There are significant potential savings among other advantages when NHS maximize day surgery practice through financial incentives.

Keywords: Ambulatory surgery; Financing health system; Costs; Surgical procedures reimbursement.

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Introduction

Day surgery (DS) has been steadily increased all over the well-developed countries in the last two decades, although at different rates [1]. Economic disincentives can play an important role and create effective barriers to the development of this surgical regimen [2]. In fact, the block funding of hospitals unrelated to the number of patients treated and the number and type of procedures undertaken, which still persists to a greater or lesser extent in some countries today, as well as low reimbursement for procedures undertaken on a day basis when compared to inpatient treatment, which leads to financial losses for the DS setting, both slow the change towards DS [3]. In order to elucidate the way DS is financed all over the world, and how this influence surgical activity, a survey was conducted and sent to many countries with different economical backgrounds.

Methods and Material

A questionnaire regarding different economic data was sent in February 2012 to contact persons in several countries (Fig. 1). The questions consisted of general information about the type of financing the national health service (NHS), the cost of living (most popular daily newspaper, normal ticket for underground and the McDonald's Big Mac® burger), costs related to healthcare (human resources and drugs), costs of labour (minimum national salary), and the reimbursement for a list of common surgical procedures undertaken on a day basis, comparing the payment for inpatient and day surgery settings. For comparison purposes, these 14 surgical procedures were divided in three main groups, namely: i) most frequent day surgery procedures (cataract surgery, tonsillectomy, inguinal hernia repair, varicose vein surgery); ii) most frequent day surgery endoscopic procedures (knee arthroscopy, endoscopic female sterilisation and laparoscopy cholecystectomy), iii) most frequent complex day surgery procedures (thyroid lobectomy, lumbar microdiscectomy, transurethral resection of prostate, laparoscopic assisted vaginal hysterectomy (LAVH)). Several countries had no

data for the following three surgical procedures: carpal tunnel release, circumcision and abdominoplasty, and for that reason these procedures were not included in the main groups referred. Since it is difficult to compare different economic situations, even using purchasing power parity, the methodology used compared the relative position between a given item and the wealth (gross domestic product – GDP) per capita for each country. This means that would be normal if a country ranks in the last position for its wealth per capita should repeat this ranking in all other items. In each participating country it was the responsibility of the contact person to find the national data and secure the best possible validity.

Results

Eighteen out of twenty nine countries (62.1%) answered this survey, representing four continents: America (Brazil and Peru), Asia (India), Europe (Belgium, Denmark, Finland, France, Germany, Hungary, Italy, Norway, Portugal, Romania, Spain, Sweden, The Netherlands, and United Kingdom - UK), and Oceania (Australia). However, Australia and Belgium only presented results related to cost of living and healthcare, because the reimbursement rates negotiated between payers and caregivers are not public, and for that reason they were not included in the present paper.

In Table I the sixteen countries enrolled in this study were ranked according to their wealth through GDP per capita, by purchasing power parity, in international dollars (Int\$) (US\$ equivalents). The European countries occupy the first thirteen positions, followed by the two southern American representatives (Brazil and Peru) and finally the Asian representative, India. In the same Table I, the health expenditure based on the per capita GDP percentage is presented with the relative position for each country. The different financial models used in healthcare systems are presented in Table II. The majority (7 out of 16 countries) still uses the Beveridge model where Governments run national health system financed through general taxation.

Fig. I Questionnaire.

Questionnaire	NATIONAL LEVEL																																																																														
Name of contributor: _____ Country/region: _____ Data source: _____																																																																															
<p>1. Financing and Reimbursement</p> <p>1.1 How are health services financed ?</p> <p><input type="checkbox"/> government run national health system (NHS), financed by general taxation (Beveridge Model)</p> <p><input type="checkbox"/> insurance system covering everybody, jointly financed by employers and employees through payroll deduction (Bismark Model)</p> <p><input type="checkbox"/> mixed model (Beveridge and Bismark models)</p> <p><input type="checkbox"/> private health insurance</p> <p>1.2 Are Day Surgery procedures reimbursed at the same rate of those carried out in inpatient settings ? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>1.3 How much (in Euros or US\$) does your health system pay for the following procedures according to the surgical setting (if not applicable please explain in the lines below the table) ?</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="font-style: italic;"> <th>Surgical Procedure</th> <th>ICD9CM</th> <th>DRG</th> <th>Inpatient Reimbursement (€ or US\$)</th> <th>Day Surgery Reimbursement (€ or US\$)</th> </tr> </thead> <tbody> <tr><td>Cataract surgery</td><td>13.1-13.7</td><td>39</td><td></td><td></td></tr> <tr><td>Tonsillectomy</td><td>28.2 – 28.3</td><td>59</td><td></td><td></td></tr> <tr><td>Inguinal hernia repair</td><td>53.0.- 53.1</td><td>162</td><td></td><td></td></tr> <tr><td>Varicose veins</td><td>38.5</td><td>119</td><td></td><td></td></tr> <tr><td>Carpal tunnel release</td><td>04.43</td><td>6</td><td></td><td></td></tr> <tr><td>Knee arthroscopy</td><td>80.26</td><td>232</td><td></td><td></td></tr> <tr><td>Circumcision</td><td>64.0</td><td>342</td><td></td><td></td></tr> <tr><td>Endoscopic female sterilisation</td><td>66.2</td><td>361</td><td></td><td></td></tr> <tr><td>Laparoscopic cholecystectomy</td><td>51.23</td><td>494</td><td></td><td></td></tr> <tr><td>Thyroid lobectomy</td><td>06.2</td><td>290</td><td></td><td></td></tr> <tr><td>Lombar microdiscectomy</td><td>80.5</td><td>758</td><td></td><td></td></tr> <tr><td>Transuretral resection of prostata</td><td>60.2</td><td>337</td><td></td><td></td></tr> <tr><td>Abdominoplasty</td><td>86.83</td><td>268</td><td></td><td></td></tr> <tr><td>Vaginal hysterectomy (LAVH)</td><td>68.51</td><td>359</td><td></td><td></td></tr> </tbody> </table> <p>Comments:</p> <p>_____</p> <p>_____</p> <p>_____</p>					Surgical Procedure	ICD9CM	DRG	Inpatient Reimbursement (€ or US\$)	Day Surgery Reimbursement (€ or US\$)	Cataract surgery	13.1-13.7	39			Tonsillectomy	28.2 – 28.3	59			Inguinal hernia repair	53.0.- 53.1	162			Varicose veins	38.5	119			Carpal tunnel release	04.43	6			Knee arthroscopy	80.26	232			Circumcision	64.0	342			Endoscopic female sterilisation	66.2	361			Laparoscopic cholecystectomy	51.23	494			Thyroid lobectomy	06.2	290			Lombar microdiscectomy	80.5	758			Transuretral resection of prostata	60.2	337			Abdominoplasty	86.83	268			Vaginal hysterectomy (LAVH)	68.51	359		
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2. **Economic Data of the Country (Human resources & cost of living)**

2.1 How much do the following health professionals earn per month (consider public hospitals at the beginning of their professional career, without extra hours or services) ?

<i>Health Professional</i>	<i>Salary per month (in € or US\$)</i>	<i>Number of hours per week</i>
Medical Doctor		
Nurse		

2.2 what is the price of the following drugs over the counter ? (consider purchase at the pharmacy without a doctor prescription)

<i>Name of Drugs</i>	<i>Unit</i>	<i>VAT</i>	<i>Price (include VAT) in € or US\$</i>
Paracetamol, 1 g, per os			
Ibuprofen, 400 mg, per os			

2.3 How much is the minimum national salary per month, in your country ?

	<i>Value per month (in € or US\$)</i>
<i>Minimum National Salary</i>	

2.4. How much do the following products cost to the common citizen (when possible do consider the cheapest price) ?

<i>Name of Products</i>	<i>Name / Unit</i>	<i>VAT</i>	<i>Price (include VAT) in € or US\$</i>
Most popular national daily newspaper			
Normal ticket for underground			
McDonald's Big Mac Burger			

Comments:

Table I Comparison between health expenditure and gross domestic product (GDP).

<i>Rank</i>	<i>Countries</i>	<i>GDP by PPP*</i>	<i>Health expenditure**</i>	<i>Relative position</i>
1	Norway	\$53 471	9.6%	8th
2	The Netherlands	\$42 183	12.0%	1st
3	Sweden	\$40 394	10.0%	6th
4	Germany	\$37 897	11.6%	3rd
5	Denmark	\$37 152	11.5%	4th
6	Finland	\$36 236	9.2%	11th
7	UK	\$36 090	9.8%	7th
8	France	\$35 156	11.8%	2nd
9	Spain	\$32 360	9.5%	9th
10	Italy	\$30 464	9.5%	9th
11	Portugal	\$23 361	10.1%	5th
12	Hungary	\$19 591	7.4%	13th
13	Romania	\$12 476	5.4%	14th
14	Brazil	\$11 769	8.4%	12th
15	Peru	\$10 062	4.5%	15th
16	India	\$3 694	4.2%	16th
	Median	\$33 758	11.0%	

* purchasing power parity, per capita (Int\$)

** percentage GDP per capita (data from OECD 2009)

Table II Financial Models in Healthcare Systems.

<i>Models</i>	<i>Countries</i>	
Beveridge Government run NHS financed by general taxation	Denmark	Spain
	Finland	Sweden
	Italy	United Kindgdom
	Portugal	
Bismark Insurance system covering everybody, jointly financed by employers and employees through payroll deduction	Hungary	Romania
Mixed Beveridge and Bismark models	France	Norway
Private health Insurance with mixed models Miscellaneous system that includes all financial models described	Brazil	Peru
	Germany	The Netherlands
	India	

The expenditure for health staff (doctor and nurse's wages) based on costs at the beginning of their professional career are shown in Table III and Table IV presents the costs for patients with current over-the-counter drugs used in the ambulatory setting: paracetamol, 1g, per os, and ibuprofen, 400 mg, per os.

Cost of living of two current needs, the most popular daily newspaper and the Big Mac® burger of MacDonald's Company, are presented in Table V. Using these indicators, life seems relatively expensive in Norway (ranks first for both expenses) and relatively cheap in India (ranks last in both cases).

Table VI presents costs with labour based on minimum national salary. Curiously, a minimum national salary does not exist in Germany. For the other countries it seems to be a direct correlation between the wealth of each country and costs of labour. Those richer do have higher minimum national salaries.

Reimbursement of the most frequent DS procedures (cataract, tonsillectomy, inguinal hernia repair and varicose vein surgery) performed in the inpatient and on the DS settings are presented in Table VII. UK has the best incentive reimbursement (these procedures are better reimbursed on a day basis – 117.34% - than in comparison with the inpatient setting), followed by Hungary (107.65%). Denmark, France, Spain, Portugal and Brazil pay the same value whatever the surgical regimen used. Curiously, countries like Sweden, Norway and Germany, reimburse DS activity for less than 50% of

the value paid for the inpatient setting. The reimbursement of the most frequent DS endoscopic procedures (knee arthroscopy, female sterilisation and laparoscopic cholecystectomy) for both inpatient and DS settings are shown in Table VIII. In relation to reimbursement of DS, Table VIII seems similar to Table VII. Those countries that incentive DS practice do so for all surgical procedures. Again, Sweden, Norway and Germany have a disincentive financial policy towards DS practice. Romania does not reimburse these procedures on a day basis, which creates a great limitation for the development of day surgery programmes in the country. Table IX presents the reimbursement of the most frequent DS complex procedures: thyroid lobectomy, lumbar microdiscectomy, transurethral resection of prostate (TURP), and laparoscopic assisted vaginal hysterectomy, for both inpatient and DS settings. This time a disincentive financial policy regarding DS practice is being done by Norway, The Netherlands and Germany. Romania and Hungary do not reimburse these types of procedures on a day basis.

Finally, Table X presents the reimbursement for thirteen DS procedures based on the tariffs of the NHS of UK. Of notice, the reduction of the payment for the next year (2012-13) for the majority of procedures, and the greater reduction in the inpatient tariff list in comparison with DS list for tonsillectomy.

Table III Expenditure for health staff (values in euros for beginning of professional career).

<i>Countries</i>	<i>Doctor's wages</i>	<i>Relative position</i>	<i>Nurse's wages</i>	<i>Relative position</i>
<i>Norway</i>	5 920,00 €	1st	3 625,00 €	1st
<i>The Netherlands</i>	3 053,00 €	7th	2 100,00 €	4th
<i>Sweden</i>	4 090,00 €	2nd	2 500,00 €	3rd
<i>Germany</i>	3 844,25 €	5th	1 884,74 €	8th
<i>Denmark</i>	3 944,00 €	4th	2 800,00 €	2nd
<i>Finland</i>	3 174,89 €	6th	1 907,59 €	6th
<i>UK</i>	2 204,00 €	10th	2 088,00 €	5th
<i>France</i>	4 029,00 €	3rd	1 519,00 €	9th
<i>Spain</i>	1 419,35 €	12th	1 895,57 €	7th
<i>Italy</i>	2 250,00 €	9th	1 450,00 €	10th
<i>Portugal</i>	1 514,33 €	11th	1 020,06 €	12th
<i>Hungary</i>	500,00 €	15th	400,00 €	13th
<i>Romania</i>	310,00 €	16th	220,00 €	16th
<i>Brazil</i>	2 307,70 €	8th	1 153,85 €	11th
<i>Peru</i>	797,69 €	14th	398,46 €	14th
<i>India</i>	1 145,04 €	13th	305,34 €	15th
Median	2 278,85 €		1 701,87 €	

Table IV Costs for patients with current drugs used in the ambulatory setting (in euros).

<i>Countries</i>	<i>Paracetamol, 1 g*</i>	<i>Relative position</i>	<i>Ibuprofen, 400 mg*</i>	<i>Relative position</i>
<i>Norway</i>	0,13 €	7th	0,25 €	4th
<i>The Netherlands</i>	0,11 €	9th	0,12 €	10th
<i>Sweden</i>	0,07 €	14th	0,48 €	1st
<i>Germany</i>	0,10 €	11th	0,07 €	13th
<i>Denmark</i>	0,13 €	7th	0,17 €	5th
<i>Finland</i>	0,17 €	6th	0,13 €	7th
<i>UK</i>	0,04 €	15th	0,05 €	14th
<i>France</i>	0,23 €	3rd	0,10 €	11th
<i>Spain</i>	0,18 €	5th	0,38 €	2nd
<i>Italy</i>	0,23 €	3rd	0,16 €	6th
<i>Portugal</i>	0,09 €	12th	0,08 €	12th
<i>Hungary</i>	0,11 €	9th	0,13 €	7th
<i>Romania</i>	0,46 €	1st	0,03 €	15th
<i>Brazil</i>	0,08 €	13th	0,13 €	7th
<i>Peru</i>	0,37 €	2nd	0,28 €	3rd
<i>India</i>	0,01 €	16th	0,03 €	15th
Median	0,12 €		0,13 €	

* per unit, per os

Table V Costs of living with current needs (in euros).

<i>Countries</i>	<i>Newspaper*</i>	<i>Relative position</i>	<i>Big Mac Burger**</i>	<i>Relative position</i>
<i>Norway</i>	3,30 €	1st	7,12 €	1st
<i>The Netherlands</i>	1,50 €	4th	3,15 €	10th
<i>Sweden</i>	1,14 €	8th	2,73 €	14th
<i>Germany</i>	0,60 €	13th	3,79 €	5th
<i>Denmark</i>	3,00 €	2nd	3,70 €	6th
<i>Finland</i>	2,50 €	3rd	3,90 €	3rd
<i>UK</i>	0,35 €	15th	3,52 €	9th
<i>France</i>	1,00 €	9th	3,80 €	4th
<i>Spain</i>	1,30 €	6th	3,55 €	8th
<i>Italy</i>	1,20 €	7th	3,60 €	7th
<i>Portugal</i>	0,90 €	11th	2,95 €	11th
<i>Hungary</i>	0,37 €	14th	2,00 €	15th
<i>Romania</i>	0,90 €	11th	2,90 €	12th
<i>Brazil</i>	1,31 €	5th	4,37 €	2nd
<i>Peru</i>	1,00 €	10th	2,85 €	13th
<i>India</i>	0,08 €	16th	0,92 €	16th
Median	1,07 €		3,54 €	

* most popular daily newspaper

** MacDonald's®

Table VI Expenditure for health staff (values in euros for beginning of professional career).

Countries	Minimum national salary	Relative position
<i>Norway</i>	2 900,00 €	1st
<i>The Netherlands</i>	1 446,60 €	5th
<i>Sweden</i>	1 590,90 €	4th
<i>Germany</i>	not applicable	
<i>Denmark</i>	2 112,00 €	2nd
<i>Finland</i>	1 600,00 €	3rd
<i>UK</i>	1 150,00 €	6th
<i>France</i>	1 098,00 €	7th
<i>Spain</i>	641,40 €	9th
<i>Italy</i>	800,00 €	8th
<i>Portugal</i>	485,00 €	10th
<i>Hungary</i>	330,00 €	11th
<i>Romania</i>	165,00 €	14th
<i>Brazil</i>	265,80 €	12th
<i>Peru</i>	192,31 €	13th
<i>India</i>	76,34 €	15th
Median	800,00 €	

Table VII Reimbursement of the most frequent DS procedures* in the inpatient (average value, in euros) and on the DS settings (% of the inpatient value).

Countries	Value for inpatient setting	Relative position	Day Surgery value (% of inpatient)
<i>Norway</i>	1 507,75 €	7th	42.02%
<i>The Netherlands</i>	2 926,65 €	2nd	55.26%
<i>Sweden</i>	4 219,92 €	1st	43.89%
<i>Germany</i>	2 004,05 €	3rd	36.95%
<i>Denmark</i>	1 615,50 €	5th	100.00%
<i>Finland</i>	1 875,00 €	4th	66.93%
<i>UK</i>	1 020,75 €	11th	117.34%
<i>France</i>	1 247,75 €	9th	100.00%
<i>Spain</i>	742,63 €	13th	100.00%
<i>Italy</i>	1 431,72 €	8th	86.20%
<i>Portugal</i>	1 603,21 €	6th	100.00%
<i>Hungary</i>	272,50 €	15th	107.65%
<i>Romania</i>	191,00 €	16th	52.09%
<i>Brazil</i>	1 103,85 €	10th	100.00%
<i>Peru</i>	658,97 €	14th	76.73%
<i>India</i>	896,95 €	12th	62.77%
Median	1 339,74 €		

* cataract, tonsillectomy, inguinal hernia repair and varicose vein surgery.

Table VIII Reimbursement of the most frequent DS endoscopic procedures* in the inpatient (average value, in euros) and on the DS settings (% of the inpatient value).

Countries	<i>Value for inpatient setting</i>	<i>Relative position</i>	<i>Day Surgery value (% of inpatient)</i>
<i>Norway</i>	2 294,00 €	5th	32.15%
<i>The Netherlands</i>	2 951,06 €	2nd	65.41%
<i>Sweden</i>	5 121,36 €	1st	44.21%
<i>Germany</i>	2 067,59 €	8th	31.44%
<i>Denmark</i>	2 108,33 €	7th	100.00%
<i>Finland</i>	2 595,00 €	3rd	87.41%
<i>UK</i>	1 358,67 €	13th	108.54%
<i>France</i>	1 841,00 €	10th	100.00%
<i>Spain</i>	1 009,50 €	14th	100.00%
<i>Italy</i>	2 412,98 €	4th	100.00%
<i>Portugal</i>	1 741,12 €	11th	100.00%
<i>Hungary</i>	438,33 €	15th	57.03%
<i>Romania</i>	196,00 €	16th	no value for DS
<i>Brazil</i>	2 207,69 €	6th	100.00%
<i>Peru</i>	1 847,69 €	9th	65.01%
<i>India</i>	1 399,49 €	12th	61.82%
Median	1 957,64 €		

* knee arthroscopy, female sterilisation and laparoscopic cholecystectomy.

Table IX Reimbursement of the most frequent DS complex procedures* in the inpatient (average value, in euros) and on the DS settings (% of the inpatient value).

Countries	<i>Value for inpatient setting</i>	<i>Relative position</i>	<i>Day Surgery value (% of inpatient)</i>
<i>Norway</i>	2 186,33 €	11th	36.47%
<i>The Netherlands</i>	6 874,02 €	1st	31.31%
<i>Sweden</i>	5 335,36 €	2nd	51.81%
<i>Germany</i>	3 170,90 €	5th	26.09%
<i>Denmark</i>	4 166,25 €	3rd	80.13%
<i>Finland</i>	3 275,00 €	4th	54.27%
<i>UK</i>	2 876,50 €	7th	102.05%
<i>France</i>	2 632,33 €	9th	100.00%
<i>Spain</i>	1 210,21 €	14th	100.00%
<i>Italy</i>	2 726,57 €	8th	97.86%
<i>Portugal</i>	2 441,42 €	10th	88.66%
<i>Hungary</i>	572,50 €	15th	no value for DS
<i>Romania</i>	381,75 €	16th	no value for DS
<i>Brazil</i>	2 942,31 €	6th	100.00%
<i>Peru</i>	1 524,36 €	13th	74.55%
<i>India</i>	2 003,82 €	12th	76.19%
Median	2 679,45 €		

* thyroid lobectomy, lombar microdiscectomy, TURP and LAVH.

Table X UK reimbursement based on surgical tariffs for 13 DS procedures performed on inpatient and day basis, on two consecutive years (2011-12 and 2012-13).

<i>Surgical Procedure</i>	<i>ICD9CM</i>	<i>DRG</i>	<i>HRG4</i>	<i>Inpatient Tariff</i>			<i>Daycase Tariff</i>		
				<i>2011-12</i>	<i>2012-13</i>	<i>%</i>	<i>2011-12</i>	<i>2012-13</i>	<i>%</i>
				€	€		€	€	
Cataract surgery	13.1-13.7	39	BZ03Z	1 091,50 €	1 007,72 €	-7,68%	1 091,50 €	1 007,72 €	-7,68%
Tonsillectomy	28.2 – 28.3	59	CZ05Y (adult) CZ05T (<=18)	1 286,20 €	868,48 €	-32,48%	1 286,20 €	1 222,48 €	-4,95%
Inguinal hernia repair	53.0.- 53.1	162	FZ18C	1 231,92 €	928,66 €	-24,62%	1 231,92 €	1 282,66 €	4,12%
Varicose veins	38.5	119	QZ05B	972,32 €	986,48 €	1,46%	1 326,32 €	1 340,48 €	1,07%
Carpal tunnel release	4.43	6	HB55C	1 275,58 €	1 221,30 €	-4,26%	1 275,58 €	1 221,30 €	-4,26%
Knee arthroscopy	80.26	232	HB24C	1 090,32 €	1 118,64 €	2,60%	1 090,32 €	1 118,64 €	2,60%
Circumcision	64	342	LB32B (adult) LB32C (<=18)	1 400,66 €	1 367,62 €	-2,36%	1 400,66 €	1 367,62 €	-2,36%
Endoscopic female sterilisation	66.2	361	MA10Z	840,16 €	847,24 €	0,84%	840,16 €	847,24 €	0,84%
Laparoscopic cholecystectomy	51.23	494	GA10D/E	870,84 €	979,40 €	12,47%	870,84 €	979,40 €	12,47%
Thyroid lobectomy	6.2	290	KA01B/9B	864,94 €	1 095,04 €	26,60%	864,94 €	1 095,04 €	26,60%
Lumbar microdiscectomy	80.5	758	HC04C	1 616,60 €	1 613,06 €	-0,22%	1 993,02 €	1 961,16 €	-1,60%
Transurethral resection of prostate	60.2	337	LB25C	2 801,32 €	2 625,50 €	-6,28%	2 801,32 €	2 625,50 €	-6,28%
Vaginal hysterectomy (LAVH)	68.51	359	MA07B/D	3 937,66 €	3 875,12 €	-1,59%	3 937,66 €	3 875,12 €	-1,59%
				2 021,34 €	1 937,56 €	-4,14%	2 198,34 €	2 173,56 €	-1,13%
				3 168,30 €	3 066,82 €	-3,20%	3 168,30 €	3 066,82 €	-3,20%

Discussion

The majority of countries enrolled in this study (7 out of 16 countries) still use the Beveridge general-taxation model. This system needs more public funds than the Bismark employer-employee-funded or Private Insurance systems. For that reason and due to the European economical crisis we can speculate that in the near future some European economies with financial difficulties will discuss the need to reformulate their financing model. It is important to note that increasing the percentage of surgery done as day case will reduce the costs of operations, or enable scarce healthcare financing to provide more services. Independent of their payment system, almost all western European societies spent between 9 and 12% of their GDP in the health system, making health one of the priorities for its development and the well being of its citizens. Brazil one of the 20 greatest world economies is spending 8.4%, investing a lot in the health system in the last years and achieving important improvements on its health indicators [4]. The two eastern European representatives (Hungary and Romania) spent between 5.0 and 7.5%, not very different from developing countries like Peru and India that spent less than 5.0% of their GDP.

The purpose of this study was to compare costs and reimbursement to the level of wealth of its country. For that reason and due to the results found several remarks for each country should be made:

- **Norway (wealth – rank 1st):** Being the richest country of those countries enrolled in the present study it was not surprising to have a leading position in the majority of costs (with staff, labour, drugs). Nevertheless, in terms of health expenditure it ranks at the middle of the list, and has a tight control in relation to reimburse surgical activity. Surprisingly, although Norway is a country with high level of day surgery (over 60%) [1], policymakers have recently decided to substantially reduce the reimbursement of DS procedures when comparing with the inpatient setting, to between 30 and 45% of the value for the same procedure performed as inpatient. Future will decide if this will have or not a negative impact in a further development of DS in Norway.
- **The Netherlands (wealth – rank 2nd):** Is the country that spends more of its wealth in the health system. In spite of controlling quite well its costs (with staff, labour, current needs or drugs), The Netherlands reimburses surgical activity very well. But like Norway, The Netherlands does not financially incentive DS practice.
- **Sweden (wealth – rank 3rd):** The wealth and costs results for Sweden are similar to those for The Netherlands, with a similar financially disincentive policy towards DS. DS reimbursement is 30-65% of the value given to the inpatient setting.
- **Germany (wealth – rank 4th):** After The Netherlands and France, Germany is the third country to spend more of its GDP on health expenditure (11.6%). As others it controls quite well cost especially those related with current needs and drugs. Staff wages are correspondent to its wealth (better doctors than nurses) and surgical activity for the inpatient setting is well reimbursed. Strangely, it's the worst country of the sample to finance DS activity, between 26.09% and 36.95% of the value paid for the same procedure on the inpatient setting. It's curious that the strongest economy of Europe doesn't lead others to incentive cost-effective programmes, such as those performed on a day surgery basis.
- **Denmark (wealth – rank 5th):** Denmark maintains its relative position in all items studied without great variation (of notice, it's the second country to have better wages for nurses and has

the second best minimum national salary). Surgery activity is well reimbursed and DS has been incentive financially for a long time, with very positive consequences reflected by the national expression of almost 90% of all non-emergent procedures [1].

- **Finland (wealth – rank 6th):** Even though it is the 6th richest country it only spends 9.2% of its GDP (11th of the rank) on health expenditures. It maintains its relative position for all other items except for current needs such as the most popular daily newspaper or the Big Mac® burger where it ranks 3rd. Finland is the 4th country in terms of surgical reimbursement, but doesn't support much the DS setting where it reimburses between 54.27% and 87.41% (this value for endoscopic DS procedures) of the inpatient value.
- **United Kingdom (wealth – rank 7th):** UK is probably the country that controls best its expenditures. Minimum national salary and nurses' wages rank in the 6th and 5th position, respectively. Otherwise, UK ranks many times in the last positions for costs such as for current drugs (paracetamol in 15th and ibuprofen in 14th) and for the most popular daily newspaper. Moreover, it's one of the countries that spends less money for surgical reimbursement, even less than India for endoscopic procedures! However, in contrast to that, UK is the country that incentives better the DS setting, reimbursing better this surgical regimen than the inpatient setting, making a very rational approach through the tariffs system. Each year there is a reduction for the majority of procedures (most probably reflecting the reduction in costs when transferring patients from the inpatient to the DS setting), and when there is a need for additional incentives for DS practice, there is a lower reduction in this surgical regimen such as happened with tonsillectomy.
- **France (wealth – rank 8th):** France appears to be the country that has the worse control of its expenditures. Being the 8th in richness, it's the 2nd country of the sample that spends more with health (11.8% of its GDP). In addition it has high costs for staff (doctor's wages), current drugs (paracetamol) and current needs (Big Mac® burger). In terms of surgical reimbursement it maintains its relative position, and incentives DS paying the same value independently of the surgical regimen.
- **Spain (wealth – rank 9th):** Spain is a country with costs slightly over its wealth (costs with nurses' wages, current drugs, or even current needs, ranks higher than the 9th position). In contrast, it's the western European country with the lowest surgical reimbursement (ranks in 13th or 14th positions) but creates financial incentives for DS, where these procedures are paid for the same value as for inpatient setting.
- **Italy (wealth – rank 10th):** Italy maintains its relative rank position for the great majority of situations analysed, in relation to costs or surgical reimbursement, with exception to costs with current drugs where ranks 3rd (paracetamol) and 6th (ibuprofen), or reimbursement of endoscopic procedures (ranks 4th). Curiously, the value paid for DS activity is almost the same in comparison with the inpatient setting.
- **Portugal (wealth – rank 11th):** With a wealth that ranks below the average of the countries involved, Portugal is a country that spends a lot with its NHS (the 5th country that spends more with health expenditure, representing 10.1% of its GDP). Knowing that this value was over 10% of the GDP since 2005, where Portugal was the European economy that spent the third most on health, and that the Portuguese GDP has been stable or even slightly reduced for the last couple of years, it seems that the Portuguese governments have been actively controlling health expenditure to avoid significant increases. In terms of

other costs, Portugal maintains its relative position with one exception: reimbursement of the most frequent DS procedures for the inpatient setting where ranks 6th. Similar to many other countries, Portugal is creating financial incentives towards DS, reimbursing the same value whatever the surgical regimen used, explaining the high increase in DS practice in recent years [5].

- **Hungary (wealth – rank 12th):** Hungary and Romania are the two eastern European countries included in the study. Costs of health staff and current needs are very controlled by the government compared to other countries. Strangely, current drugs (paracetamol and ibuprofen) are quite expensive for the Hungarian population especially when compared with countries like UK. Surgical reimbursement for inpatient setting is one of the worst (only better than Romania) of the countries enrolled, but Hungary still incentives day surgery at least for the most frequent DS procedures. Hungary is taking its first steps in the promotion of DS and probably for that reason doesn't allow more complex surgery to be done under this surgical regimen. Hopefully this will be a temporary situation.
- **Romania (wealth – rank 13th):** Romania has a similar scenario to Hungary. Again, like in Hungary current drugs are too expensive in relative terms for the population to support, being paracetamol, 1 g the most expensive of the countries included. This situation can only be explained by the absence of generics of this drug in the Romanian market. In addition, it's the country that pays health staff worst, and has the smallest difference between doctors' and nurses' wages. Moreover, Romania is also the country that reimburses worst surgical activity, worse than India and Peru. Like Hungary, Romania is just starting DS activity, which can explain the limited reimbursement system of procedures performed on a day basis.
- **Brazil (wealth – rank 14th):** Brazil is a county of contrasts. Despite being one of the 20th greatest economies of the World, Brazil has one of the lowest GDP per capita. In recent years, the latest governments are making a great effort to improve Brazil's health indicators and trying to give their citizens better conditions of living. One important fact is the significant investment Brazil is making in the Health Department, spending an amount that is approaching the percentage of well-developed economies [4]. Brazil is spending a lot for its health staff (8th and 11th rank for doctor's and nurses' wages) and has significant costs with current needs like with its most popular daily newspaper (the 5th more expensive) or the Big Mac® burger (the 2nd most expensive). Surgical activity is relatively very well reimbursed (6th position for most frequent endoscopic and complex DS procedures) and DS is being financially incentivized, as its reimbursement is the same as for the inpatient setting.
- **Peru (wealth – rank 15th):** Being one of the poorest countries of those included in this study, Peru has lower investments in health demonstrated by the low percentage spent (4.5% of its GDP). In general and in relative terms the country is having costs slightly over its wealth (the majority of costs have an relative higher position that its wealth). Of notice, Peruvians have to face significant costs to buy current drugs like paracetamol and ibuprofen (the 2nd and 3rd most expensive, respectively), without any obvious explanation. Peru is starting to develop DS programmes all over the country and for this to become a more effective health strategy, financially incentives should be implemented such as offering the same reimbursement whatever the surgical regimen used, as many other countries are following.
- **India (wealth – rank 16th):** India is another example of huge contrasts. Even though it is also one of the 20th greatest World

economies, among the surveyed countries it is the one that invests least on Health (only 4.2% of its GDP), explaining the poor health indicators that still exist in India [4]. Except for cost for health staff and surgical reimbursement, India maintains the last position whatever the item analysed. In addition there isn't yet any significant financial incentive measure towards DS. Day surgery is being paid between 61.82% and 76.19% of the inpatient value, making this surgical regimen not very attractive for hospitals to promote.

There is a great heterogeneity in the wealth and the economic potential of the countries involved. However, they mostly maintain their relative position for different measures assessed: those that are richer, have increased costs, but do reimburse surgical activity better than those countries that are poorer. Nevertheless, those countries that achieve a high percentage of DS activity have a strong financial incentive (e.g., Denmark, United Kingdom) than others where there is no financial incentive at all towards this surgical regimen as happens in Germany. Countries like Portugal, France, Spain or Hungary are using this strategy of financial incentives to promote more and more DS. There are significant potential savings when NHS maximize DS practice through financial incentives, especially the opportunity to reduce overall costs with surgical practice when transferring surgery from the inpatient to the DS setting, such as the UK reimbursement policy in recent years.

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