

A COST ESTIMATION OF MANAGEMENT OF ALLERGIC ASTHMA IN ITALY

Ariemma F¹, Trimarchi C¹, Canonica G W², Senna G³, Scichilone N⁴, Pelaia G⁵, Paggiaro P⁶, Griffiths S⁷, Urbinati D¹

¹ IQVIA, Milan Italy; ² Humanitas Research Hospital, Milan Italy; ³ Azienda Ospedaliera Universitaria Integrata, Verona Italy; ⁴ Ospedali Riuniti Villa Sofia-Cervello, Palermo Italy; ⁵ Azienda Ospedaliera Universitaria Mater Domini, Catanzaro Italy; ⁶ Azienda Ospedaliera Universitaria, Pisa Italy; ⁷ ALK- Abellò, Milan Italy

INTRODUCTION

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation, that tends to present as a lifelong condition with different severity degrees¹. More than 315 million people are affected by asthma all over the world¹; in Italy the prevalence of asthma is about 6.6%². House Dust Mites (HDM) are one of the most common aeroallergens worldwide and up to 85% of asthmatics are typically HDM allergic³. More than 60% of asthmatics also have allergic rhinitis as co-morbidity⁴. The aim of this research was to investigate the Italian clinical pathway and the economic burden of disease for patients with allergic asthma, at different stages of severity.

METHODS

A retrospective Real-World Analysis was developed in Italy to evaluate the health-care resources consumed for the management of patients with allergic asthma. Data were related to patients aged > 12 years with allergic asthma diagnosed by physician, treated between January 2015 and December 2016.

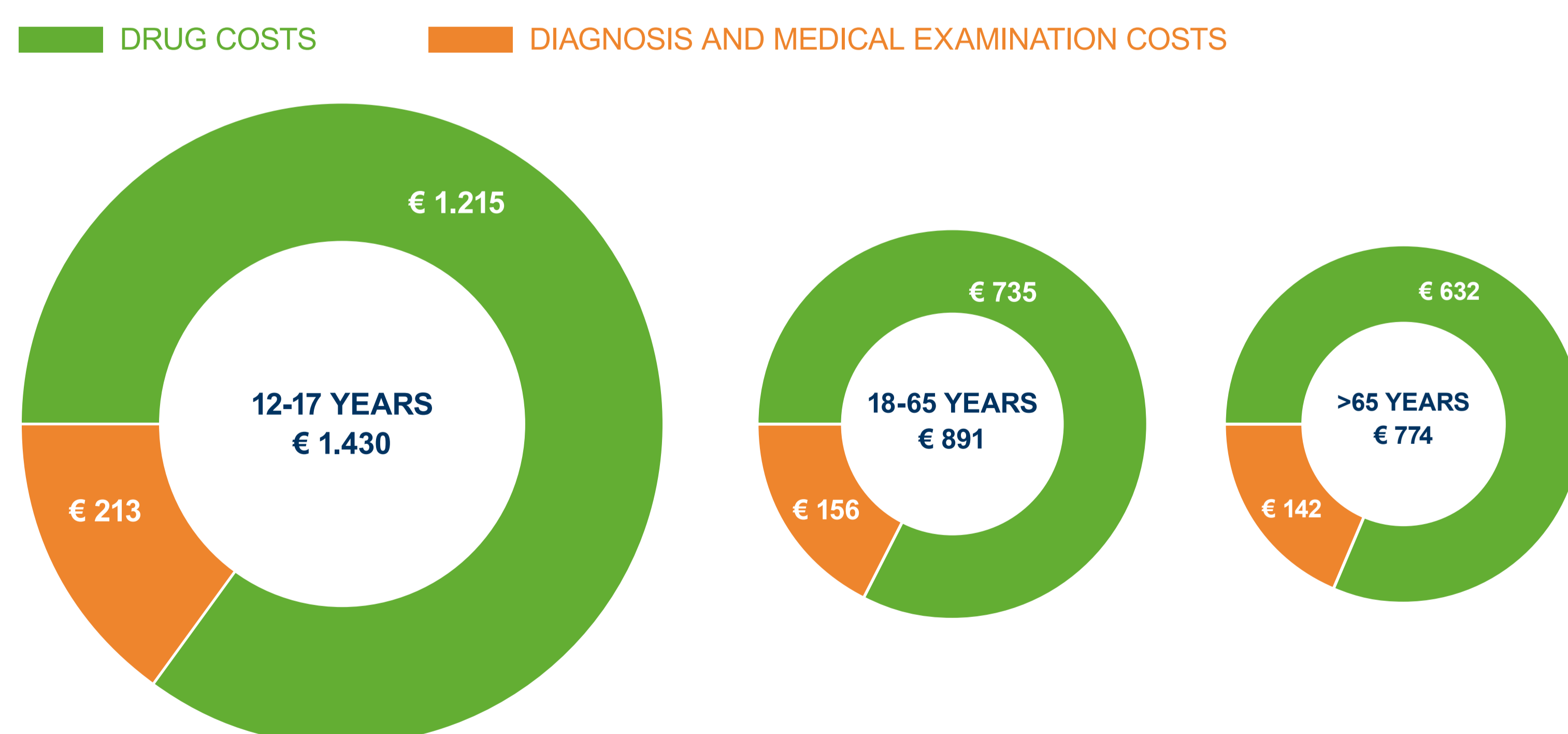
Data were collected in aggregated and anonymous form, through the collaboration of four respiratory Centers of Excellence (CoEs). Patients were clustered by age (12-17, 18-65, >65 years) and grouped for disease severity according to the Global Initiative for Asthma (GINA) classification (Step 1 to Step 5).

Overall costs were calculated by adding up drugs (i.e. ICS, LABA, LAMA, anti-IgE), diagnosis and visits costs, derived from real life data.

TABLE 1
Classification of allergic asthma patients based on age range and GINA Steps

AGE CLUSTER	DISEASE SEVERITY BASED ON GINA CLASSIFICATION	PATIENTS WITH ALLERGIC ASTHMA	STEP UP IN GINA CLASSIFICATION	PATIENTS WITH HDM ALLERGIC ASTHMA	PATIENTS WITH COMORBIDITY (ALLERGIC RHINITIS)
12 – 17 YEARS #58	n.a. - Step 1	22	4	4	20
	Step 1 – 2	16	2	7	16
	Step 3 – 4	17	-	11	9
	Step 4 – 5	3	1	3	2
				= 12%	= 1%
18 – 65 YEARS #2160	n.a. - Step 1	256	97	133	215
	Step 1 – 2	390	60	219	290
	Step 3 – 4	942	9	640	763
	Step 4 – 5	572	68	279	485
				= 11%	= 42%
>65 YEARS #797	n.a. - Step 1	49	44	17	27
	Step 1 – 2	275	29	79	166
	Step 3 – 4	412	33	140	294
	Step 4 – 5	61	17	46	46
				= 15%	= 9%
TOTAL NUMBER OF PATIENTS		3,015	365	1,578	2,333
			= 12%	= 52%	= 77%

FIGURE 1
Drugs, diagnosis and medical examination cost per patients



Abbreviations: ICS: Inhaled corticosteroids ; LABA: Long-Acting Beta-Agonists; LAMA: Long-acting muscarinic antagonists

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FOR FURTHER INFORMATION: Please contact - Duccio Urbinati, duccio.urbinati@iqvia.com - IQVIA Via Fabio Filzi 29, 20124, Milan Italy



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RESULTS

The study analysed records from 3,015 patients and most of them (2,160 patients) were 18-65 years old and were classified in Step GINA 3 and 4.

Around 50% of all patients had HDM allergy and the most common comorbidity was allergic rhinitis (77%), step up (Table 1). The total expenditure for the management of allergic asthma was measured during twenty-four months. The analysis showed that the drug costs increased according to the degree of asthma severity, due to polytherapy and, in particular, to the use of a few high cost drugs (i.e anti-IgE) in Step 3 to Step 5 (Table 2). The patient clinical pathway included medical examination with pulmonologist, diagnostic exams and laboratory tests. Medical examination represented the major cost driver (Table 3), owing to the routine follow-up (from 1 to 3 visits/year). Finally, the higher cost per patient was represented by drug for each cluster € 1.215 (12-17 y), € 735 (18-65 y) and € 632 (>65 y) (Figure 1).

TABLE 2
Total drug costs based on GINA Steps and Step up in GINA classification

AGE CLUSTER	DISEASE SEVERITY BASED ON GINA CLASSIFICATION	DRUG COSTS	STEP UP COSTS	TOTAL DRUG COSTS	WEIGHTED COST PER PATIENT
12 – 17 YEARS #58	n.a. - Step 1	€ 635	€ 1,072	€ 1,707	€ 78
	Step 1 – 2	€ 4,618	€ 301	€ 4,919	€ 307
	Step 3 – 4	€ 13,533	-	€ 13,533	€ 796
	Step 4 – 5	€ 32,322	€ 18,012	€ 50,334	€ 16,778
18 – 65 YEARS #2160	n.a. - Step 1	€ 4,888	€ 8,281	€ 13,169	€ 51
	Step 1 – 2	€ 109,164	€ 5,215	€ 114,379	€ 293
	Step 3 – 4	€ 437,744	€ 1,077	€ 438,751	€ 466
	Step 4 – 5	€ 1,010,356	€ 10,699	€ 1,021,055	€ 1,785
>65 YEARS #797	n.a. - Step 1	€ 1,476	€ 4,020	€ 5,497	€ 112
	Step 1 – 2	€ 92,798	€ 9,050	€ 101,849	€ 370
	Step 3 – 4	€ 191,899	€ 7,780	€ 199,679	€ 485
	Step 4 – 5	€ 154,127	€ 42,442	€ 196,569	€ 3,222
TOTAL		€ 2,053,561	€ 107,880	€ 2,161,441	€ 2,062

TABLE 3
Total costs of diagnosis (laboratory test and exam) and specialist visits

AGE CLUSTER	DISEASE SEVERITY BASED ON GINA CLASSIFICATION	LABORATORY TEST COSTS	DIAGNOSTIC EXAM COSTS	SPECIALIST VISITS COSTS	TOTAL COSTS	WEIGHTED COST PER PATIENT
12 – 17 YEARS #58	n.a. - Step 1	€ 580	€ 1,180	€ 971	€ 2,731	€ 124
	Step 1 – 2	€ 328	€ 2,675	€ 744	€ 3,747	€ 234
	Step 3 – 4	€ 477	€ 3,271	€ 1,033	€ 4,780	€ 281
	Step 4 – 5	€ 107	€ 594	€ 372	€ 1,073	€ 358
18 – 65 YEARS #2160	n.a. - Step 1	€ 1,163	€ 7,471	€ 10,578	€ 19,212	€ 75
	Step 1 – 2	€ 1,707	€ 21,585	€ 39,395	€ 62,687	€ 161
	Step 3 – 4	€ 3,333	€ 49,804	€ 94,127	€ 147,264	€ 156
	Step 4 – 5	€ 3,347	€ 38,650	€ 66,029	€ 108,026	€ 189
>65 YEARS #797	n.a. - Step 1	€ 144	€ 1,592	€ 2,025	€ 3,760	€ 78
	Step 1 – 2	€ 1,207	€ 8,462	€ 11,363	€ 21,032	€ 76
	Step 3 – 4	€ 1,661	€ 21,869	€ 49,191	€ 72,721	€ 177
	Step 4 – 5	€ 571	€ 9,518	€ 5,785	€ 15,874	€ 260
TOTAL		€ 14,624	€ 166,670	€ 281,613	€ 462,908	€ 181

CONCLUSION

This analysis represents the first economic assessment of allergic asthma in the Italian context. The outcomes represent an opportunity to help decision makers to understand the seriousness and implications of the disease.