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Economic models for AT service delivery

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The ImEcAP Project

- Overall Objective
 - Analysing the determinants of the economic impact of AT provision in order to help the Ministry of Health to take informed decisions on appropriate reimbursement
- Specific objectives
 - Build an economic model to analyse the actual costs of providing AT products
 - Develop an operational method to establish reasonable reimbursement amounts



The Economic Model for the “Social Cost”

Social cost of AT =

Product Costs +

Process Costs

$$S = C + K$$



C



K



Custom-made and Off The Shelf Products



- Custom-made and Off the Shelf Products have very different production cycles
- For off the shelf products the cost *is only partially influenced by factors related to the production cycle* while other factors (e.g. the distribution chain,...) play an important role
- Two different approaches for determine reimbursement prices were followed

Custom-made products - the model

$$C = \left[\sum_{i,j} o_i \cdot h_{i,j} \cdot (1 + p_{OS_i}) \cdot (1 + p_{OC_i}) \right] \cdot (1 + p_{MF})$$

o_i $\Rightarrow$ Unit cost of the resource i (*cost per hour or per unit*)

h_{ij} $\Rightarrow$ Time spent (*or number of unit used*) by the resource i for the activity j

p_{OS_i} $\Rightarrow$ Specific indirect costs

p_{OC_i} $\Rightarrow$ Common indirect costs (overhead costs)

p_{MF} $\Rightarrow$ Mark-up



The spreadsheet – inventory of production factors and cost per unit

An example- Lower limb Transfemoral (above-knee) prosthesis

Components							
	Cost per unit	Number	Brand	Model	Description		
Joint	434,60	1,00	Otto Bock	3R33	In titanium		
Socket	90,20	1,00	Otto Bock	4R41			
Thigh Tube	24,90	1,00	Otto Bock	2R30=340			
Knee	105,90	1,00	Otto Bock	4R52	In titanium		
Foam cover	75,80	1,00	Otto Bock	3R24=L44			
Rubber valve	7,65	1,00	Otto Bock	21Y40=40			
tube for valve	7,35	1,00	Otto Bock	21Y77			
Foot	136,59	1,00	Endolite	519124			
Ankle	107,20	1,00	Endolite	379342			
Snubber	9,33	1,00	Endolite	409008			

Uman resources							
	Cost per unit	Unit					
Technician 1	21,88	€/h					
Technician 2	25,00	€/h					
Technician 3	28,13	€/h					
Technician (5 yrs exp.)	34,38	€/h					

Materials							
	Cost per unit	Unit	Brand	Model	Description		
Raw material	181,00	€/Kg					
Minuteria	5,00	€/unit					
Consumables	16,60	€/unit					
Packaging	1,57	€/unit					



The spreadsheet – measuring the quantity of production factors used

Use of production factors								
		Construction			Provision		Implementation	
Uman resources				<i>Subtotal</i>				
Technician 1		3,14	1,32	4,46				
Technician 2		1,57	3,25	4,82			0,25	
Technician 3		8,16	5,00	13,16			5,00	
Technician (5 yrs exp.)	1,25			1,25				
Materials								
Raw materials (Kg)		0,5		0,50				
Minuteria		1		1,00				
Consumables (units)		1		1,00				
Packaging (units)			1,00	1,00				



The spreadsheet – Costs of provision

Summary				
Acquisition				
	Production			
	Components		€ 1.711,61	
	Construction		€ 837,33	
	Manufacturer indirect cost		€ 0,00	
	Manufacturer Markup		€ 0,00	
	<i>Production Costs</i>		€ 2.548,94	
	Supply			
	Supplier direct costs			
	Supplier indirect costs		€ 420,57	
	Supplier Markup		€ 1.484,76	
	<i>Supply Costs</i>		€ 1.905,33	
		Cost for acquisition		€ 4.454,27
Implementation				
	Service provider direct cost		€ 146,88	
	Service provider indirect cos		€ 24,23	
	Service provider Markup		€ 85,55	
		Cost for implementation		€ 256,66
		Cost of provision		€ 4.710,93

Custom-made products – the methodology for establish reasonable reimbursement amount

- The manufacturer:
 - provides evidence of direct costs, by filling-in the spreadsheet, and propose a reimbursement price
- The authority:
 - carries out audits on a sample of manufacturers, by means of on-site visits => the production cycle is observed to check whether it is consistent with the data declared
 - Standard percentage of indirect costs and Mark-up are established on the basis of an comparative analysis of the companies structures
 - Decision is finally taken on reimbursement amount



Off the shelf products

- A price monitoring system has been developed on the national information database of assistive technologies (www.portale.siva.it)
- The primary supplier for the Italian market is required to declare the product prices to the public



Prices Table

An example – Foldable Pram

Commercial name	Prescription codes	Number of item	Price to the public (VAT excl.)	Price to the Nat. Health System (VAT excl.)
Basic configuration				
Perambulator	12.27.03.006 – Passeggino riducibile 12.27.91.012 – Cinghia di bretellaggio imbottita	1	1253 €	750 €
Optional components, eligible for prescription				
Foot positioners mod. 03464	12.27.91.021 – cinturini fermapièdi (coppia)	2	50 €	30 €
Headrest mod. 03421	12.27.03.133 – poggiatesta regolabile in altezza con protezioni parietali o ad angolo variabile	1	30 €	20 €
Optional components, not eligible for prescription				
Canopy	-	1	120 €	120 €
Raincoat cloak	-	1	150 €	150 €
Date of update: 27/10/2007				



Printout example – code 12.22.18.012 Tilting pushchairs

Product

Technical Data

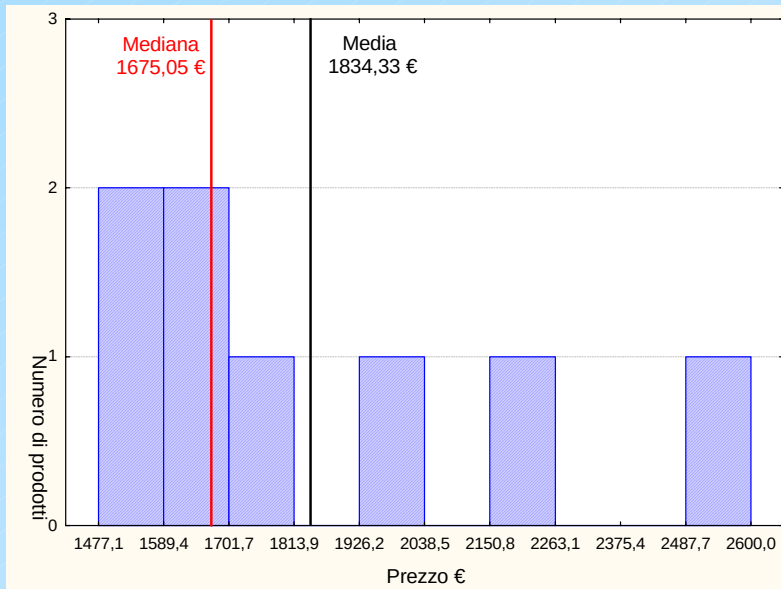
Measurements

Text Description

Codice Nomenclatore Carrozzina 12.22.18.012 – Carrozzina a spinta con telaio basculante e sistema di supporto posturale a configurazione regolabile

Prodotto	Dettagli tecnici	Misure	Descrizione
 Marchio INVACARE Modello REA CLEMATIS Prezzo base 1500 € (1/09/2007)	Accessori Braccioli rimovibili/ribaltabili Schienale reclinabile Schienale pieghevole/abbattibile Appoggipiedi estraibile Sedile basculante	Dimensioni globali Larghezza (cm): 59-69. Lunghezza (cm): 112-148. Altezza (cm): 103-108. Peso (kg): 33. Dimensioni sistema di postura Altezza seduta (cm): 45. Larghezza sedile (cm): 39, 44, 49. Profondità sedile (cm): 42-48. Altezza schienale (cm): 63-69. Altezza braccioli (dalla seduta) (cm): 23-34. Capacità tecniche Portata massima (kg): 125.	Carrozzina basculante con basi per esterni disponibile nella versione ad autospinta o da transito. Seduta basculante con schienale reclinabile tramite pistoni a gas. Seduta regolabile in profondità, larghezza. Schienale regolabile in altezza. Braggioli regolabili in altezza e larghezza. Portapedane elevabili con poggipolpaccio regolabile e poggipiedi con flessione estensione. Poggianuca regolabile in altezza, profondità e inclinazione.
 Marchio VASSILLI Modello 12.17 VARIO PLUS Prezzo base: 1596 € (14/12/2006)	Accessori Braccioli rimovibili/ribaltabili Schienale reclinabile Schienale pieghevole/abbattibile Sedile basculante	Dimensioni globali Larghezza (cm): Lunghezza (cm): Altezza (cm): Peso (kg): Dimensioni sistema di postura Altezza seduta (cm): Larghezza sedile (cm): Profondità sedile (cm): Altezza schienale (cm): Altezza braccioli (dalla seduta) (cm): Capacità tecniche Portata massima (kg):	E' in acciaio verniciato, Il sistema di postura è basculante di 43° mediante pompa a gas, durante il basculamento tutta la scocca trasla in avanti. Può essere dotata di spinte laterali e divaricatore.
 Marchio INVACARE Modello REA ASSIST Prezzo base: 2600 € (01/07/2003)	Accessori Schienale reclinabile Sedile basculante	Dimensioni globali Larghezza (cm): 61-70, 66-75. Lunghezza (cm): 101.5. Altezza (cm): 109. Peso (kg): 34. Dimensioni sistema di postura Altezza seduta (cm): 47. Larghezza sedile (cm): 36-45, 41-50. Profondità sedile (cm): 40, 50. Altezza schienale (cm): 52.5. Altezza braccioli (dalla seduta) (cm): 22-31. Capacità tecniche Portata massima (kg): 125.	Carrozzine basculanti dotate di sedile anatomico, schienale reclinabile, basculamento del sedile e pedane cpa per garantire la massima comodità dell'utente. I modelli sono dotati di regolazioni come la profondità del sedile, larghezza della seduta, variazione della lunghezza delle pedane, spostamento dei perni delle ruote posteriori e anteriori, bracciolo regolabile in altezza. Optional : poggiatesta, vassoio trasparente, cintura pettorale, cuneo, supporti laterali di spinta.

Prices statistical distribution



Devices found: 8
 Devices with price information: 8
 Minimum price: 1477,07 €
 Maximum price: 2600,00 €
 Average price: 1834,33 €

Median price: 1675,05 €
 Coefficient of Variation: 0.21

List of suppliers (holders of the brands):

COLOMBO

COLOMBO GIUSEPPE DEI F.LLI COLOMBO & C. SNC

Viale Ticino, 85 - 21015 LONATE POZZOLO (VARESE)

Tel +39-0331301711 Fax +39-0331301718 E-mail commercial@colombogiuseppe.it

Website www.colombogiuseppe.it

INVACARE

INVACARE MECC SAN SRL

Via dei Pini, 62 - 36016 THIENE (VICENZA)

Tel +39-0445380059 Fax +39-0445380034 E-mail italia@invacare.com

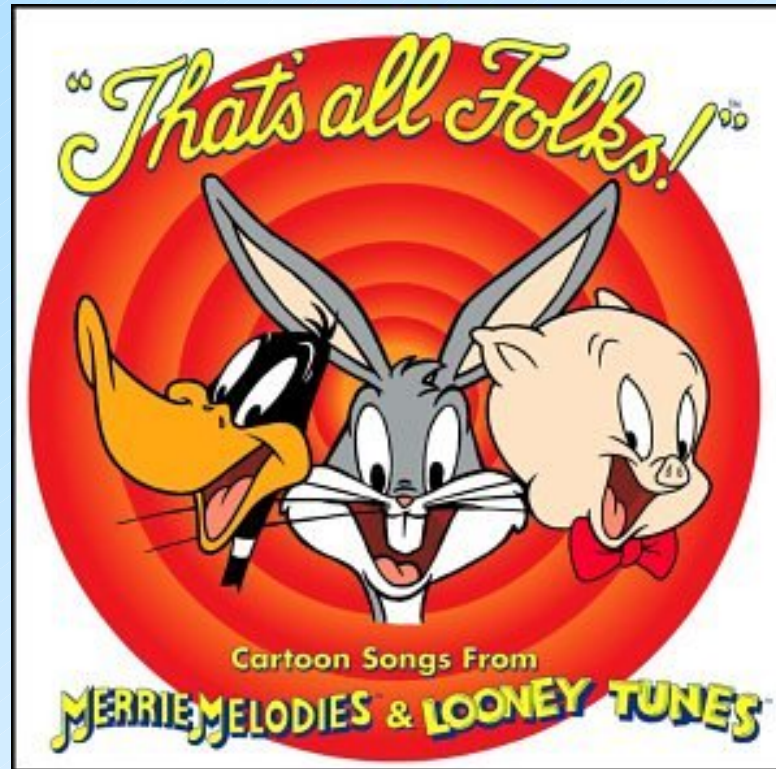
Website www.invacare.it

Conclusions

The proposed methodology

- For Custom-Made products helps the authority to verify whether the reimbursement price corresponds to the real value of the product
- For Off-the-shelf products helps the authority in taking an informed decision in prices negotiation





Thank you for your kind attention