

1 **Table E1. Major and minor criteria as well as frequent wheezing definitions for the original API,**
 2 **modified API and University of Cincinnati API (ucAPI).**

	Original API ⁴	Modified API ⁸	University of Cincinnati API
Frequent wheezing	Wheezing score ≥ 3 on 5 point scale*	≥ 4 episodes in a year during the first 3 years	≥ 2 episodes per year in between ages 2-3
Parental history of asthma	Major	Major	Major
Physician diagnosed atopic dermatitis	Major	Major	Major
Allergic sensitization to ≥ 1 aeroallergen	Not used	Major	Major
Allergic sensitization to foods	Not used	Minor (milk, egg or peanuts)	Minor (Milk or eggs)
Wheezing unrelated to colds	Minor	Minor	Minor
Blood eosinophils	Minor	Minor	Not used
Physician diagnosed allergic rhinitis	Minor	Not used	Minor

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 4 *The original API defined parental report of “frequent wheezing” by a score ≥ 3 on a 1 to 5 scale Likert
 5 ranging from “very rarely” to “on most days”.⁴

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 8 **Table E2. University of Cincinnati API (ucAPI) defined with ≥ 4 wheezing episodes per year:**
 9 **Sensitivity, Specificity, Positive Predictive Value, and Negative Predictive Values for Asthma at age**
 10 **7.**

Test* (No. with asthma)	Sensitivity (%) [95% CI]	Specificity (%) [95% CI]	Positive Predictive Value (%) [95% CI]	Negative Predictive Value (%) [95% CI]	Likelihood Ratio	
					LR+	LR-
ucAPI [#] (30)	32.3 [22.9-42.8]	95.9 [93.6-97.5]	61.2 [46.2-74.8]	87.5 [84.3-90.3]	7.8	0.7

12 * At age 3; ucAPI: University of Cincinnati Asthma Predictive Index; # ucAPI defined using ≥ 4 episodes
 13 of wheezing in the prior 12 months (instead of ≥ 2 wheezing episodes); LR+: positive likelihood ratio;
 14 LR-: negative likelihood ratio.

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16 **Table E3. Adjusted Odds Ratios for Associations of Positive ucAPI (using a criterion of ≥ 4**
 17 **wheezing episodes per year)[#], Persistent Wheezing, Atopic Persistent Wheezing and Non-atopic**
 18 **Persistent Wheezing at Age 3 With Asthma Outcome at Age 7 in Separate Logistic Regression**
 19 **Models.**

Exposure/Covariate	aOR (95% CI) for Asthma at 7 years [p-value [^]]			
	ucAPI Model	Persistent Wheezing Model	Atopic Persistent Wheezing Model	Non-atopic Persistent Wheezing Model
Positive ucAPI at 3 years	14.1 (6.93-28.57) <0.01	-	-	-
Persistent Wheezing at 3 years	-	9.81 (4.93-19.52) <0.01	-	-
Atopic Persistent Wheezing at 3 years	-	-	10.35 (4.12-26.01) <0.01	-
Non-atopic Persistent Wheezing at 3 years	-	-	-	5.36 (2.04-14.06) <0.01
Household income < \$20K	3.81 (2.06-7.05) <0.01	3.61 (1.91-6.81) <0.01	3.62 (1.95-6.75) <0.01	3.61 (1.96-6.68) <0.01
Parental Asthma	€	1.87 (1.08-3.23) 0.026	2.03 (1.19-3.47) <0.01	2.12 (1.26-3.56) <0.01
Sensitization to Egg at 1 year	2.92 (1.48-5.74) <0.01	2.92 (1.45-5.90) <0.01	2.61 (1.32-5.16) 0.006	2.84 (1.46-5.54) <0.01
Eczema	€	2.06 (1.14-3.74) 0.017	2.02 (1.12-3.64) 0.02	2.35 (1.34-4.14) <0.01
Daycare attendance	1.57 (1.0-2.69) 0.1	1.59 (0.91-2.78) 0.103	1.81 (1.05-3.11) 0.03	1.73 (1.01-2.95) 0.04
Dog ownership	0.58 (0.32-0.99) 0.06	*	*	*
ECAT exposure $\geq 75^{\text{th}}$ percentile from birth-3 years	*	*	*	*

20 ucAPI: University of Cincinnati API

21 # ucAPI defined using ≥ 4 episodes of wheezing in the prior 12 months (instead of ≥ 2 wheezing episodes)

22 aOR = adjusted odds ratio

23 ^ Significant at $p \leq 0.10$

24 - Not included in the model

25 € Not included in the model because it was one of the defining criteria for a positive ucAPI

26 * Not significant at $p \leq 0.10$

27 The initial multivariate models included all covariates (except when denoted by - or €), including gender, race, exposure to environmental tobacco smoke, breast feeding, sensitization to aeroallergens, egg and milk at 1 and 3 years of age, cat ownership, and ECAT exposure $\geq 75^{\text{th}}$ percentile between birth to 3 years of age but were not significant an alpha of 10%.

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33 **Table E4. Adjusted Odds Ratios for Associations of a Positive ucAPI (defined using ≥ 2 wheezing**
 34 **episodes per year), Persistent Wheezing, Atopic Persistent Wheezing and Non-atopic Persistent**
 35 **Wheezing at Age 3 With Asthma Outcome at Age 7 ($n=95$)[#] in Separate Logistic Regression Models.**

Exposure/Covariate	aOR (95% CI) for Asthma at 7 years ($n=95$) [#] [p-value [^]]			
	ucAPI Model	Persistent Wheezing Model	Atopic Persistent Wheezing Model	Non-atopic Persistent Wheezing Model
Positive ucAPI at 3 years	11.63 (6.6-22.33) <0.01	-	-	-
Persistent Wheezing at 3 years	-	8.52 (4.2-17.3) <0.01	-	-
Atopic Persistent Wheezing at 3 years	-	-	9.7 (3.77-24.94) <0.01	-
Non-atopic Persistent Wheezing at 3 years	-	-	-	4.72 (1.8-12.72) <0.01
Household income < \$20K	3.27 (1.71-6.25) <0.01	3.36 (1.75-6.67) <0.01	3.31 (1.74-6.31) <0.01	3.45 (1.83-6.50) <0.01
Parental Asthma	€	1.96 (1.12-3.45) 0.02	2.19 (1.26-3.80) <0.01	2.27 (1.32-3.88) <0.01
Sensitization to Egg at 1 year	2.63 (1.3-5.32) <0.01	2.61 (1.26-5.41) 0.01	2.36 (1.16-4.79) 0.02	2.48 (1.24-4.98) 0.01
Eczema	€	2.11 (1.15-3.88) 0.02	1.98 (1.10-3.64) 0.02	2.35 (1.31-4.21) <0.01
Daycare attendance	1.99 (1.12-3.52) 0.042	1.83 (1.02-3.26) 0.103	2.05 (1.16-3.60) 0.03	1.95 (1.12-3.40) 0.02
Dog ownership	0.6 (0.33-0.99) 0.08	*	*	*
ECAT exposure $\geq 75^{\text{th}}$ percentile from birth-3 years	*	*	*	*

36 #N=95 children with asthma after removal of 8 children who were included based on daily use of an
 37 asthma controller medication.

38 ucAPI: University of Cincinnati API

39 aOR = adjusted odds ratio

40 ^ Significant at $p \leq 0.10$

41 - Not included in the model

42 € Not included in the model because it was one of the defining criteria for a positive ucAPI

43 * Not significant at $p \leq 0.10$

44 The initial multivariate models included all covariates (except when denoted by - or €), including gender,
 45 race, exposure to environmental tobacco smoke, breast feeding, sensitization to aeroallergens, egg and
 46 milk at 1 and 3 years of age, cat ownership, and ECAT exposure $\geq 75^{\text{th}}$ percentile between birth to 3 years
 47 of age but were not significant an alpha of 10%.