

Table S1: Regional criteria for prescription of biologic treatment

REGIONAL PRESCRIPTIVE CRITERIA	
Omalizumab	<p>≥ 6 years of age</p> <p><i>All the following criteria must be present:</i></p> <ul style="list-style-type: none"> ● Severe persistent allergic asthma for more than 12 months not controlled by maximally tolerated doses of inhaled glucocorticoids and long-acting beta two agonists ● Evidence of positivity for a perennial disease allergen (Prick test or specific IgE) ● Total serum IgE [IgE ≥ 76 IU/ml (adolescents and adults) or IgE ≥ 200 IU/ml (children) at treatment initiation] and specific IgE or positive skin test for a perennial allergen ● Respiratory function: (FEV₁ < 80%) at the start of treatment ● Poor asthma control ● Anti-asthmatic therapy at the time of prescription
Mepolizumab	<p>≥ 6 years of age</p> <ul style="list-style-type: none"> ● >150 currant eosinophils/mmc value in the absence of systemic steroid treatment and at least one value >300 eosinophils/mmc in the previous year <p>AND</p> <ul style="list-style-type: none"> ● at least 2 exacerbations of asthma despite maximal inhaled therapy (treated with systemic steroids or requiring hospitalization) in the previous 12 months (Step 4-5 of GINA, from age 12) or despite maximally tolerated inhaled therapy (age 6 to 11) <p>OR</p> <ul style="list-style-type: none"> ● Received continuous oral steroid therapy in addition to maximal inhaled therapy for at least 6 months in the past year (condition only applies to adults 18 years of age and older)
Benralizumab	<p>≥ 18 years of age</p> <ul style="list-style-type: none"> ● >300 eosinophils/mmc value in the absence of systemic steroid treatment <p>AND</p> <ul style="list-style-type: none"> ● at least 2 exacerbations of asthma despite maximal inhaled therapy (treated with systemic steroids or requiring hospitalization) in the previous 12 months <p>OR</p> <ul style="list-style-type: none"> ● Received continuous oral steroid therapy in addition to maximal inhaled therapy in the past year
Dupilumab	<p>≥ 12 years of age</p> <ul style="list-style-type: none"> ● >150 eosinophils/mmc value <p>OR</p> <ul style="list-style-type: none"> ● > 25 ppb FeNO value <p>AND</p>

	<ul style="list-style-type: none"> at least 2 exacerbations of asthma despite maximal inhaled therapy, treated with systemic steroids or requiring hospitalization, in the previous 12 months (Step 4-5 of GINA) <p>OR</p> <ul style="list-style-type: none"> Received continuous oral steroid therapy in addition to maximal inhaled therapy for at least 6 months in the past year
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Table S2: Number of evaluated patients at T1, T2, T3, T4 for each biologics and the total number of patients at each Time point.

Biologic	N patients Baseline (T0)	T1	T2	T3	T4
Omalizumab	41	40	33	30	25
Mepolizumab	26	26	20	19	9
Benralizumab	18	18	8	1	-
Dupilumab	19	18	-	-	-
N total biologic treated patients at each time point	104	102	61	50	34

Table S3: Number of evaluated patients at T1, T2, T3, T4 for each biologics and the total number of patients at each Time point.

Biologic	OCS	1 st year	2 nd year	3 rd year	4 th year
Omalizumab	withdrawal	6 (66.6%)	6 (85.71%)	4 (66.6%)	3 (60%)
	continued	3 (33.3%)	1 (14.28%)	2 (33.3%)	2 (40%)
n patients (%)		9 (29.03%)	7 (38%)	6 (46.1%)	5 (62.5%)
Mepolizumab	withdrawal	7 (63.63%)	5 (71.42%)	6 (100%)	3 (100%)
	continued	3 (27.27%)	1 (14.28%)	-	-
	50% reduction	1 (9.09%)	1 (14.28%)	-	-
n patients (%)		11 (35.48%)	7 (38%)	6 (46.1%)	3(37.5%)
Benralizumab	withdrawal	1 (25%)	4 (100%)	1 (100%)	-

	continued	1 (25%)	-	-	-
	50% reduction	2 (50%)	-	-	-
n patients (%)		4 (12.90%)	4 (22%)	1 (100%)	-
Dupilumab	withdrawal	2 (28.57%)	-	-	-
	continued	3 (42.85%)	-	-	-
	50% reduction	2 (28.57%)	-	-	-
n patients (%)		7 (22.58%)			

Figure S1: Number and sequence of treatments for all biologic switchers (N=16)

