

21 st PCS/I Working Conference: Case-mix  
in a Patient-oriented Health Care System

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## Hospital Financing in Portugal

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## Portuguese Hospital Financing – Briefing I

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- Introduce of DRGs in Portuguese Hospitals were in late 80's as PCS
- Not successful experience when used as financing methodology:
  - a) Efficient prices were are too high for NHS budget;
  - b) Separation of contractualization and financing functions.

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## Portuguese Hospital Financing – Briefing II

### Changes in Portuguese NHS:

- Corporatization of 1/3 Portuguese NHS Hospitals (became Hospitals AS)
- Introduction of contrat-programs with new financing formula for NHS patients
- In the last year these contract-programs were signed by all NHS Portuguese Hospitals

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## Portuguese Hospital Financing – Contract-Program

Production Lines	Volume	CMI	Price	Total (euros)
Equivalent Patients – Medical DRG	8.713	0,6625	2.034,01	11.741.043,05
Equivalent Patients Programados – Surgical DRG				
Basic Production	2.036	1,2483	2.034,01	5.169.515,33
Adicional Production	221			
Equivalent Patients Urgency – Surgical DRG	1.536	1,2483	2.034,01	3.899.987,99
Inpatient Psiquiatric Cronical (days)	4.745		83,27	395.116,15
Surgery Ambulatory				
Basic Production	533	0,4827	2.034,01	523.308,26
Adicional Production				
Ambulatory (outpatient visit)	112.123	0,7782	81,47	7.108.593,04
Urgencies	48.775		112,13	5.469.140,75
Day Hospital Sessions:				
Quimioterapy	2.961		330	977.130,00
Hematology	422		330	139.260,00
Imuno-Hemoterapy				
Infecioses Diseases				
Psiquiatric	6.408		37,4	239.659,20
Others	3.806		27,17	103.409,02

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## Objectives and starting questions

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The main objective of this study was to measure the impact of the new formula (already used in last two years in Hospitals AS) of hospital financing in Portuguese NHS Hospitals:

- ✓ This new formula will imply (total and unitary) changes on the amount of reimbursement at a Hospital Level ?
- ✓ Financing using CMI is different from the financing using DRG cost weights
- ✓ The consideration of severity measure as adjustment factor will affect the hospital financing ?

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## Methods

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Were used 5 price systems in the present study:

**DRGP** – Diagnosis Related Groups Prices of Portuguese Federal Register

**CMIP** – Case-Mix Index Prices

**STGDRGP** – Prices of Diagnosis Related Groups with Staging

**ACOBS** – Average Costs Observed – Real Costs

**ACEXP** – Average Costs Expected

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## Diference between case-mix and product financing

DRG	Epis	CW	Epi x CW	BP	FCW	FCMI	Dif
1	230	1,2	276	1800	496.800	432.346	64.454
2	14	2,3	32,2	1800	57.960	26.317	31.643
...	23	1,2	27,6	1800	49.680	43.235	6.445
...	130	0,6	78	1800	140.400	244.369	-103.969
...	467	0,8	373,6	1800	672.480	877.850	-205.370
N	323	1,4	452,2	1800	813.960	607.164	206.796
<b>Total</b>	<b>1187</b>		<b>1,04</b>	<b>1800</b>	<b>2.231.280</b>	<b>2.231.280</b>	<b>0</b>

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## Results

Price Systems per Inpatient	Perc. 25	Median	Perc. 75	Mean	Coef. Variation	Max.	Min.	Range
DRGP	1.699	1.827	2.123	2.046	0,41	4.838	846	3.991
CMIP	1.549	1.702	2.017	1.989	0,33	4.505	908	3.597
DRGPS	1.661	1.817	2.115	2.044	0,34	4.363	923	3.440
ACEXP	1.745	1.877	2.218	2.058	0,49	7.307	989	6.318
ACOB5	1.603	1.997	2.631	2.324	0,27	3.970	1.022	2.948

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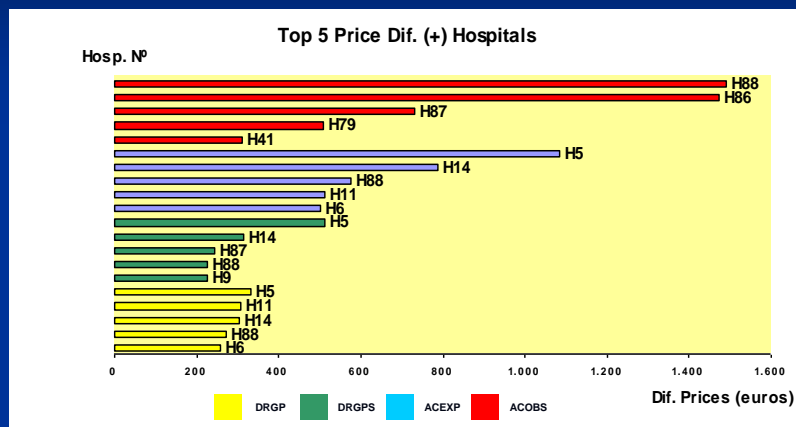
## Results

### Differences per inpatient between price systems and CMIP

Price Systems per Inpatient	Perc. 25	Median	Perc. 75	Mean	Coef. Variation	Max.	Min.	Range
DRGP	-142	-121	118	-58	3,07	333	-331,50	665
DRGPS	-146	-96	82	-56	2,92	511	-373,38	884
ACEXP	-225	-159	26	-70	4,14	1.084	-625,32	1.709
ACOBS	-596	-261	-13	-336	1,94	1.492	-2.58	4.074

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## Results



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## Results

### K values for price systems

Price Systems	DRGP	CMIP	DRGPS	ACEXP	ACOBS
DRGP		0,296	0,247	0,185	0,062
CMIP	0,296		0,198	0,148	0,062
DRGPS	0,247	0,198		0,247	0,012
ACEXP	0,185	0,148	0,247		0,037
ACOBS	0,062	0,062	0,012	0,037	

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## Results

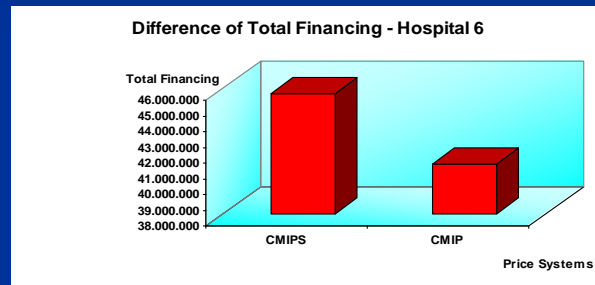
### Including Severity:

- ✓ 62% of the Hospitals will see there financing decrease
- ✓ Compression of the price structure

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## Results

### Severity Effect in Hospital 6 financing



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## Conclusions

- The new formula will provoke significant variations in hospital financing;
- Case-Mix is a gross measure of the production activity;
- The severity is a fundamental dimension of hospital production analyses and could be an adjuster variable of hospital financing.

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