Supplement

Appendix 1. Searches, world regions, countries and territories

Table S1. Search strategy to identify studies reporting the prevalence of asthma in the general population

Medline (n=7,877)	
1	exp asthma/ or exp asthma, aspirin-induced/ or exp asthma, exercise-induced/ or exp asthma, occupational/ or exp status asthmaticus/ or *bronchial hyperreactivity/ or *bronchial spasm/
2	exp morbidity/ or exp incidence/ or exp prevalence/ or *mortality/
3	*risk factors/
4	(burden adj3 disease).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
5	2 or 3 or 4
6	1 and 5
7	limit 6 to (humans and yr="1990 -Current")
EMBASE (n= 10,044)	
1	exp asthma/ or exp wheezing/
2	exp prevalence/ or *epidemiology/
3	exp morbidity/ or exp mortality/
4	(burden adj3 disease).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
5	2 or 3 or 4
6	1 and 5
7	limit 6 to (humans and yr="1990 -Current")
Global Health (n=4,451)	
1	exp epidemiology/ or exp morbidity/ or exp mortality/
2	exp risk factors/
3	exp asthma/
4	exp wheezing/
5	1 or 2
6	3 or 4
7	7 and 8
8	limit 7 to yr="1990 -Current"
CINAHL (n=3,491)	
	(MM asthma* OR MM wheezing*) AND ((MM "Prevalence") OR (MM "Epidemiology") OR (MH "Morbidity+") OR (MH "Mortality+")) Limiters: Publication Year: 1990-2019

Table S2. Country or territory list in World Health Organization and World Bank regions

High-income countries (HIC)

Region of the Americas (AMR)	Antigua and Barbuda, Aruba, Bahamas, Barbados, Curaçao, Guadeloupe, Martinique, Puerto Rico, Trinidad and Tobago, United States Virgin Islands, Argentina, Chile, French Guiana, Uruguay, Canada, United States of America
European Region (EUR)	Cyprus, Israel, Czechia, Hungary, Poland, Slovakia, Channel Islands, Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, United Kingdom, Croatia, Greece, Italy, Malta, Portugal, Slovenia, Spain, Austria, Belgium, France, Germany, Luxembourg, Netherlands, Switzerland
Eastern Mediterranean Region (EMR)	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, State of Palestine, United Arab Emirates
Western Pacific Region (WPR)	China Hong Kong SAR, China Macao SAR, China Taiwan Province, Japan, Republic of Korea, Brunei Darussalam, Singapore, Australia, New Zealand, New Caledonia, Guam
Low-income and middle-income countries (LMIC)	
African Region (AFR)*	Burundi, Comoros, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Réunion, Rwanda, South Sudan, Uganda, United Republic of Tanzania, Zambia, Zimbabwe, Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sao Tome and Principe, Algeria, Western Sahara, Botswana, Lesotho, Namibia, South Africa, Swaziland, Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, GuineaBissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Seychelles*, Sierra Leone, Togo
Region of the Americas (AMR)	Cuba, Dominican Republic, Grenada, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Bolivia (Plurinational State of), Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Venezuela (Bolivarian Republic of)
South-East Asia Region (SEAR)	Dem. People's Republic of Korea, Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka, Indonesia, Myanmar, Thailand, Timor-Leste
European Region (EUR)	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Armenia, Azerbaijan, Georgia, Turkey, Belarus, Bulgaria, Republic of Moldova, Romania, Russian Federation, Ukraine, Albania, Bosnia and Herzegovina, Montenegro, Serbia, TFYR Macedonia
Eastern Mediterranean Region (EMR)	Djibouti, Somalia, Egypt, Libya, Morocco, Sudan, Tunisia, Afghanistan, Iran (Islamic Republic of), Pakistan, Iraq, Jordan, Lebanon, Syrian Arab Republic, Yemen
Western Pacific Region (WPR)	China, Mongolia, Cambodia, Lao People's Democratic Republic, Malaysia, Philippines, Viet Nam, Fiji, Papua New Guinea, Solomon Islands, Vanuatu, Kiribati, Micronesia (Fed. States of), French Polynesia, Samoa, Tonga

Appendix 2. eMethods: Detailed description of the global, regional and national estimation of asthma prevalence

This section is a supplement to the Methods part in the main text.

According to our systematic review and data extraction approach, multiple data points (agespecific or sex-specific prevalence) were extracted from the same individual articles. To account for the clustering of multiple data points from the same article, and multiple articles from the same country, we used a multilevel multivariable mixed-effects meta-regression and took study and country identification as the random-effects. Given that the prevalence of asthma

= number of asthma cases/number of participants, we stabilized the prevalence with the logit link as follows:

$$\text{prevalence of asthma} = P = (asthma\ cases)/(sample\ size)$$

$$\text{logit}(P) = \ln(P/[1-P]) = \ln(odds) = \alpha + \beta_1 * x_1 + \beta_2 * x_2 + \cdots + u_i$$

where α is the intercept term, β is coefficient, and x is variable.

First, we assessed the age- and sex-adjusted effects of cluster-level variables $x_1 - x_n$, namely year of investigation, WB income region, setting (urban, rural and mixed) stratified by WB region, WHO region, and SDI by WB region (see **Table S3** for more details). For current wheezing, we found that the prevalence significantly correlated with age, was higher in males (than in females), urban areas in LMICs (than in rural areas in HICs), AMR and EMR (than in WPR). For ever wheezing, we found that it was associated with age, more common in males (than in females) and in AMR (than in WPR). In LMICs, the prevalence of ever wheezing was higher in rural areas than in urban settings, decreased with higher SDI; while in HICs, the prevalence of ever wheezing increased with higher SDI. For current asthma, the prevalence significantly correlated with age, was higher in males, increased over time. In HICs, current asthma was more common in urban areas (than in rural areas), and increased with higher SDI. Similarly, the prevalence of ever asthma was significantly associated with age, higher in males (than in females), in SEAR, EUR and EMR (than in WPR). In both HICs and LMICs, ever asthma was more common in urban areas than in rural areas. At higher SDIs, the prevalence of ever asthma increased in HICs, but decreased in LMICs.

Based on the abovementioned explorations, we fitted a multilevel multivariable mixed-effects meta-regression, with age, sex and calendar year as fixed-effect variables and with study and country identification as the random-effect (μ_i). The nonlinear relation between age and asthma prevalence was modelled using a restricted cubic spline, with knots being selected by visual inspection at the inflection points of the curve. The sex-specific relation of age and asthma prevalence is demonstrated in **Figure S2**. Based on data points from all included articles, we constructed four models for generating the prevalence of current wheezing, ever wheezing, current asthma and ever asthma. Those models were constructed separately for HICs and LMICs.

$$\text{logit}(P) = \alpha + \beta_1 * Age_1 + \beta_2 * Age_2 + \beta_3 * Age_3 + \beta_4 * Age_4 + \beta_5 * Female\ proportion + \beta_6 * Investigation\ year + \beta_6 * WB + u_i$$

then,

$$P = \frac{e^{\alpha+\beta_1*Age_1+\beta_2*Age_2+\beta_3*Age_3+\beta_4*Age_4+\beta_5*Female\ proportion+\beta_6*Investigation\ year+\beta_6*WB+u_i}}{1 + e^{\alpha+\beta_1*Age_1+\beta_2*Age_2+\beta_3*Age_3+\beta_4*Age_4+\beta_5*Female\ proportion+\beta_6*Investigation\ year+\beta_6*WB+u_i}}$$

Where Age_1- Age_4 are variables generated in the process of fitting cubic splines; WB refers to income regions of HICs and LMICs, and u_i represents the variance of random-effects.

Based on the above models (**Table S4**), the age- and sex- prevalence of current wheezing, ever wheezing, current asthma and ever asthma in HICs, LMICs and worldwide for the year 2019 was estimated (**Table 1** in the maintext).

Statistical step two: Estimation of the global numbers of people with asthma in 2019

The numbers of people aged 5-69 years who were affected by of current wheezing, ever wheezing, current asthma and ever asthma were established by applying the estimated age-, sex-prevalence

to the corresponding demographic data in 2019 (**Table S7**). The overall cases of current wheezing and ever asthma in HICs and LMICs were called "current wheezing HIC envelope", "current wheezing LMIC envelope", "ever asthma HIC envelope" and "ever asthma LMIC envelope" respectively, and were used as the basses for the following regional and national estimations of current wheezing and ever asthma cases.

Statistical step three: Estimation of the regional numbers of people with current wheezing or ever asthma in 2019

We used a "risk factor-based model" distributing the global cases of current wheezing and ever asthma into ten WB-WHO regions (**Table S8**).

$$N_{WHO-WB\ region} = (Pop_{WHO-WB\ region}) * (Prev_{asthma HIC/LMIC}) * (1 + \sum_{RF_1}^{RF_n} [(Prev_{RF WHO-WB\ region} - Prev_{RF HIC/LMIC}) * (OR_{RF HIC/LMIC} - 1)])$$

Where $N_{WHO-WB\ region}$ refers to the cases of current wheezing or ever asthma in each of the ten WHO-WB regions, $Pop_{WHO-WB\ region}$ is the age- and sex-specific de-facto population of people in 2019 in each WHO-WB region, $Prev_{asthma HIC/LMIC}$ indicates the estimated age- and sexspecific prevalence of current wheezing or ever asthma in 2019 in HICs or LMICs where the corresponding WHO-WB region belongs. RF_1-RF_n are the selected risk factors. Current smoking and biomass exposure were included in the model for current wheezing, while rural setting, current smoking, biomass exposure and SDI were included in the model for ever asthma.The percentage of population residing in rural areas in 2020 was obtained from UNPD.(1) The prevalence of current smoking in 2018, the proportion of population with primary reliance on polluting fuels and technologies for cooking in 2018 were obtained from the WHO Global Health Observatory data repository;(2) SDI in 2019 was obtained from the GBD 2019 Study.(3)

$Prev_{RF WHO-WB\ region}$ is the prevalence of selected risk factors in each WHO-WB region and $Prev_{RF HIC/LMIC}$ is the prevalence of selected risk factors in HICs or LMICs where this WHO-WB region stands. $OR_{RF HIC/LMIC}$ is the estimated/synthesized OR of a specific risk factor in HICs or LMICs where the selected WHO-WB region locates.

Finally, the regional cases of current wheezing and ever asthma were adjusted by multiplying an "adjustment index" to make sure that the sum of regional cases exactly fitted the "current wheezing HIC envelope", "current wheezing LMIC envelope", "ever asthma HIC envelope" and "ever asthma LMIC envelope". The regional prevalence of current wheezing and ever asthma was respectively calculated by dividing the estimated numbers of people with current wheezing and ever asthma by the corresponding population in each region in 2019.

Statistical step four: Estimation of the national numbers of people with current wheezing or ever asthma

Similarly, the national numbers of people with current wheezing and ever asthma were estimated with the below formula (**Table S9**):

$$N_{country} = Pop_{country} * (Prev_{asthma HIC/LMIC}) * (1 + \sum_{RF_1}^{RF_n} [(Prev_{RF country} - Prev_{RF WHO-WB\ region}) * (OR_{RF HIC/LMIC} - 1)])$$

Where $N_{country}$ is the cases of current wheezing or ever asthma, and $Pop_{country}$ is the de-facto population size in 201 countries and territories in 2019. $Prev_{asthma HIC/LMIC}$ indicates the prevalence of current wheezing or ever asthma in HICs or LMICs where the target country belongs. RF_1-RF_n

are the same risk factors adopted in the regional case estimations for current wheezing or ever asthma. $Prev_{RFcountry}$ and $Prev_{RFWHO-WB\,region}$ are the prevalence rates of risk factors in each country and territory and in its corresponding WHO-WB region. $OR_{RFHIC/LMIC}$ is the estimated OR of the selected risk factors in HIC or LMIC.

Finally, the national cases of current wheezing and ever asthma were also adjusted by multiplying an "adjustment index" to make sure that the sum of national cases equalled to the abovementioned WHO-WB "envelopes". The national prevalence of current wheezing and ever asthma was generated by dividing the estimated cases of current wheezing and ever asthma by the corresponding national population in 2019.

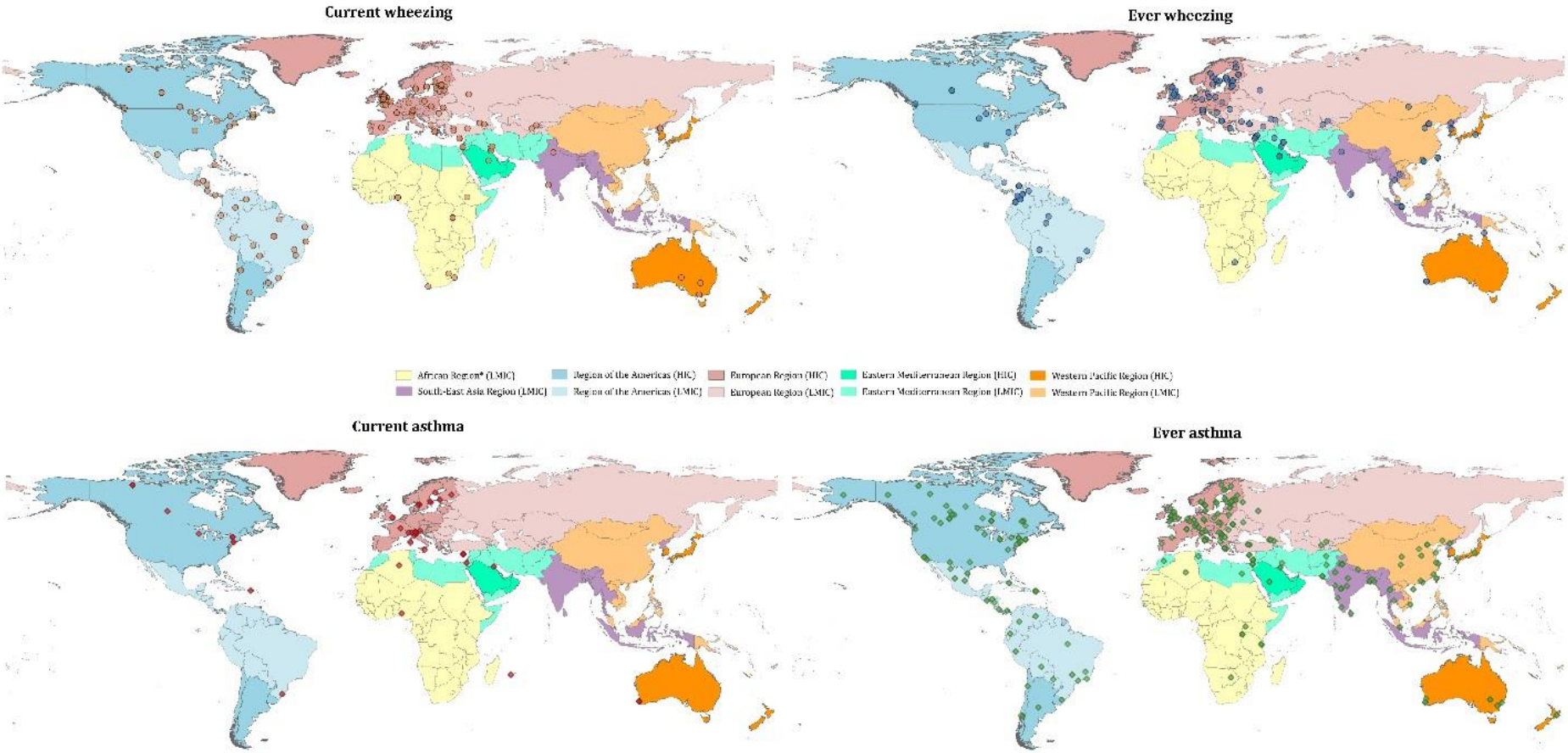

Figure S1. Contribution of data sources across world regions

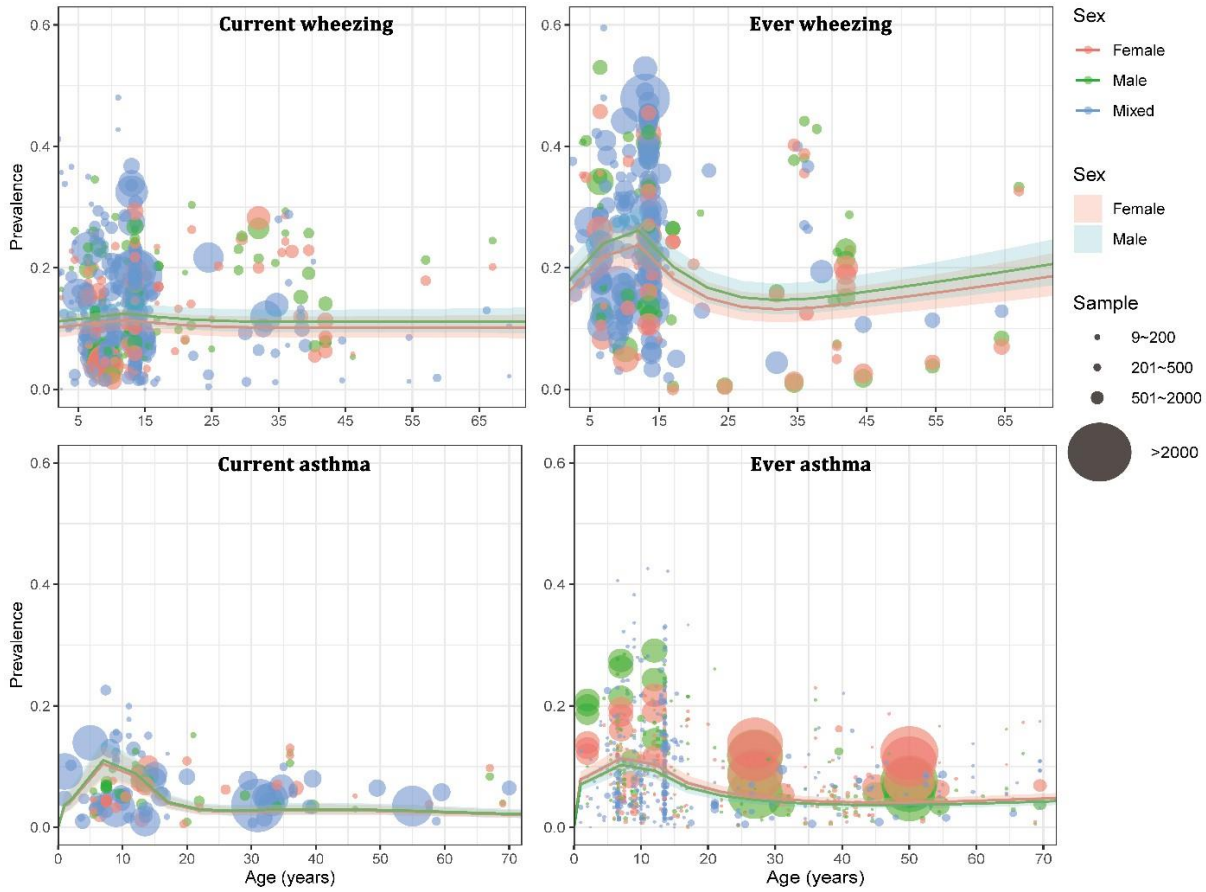

Figure S2. The prevalence of current wheezing, ever wheezing, current asthma and ever asthma, by age and sex group, based on contributing datapoints from included articles

Table S3. The age- and sex-adjusted effects of study-level variables on current wheezing, ever wheezing, current asthma and ever asthma

Variable	No. of articles	No. of data points	β (95% CI)	*P*-value
Current wheezing				
Age				
Age_1	146	449	0.012 ([-0.011]-0.035)	0.3070
Age_2	146	449	0.086 ([-0.433]-0.604)	0.7459
Age_3	146	449	-0.839 ([-2.419]-0.741)	0.2979
Age_4	146	449	5.920 ([0.072]-11.769)	0.0472
Female proportion	146	449	-0.102 ([-0.121]-[-0.084])	<.0001
Sex#				
Male	59	91		
Female	59	90	-0.106 ([-0.124]-[-0.087])	<.0001
Investigation year (per year increase)	146	446	0.006 (0.003-0.009)	0.0002
WB income region				
HICs	94	261		
LMICs	58	188	-0.052 ([-0.383]-0.279)	0.7586

Setting by WB					
Overall	Urban	93	253		
	Rural	31	69	-0.099 ([-0.158]-[-0.039])	0.0011
HICs	Urban	54	143		
	Rural	17	33	-0.051 ([-0.134]-0.032)	0.2244
LMICs	Urban	41	110		
	Rural	15	36	-0.144 ([-0.229]-[-0.060])	0.0008
WHO region	WPR	26	75		
	AFR	11	38	0.227 ([-0.405]-0.858)	0.4821
	AMR	38	113	0.631 (0.086-1.175)	0.0232
	SEAR	8	16	0.174 ([-0.581]-0.928)	0.6519
	EUR	55	178	0.250 ([-0.198]-0.699)	0.2739
	EMR	10	29	0.739 (0.136-1.342)	0.0163
SDI by WB (per 1% increase)					
Overall	SDI	146	470	0.002 ([-0.401]-0.008)	0.5096
HICs	SDI	93	270	0.003 ([-0.004]-0.010)	0.4125
LMICs	SDI	58	200	0.003 ([-0.013]-0.020)	0.6878
Ever wheezing					
Age					
	Age_1	89	268	0.075 ([0.057]-0.094)	<.0001
	Age_2	89	268	-1.716 ([-2.322]-[-1.111])	<.0001
	Age_3	89	268	2.463 (0.248-4.678)	0.0293
	Age_4	89	268	13.347 (2.721-23.973)	0.0138
Female proportion		89	268	-0.127 ([-0.152]-[-0.102])	<.0001
Sex#					
	Male	34	53		
	Female	34	53	-0.133 ([-0.158]-[-0.109])	<.0001
Investigation year (per year increase)		89	267	0.004 ([-0.001]-0.010)	0.1344
WB income region					
	HICs	51	132		
	LMICs	41	136	-0.091 ([-0.451]-0.270)	0.6216
Setting					
Overall	Urban	61	178		
	Rural	17	42	2.078 (1.909-2.246)	<.0001
HICs	Urban	33	90		
	Rural	7	14	0.040 ([-0.717]-0.797)	0.9178
LMICs	Urban	30	88		
	Rural	11	28	2.127 (1.958-2.295)	<.0001
WHO regi	**n**				
	WPR	21	62		
	AFR	4	6	0.846 ([-0.275]-1.967)	0.1390
	AMR	20	61	0.835 ([0.282]-1.389)	0.0031
	SEAR	6	11	0.133 ([-0.590]-0.856)	0.7184

	EUR	31	104	0.374 ([-0.083]-0.831)	0.1091
	EMR	8	24	0.551 ([-0.049]-1.151)	0.0720
SDI by WB	**(per 1% increase)**				
Overall	SDI	89	267	0.005 ([-0.004]-0.013)	0.2650
HICs	SDI	51	131	0.024 (0.013-0.035)	<.0001
LMICs	SDI	41	136	-0.017 ([-0.032]-[-0.001])	0.0347
			Current asthma		
Age					
	Age_1	50	128	0.200 (0.141-0.259)	<.0001
	Age_2	50	128	-18.682 ([-22.497]-[-14.868])	<.0001
	Age_3	50	128	40.203 (32.228-48.178)	<.0001
	Age_4	50	128	-22.339 ([-26.623]-[-18.056])	<.0001
Female proportion		50	128	-0.059 ([-0.111]-[-0.008])	0.0249
Sex#					
	Male	20	32		
	Female	20	32	-0.066 ([-0.118]-[-0.014])	0.0122
Investigation year (per year increase)		50	126	0.021 (0.015-0.027)	<.0001
WB income region					
	HICs	40	105		
	LMICs	11	23	-0.040 ([-0.700]-0.619)	0.9043
Setting					
Overall	Urban	32	72		
	Rural	9	21	-0.175 ([-0.321]-[-0.029])	0.0189
HICs	Urban	23	53		
	Rural	8	18	-0.156 ([-0.303]-[-0.009])	0.0380
LMICs	Urban	9	19		
	Rural	1	3	-1.360 ([-3.096]-0.376)	0.1248
WHO region					
	WPR	6	15		
	AFR	3	9	-0.673 ([-1.846]-0.500)	0.2605
	AMR	13	25	0.089 ([-0.716]-0.895)	0.8278
	SEAR	1	1	-1.212 ([-2.922]-0.498)	0.1649
	EUR	26	74	-0.622 ([-1.423]-0.179)	0.1278

Variable		No. of articles	No. of data points	β (95% CI)	*P*-value
	EMR	2	4	0.774 ([-0.548]-2.095)	0.2511
SDI by WB (per 1% increase)					
Overall	SDI	50	128	0.047 (0.030-0.063)	<.0001
HICs	SDI	40	105	0.059 (0.040-0.077)	<.0001
LMICs	SDI	11	23	0.055 ([-0.027]-0.136)	0.1910
Ever asthma					
Age					
	Age_1	189	776	0.068 (0.068-0.069)	<.0001
	Age_2	189	776	-7.098 ([-7.172]-[-7.024])	<.0001
	Age_3	189	776	13.623 (13.469-13.777)	<.0001
	Age_4	189	776	-6.822 ([-6.913]-[-6.731])	<.0001
Female proportion		189	776	0.114 (0.112-0.116)	<.0001
Sex#					
	Male	77	188		
	Female	77	188	0.114 (0.112-0.116)	<.0001
Investigation year (per year increase)		188	768	0.054 (0.053-0.054)	<.0001
WB income region					
	HICs	120	425		
	LMICs	74	351	-0.242 ([-0.567]-0.082)	0.1436
Setting					
Overall	Urban	122	429		
	Rural	37	92	-0.174 ([-0.229]-[-0.119])	<.0001
HICs	Urban	71	258		
	Rural	16	29	-0.132 ([-0.225]-[-0.039])	0.0055
LMICs	Urban	53	171		
	Rural	22	63	-0.279 ([-0.348]-[-0.210])	<.0001
WHO region					
	WPR	34	129		
	AFR	11	47	0.485 ([-0.274]-1.244)	0.2106
	AMR	52	191	-0.292 ([-0.686]-0.102)	0.1460
	SEAR	11	73	1.327 (0.917-1.738)	<.0001
	EUR	72	296	0.523 (0.133-0.913)	0.0086
	EMR	14	40	1.010 (0.619-1.400)	<.0001
SDI by WB (per 1% increase)					
Overall	SDI	188	768	0.157 (0.156-0.158)	<.0001
HICs	SDI	119	417	0.157 (0.156-0.158)	<.0001
LMICs	SDI	74	351	-0.019 ([-0.033]-[-0.005])	0.0082

Note: Age_1-Age_4 were variables generated in the process of fitting cubic splines, and the knots were 4.5, 8.7, 13.0, 13.6, 40.4 years for current wheezing, 6, 10, 13.5, 13.9, 42.325 years for ever wheezing, 5.175, 9, 13, 32, 67 years for current asthma and 5.5, 9, 13.5, 24.9375, 64.5 years for ever asthma. #The effect of sex was

estimated based on studies where sex-specific prevalence was available.

Appendix 3. Modelling the global prevalence of asthma

Table S4. Models for constructing the prevalence of current wheezing, ever wheezing, current asthma and ever asthma

asthma

$$\frac{e^{(-45.3451+0.1988*Age_1-18.4582*Age_2+39.6855*Age_3-22.0276*Age_4-0.0621*female\ proportion+0.0209*Investigation\ year-0.1346*WB_{LMIC}+u_i}}{1+e^{(-45.3451+0.1988*Age_1-18.4582*Age_2+39.6855*Age_3-22.0276*Age_4-0.0621*female\ proportion+0.0209*Investigation\ year-0.1346*WB_{LMIC}+u_i}}$$

Ever asthma

$$\frac{e^{(-109.7344+0.0603*Age_1-6.7893*Age_2+13.077*Age_3-6.5845*Age_4+0.1207*female\ proportion+0.0536*Investigation\ year-0.5438*WB_{LMIC}+u_i)}}{1+e^{(-109.7344+0.0603*Age_1-6.7893*Age_2+13.077*Age_3-6.5845*Age_4+0.1207*female\ proportion+0.0536*Investigation\ year-0.5438*WB_{LMIC}+u_i)}}$$

Category	Model for constructing the prevalence
Current wheezing	$\frac{e^{(-13.2772+0.01*Age1+0.1141*Age2-0.8725*Age3+5.6997*Age4-0.1024*female\ proportion+0.0056*Investigation\ year-0.0902*WBLMIC+ui)}}{1+e^{(-13.2772+0.01*Age1+0.1141*Age2-0.8725*Age3+5.6997*Age4-0.1024*female\ proportion+0.0056*Investigation\ year-0.0902*WBLMIC+ui)}}$
Ever wheezing	$\frac{e^{(-10.8033+0.0738*Age_1-1.6693*Age_2+2.3376*Age_3+13.5855*Age_4-0.1266*female\ proportion+0.0046*Investigation\ year-0.1223*WB_{LMIC}+u_i)}}{1+e^{(-10.8033+0.0738*Age_1-1.6693*Age_2+2.3376*Age_3+13.5855*Age_4-0.1266*female\ proportion+0.0046*Investigation\ year-0.1223*WB_{LMIC}+u_i)}}$
Current	$\frac{e^{(-45.3451+0.1988*Age_1-18.4582*Age_2+39.6855*Age_3-22.0276*Age_4-0.0621*female\ proportion+0.0209*Investigation\ year-0.1346*WB_{LMIC}+u_i)}}{1+e^{(-45.3451+0.1988*Age_1-18.4582*Age_2+39.6855*Age_3-22.0276*Age_4-0.0621*female\ proportion+0.0209*Investigation\ year-0.1346*WB_{LMIC}+u_i)}}$

Note: Age_1-Age_4 were variables generated in the process of fitting cubic splines, and the knots were 4.5, 8.7, 13.0, 13.6, 40.4 years for current wheezing, 6, 10, 13.5, 13.9, 42.325 years for ever wheezing, 5.175, 9, 13, 32, 67 years for current asthma and 5.5, 9, 13.5, 24.9375, 64.5 years for ever asthma. u_i was the variance of random effect.

Appendix 4. Characteristics of the included studies

Table S5. Characteristics of included studies with prevalence data for sample population

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Hedman J, et al.	1999	Finalnd	Päijät-Häme, Southern Finland	EUR	HIC	May 1996	Random	18-65	Ever diagnosed asthma
Salem, M. B., et al.	2002	Iraq	Basra, Southern Iraq	EMR	LMIC	March-April 2001	Random	0-4	Current wheezing
Obaseki, D. O., et al.	2014	Nigeria	Ile-Ife, Southwest Nigeria	AFR	LMIC	May-Dec 2011	Stratified three-stage sampling	15+	Newly diagnosed asthma
Horak, E., et al.	2014	Austria	Innsbruck, Tyrol	EUR	HIC	2013	Random	7.5-8.5	Current wheezing
Anderson, H. R., et al.	1994	UK	Croydon, London	EUR	HIC	1978-1991	Random	NA	Current wheezing
Crain, E. F., et al.	1994	US	Bronx County, Ney York	AMR	HIC	1991	Random	NA	Ever diagnosed asthma
Kirenga, B. J., et al.	2019	Uganda	National	AFR	LMIC	2014	Random	12+	Ever diagnosed asthma
Seneviratne	2018	Sri Lanka	Colombo Municipal Council	SEAR	LMIC	May 2015 - Dec 2015	Cluster sampling	3-5	Ever wheezing
Yawn	2002	US	Rochester, Minnesota	AMR	HIC	36527	Cluster	5.3-22.1	Ever diagnosed asthma
Bjorksten	1998	Sweden	Linköping	EUR	HIC	1998	Random	13-14; 6-7	Ever wheezing
Bjorksten	1998	Sweden	Stockholm/Uppsala	EUR	HIC	1998	Random	13-14; 6-8	Ever wheezing
Bjorksten	1998	Finland	Kuopio	EUR	HIC	1998	Random	13-14; 6-9	Ever wheezing

Bjorksten	1998	Finland	Lapland	EUR	HIC	1998	Random	13-14; 6-10	Ever wheezing

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Bjorksten	1998	Finland	Helsinki	EUR	HIC	1998	Random	13-14; 6-11	Ever wheezing
Bjorksten	1998	Finland	Turku/Pori	EUR	HIC	1998	Random	13-14; 6-12	Ever wheezing
Bjorksten	1998	Estonia	Tallinn	EUR	HIC	1998	Random	13-14; 6-13	Ever wheezing
Bjorksten	1998	Latvia	Riga	EUR	HIC	1998	Random	13-14; 6-14	Ever wheezing
Bjorksten	1998	Latvia	Rural	EUR	HIC	1998	Random	13-14; 6-15	Ever wheezing
Bjorksten	1998	Poland	Krakow	EUR	HIC	1998	Random	13-14; 6-16	Ever wheezing
Bjorksten	1998	Poland	Poznan	EUR	HIC	1998	Random	13-14; 6-17	Ever wheezing
Bjorksten	1998	Albania	Tirané	EUR	LMIC	1998	Random	13-14; 6-18	Ever wheezing
Bjorksten	1998	Romania	Cluj	EUR	LMIC	1998	Random	13-14; 6-19	Ever wheezing
Bjorksten	1998	Russia	Moscow	EUR	LMIC	1998	Random	13-14; 6-20	Ever wheezing
Bjorksten	1998	Georgia	Kutaisi	EUR	LMIC	1998	Random	13-14; 6-21	Ever wheezing
Bjorksten	1998	Georgia	Tbilisi	EUR	LMIC	1998	Random	13-14; 6-22	Ever wheezing
Bjorksten	1998	Uzbekistan	Samarkand	EUR	LMIC	1998	Random	13-14; 6-23	Ever wheezing
Bjorksten	1998	Uzbekistan	Tashkent	EUR	LMIC	1998	Random	13-14; 6-24	Ever wheezing
Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-25	Ever wheezing
Bjorksten	1998	Estonia	Tallinn	EUR	HIC	1998	Random	13-14; 6-26	Ever wheezing
Bjorksten	1998	Latvia	Riga	EUR	HIC	1998	Random	13-14; 6-27	Ever wheezing
Bjorksten	1998	Poland	Krakow	EUR	HIC	1998	Random	13-14; 6-28	Ever wheezing
Bjorksten	1998	Poland	Poznan	EUR	HIC	1998	Random	13-14; 6-29	Ever wheezing
Bjorksten	1998	Georgia	Kutaisi	EUR	LMIC	1998	Random	13-14; 6-30	Ever wheezing
Bjorksten	1998	Georgia	Tbilisi	EUR	LMIC	1998	Random	13-14; 6-31	Ever wheezing
Bjorksten	1998	Albania	Tirané	EUR	LMIC	1998	Random	13-14; 6-32	Ever wheezing

Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-33	Current wheezing
Bjorksten	1998	Estonia	Tallinn	EUR	HIC	1998	Random	13-14; 6-34	Current wheezing
Bjorksten	1998	Latvia	Rural	EUR	HIC	1998	Random	13-14; 6-35	Current wheezing
Bjorksten	1998	Poland	Krakow	EUR	HIC	1998	Random	13-14; 6-36	Current wheezing
Bjorksten	1998	Poland	Poznan	EUR	HIC	1998	Random	13-14; 6-37	Current wheezing

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Bjorksten	1998	Georgia	Kutaisi	EUR	LMIC	1998	Random	13-14; 6-38	Current wheezing
Bjorksten	1998	Georgia	Tbilisi	EUR	LMIC	1998	Random	13-14; 6-39	Current wheezing
Bjorksten	1998	Albania	Tirané	EUR	LMIC	1998	Random	13-14; 6-40	Current wheezing
Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-41	Ever diagnosed asthma
Bjorksten	1998	Estonia	Tallinn	EUR	HIC	1998	Random	13-14; 6-42	Ever diagnosed asthma
Bjorksten	1998	Latvia	Rural	EUR	HIC	1998	Random	13-14; 6-43	Ever diagnosed asthma
Bjorksten	1998	Poland	Krakow	EUR	HIC	1998	Random	13-14; 6-44	Ever diagnosed asthma
Bjorksten	1998	Poland	Poznan	EUR	HIC	1998	Random	13-14; 6-45	Ever diagnosed asthma
Bjorksten	1998	Georgia	Kutaisi	EUR	LMIC	1998	Random	13-14; 6-46	Ever diagnosed asthma
Bjorksten	1998	Georgia	Tbilisi	EUR	LMIC	1998	Random	13-14; 6-47	Ever diagnosed asthma
Bjorksten	1998	Albania	Tirané	EUR	LMIC	1998	Random	13-14; 6-48	Ever diagnosed asthma
Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-49	Current wheezing
Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-50	Current wheezing
Bjorksten	1998	Finland	Kuopio	EUR	HIC	1998	Random	13-14; 6-51	Current wheezing
Bjorksten	1998	Finland	Lapland	EUR	HIC	1998	Random	13-14; 6-52	Current wheezing
Bjorksten	1998	Finland	Helsinki	EUR	HIC	1998	Random	13-14; 6-53	Current wheezing
Bjorksten	1998	Finland	Turku/Pori	EUR	HIC	1998	Random	13-14; 6-54	Current wheezing
Bjorksten	1998	Estonia	Tallinn	EUR	HIC	1998	Random	13-14; 6-55	Current wheezing

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Bjorksten	1998	Latvia	Riga	EUR	HIC	1998	Random	13-14; 6-56	Current wheezing
Bjorksten	1998	Latvia	Rural	EUR	HIC	1998	Random	13-14; 6-57	Current wheezing
Bjorksten	1998	Poland	Krakow	EUR	HIC	1998	Random	13-14; 6-58	Current wheezing
Bjorksten	1998	Poland	Poznan	EUR	HIC	1998	Random	13-14; 6-59	Current wheezing
Bjorksten	1998	Albania	Tirané	EUR	LMIC	1998	Random	13-14; 6-60	Current wheezing
Bjorksten	1998	Romania	Cluj	EUR	LMIC	1998	Random	13-14; 6-61	Current wheezing
Bjorksten	1998	Russia	Moscow	EUR	LMIC	1998	Random	13-14; 6-62	Current wheezing
Bjorksten	1998	Georgia	Kutaisi	EUR	LMIC	1998	Random	13-14; 6-63	Current wheezing
Bjorksten	1998	Georgia	Tbilisi	EUR	LMIC	1998	Random	13-14; 6-64	Current wheezing
Bjorksten	1998	Uzbekistan	Samarkand	EUR	LMIC	1998	Random	13-14; 6-65	Current wheezing
Bjorksten	1998	Uzbekistan	Tashkent	EUR	LMIC	1998	Random	13-14; 6-66	Current wheezing
Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-67	Ever diagnosed asthma
Bjorksten	1998	Sweden	Stockholm/uppsala	EUR	HIC	1998	Random	13-14; 6-68	Ever diagnosed asthma
Bjorksten	1998	Finland	Kuopio	EUR	HIC	1998	Random	13-14; 6-69	Ever diagnosed asthma
Bjorksten	1998	Finland	Lapland	EUR	HIC	1998	Random	13-14; 6-70	Ever diagnosed asthma
Bjorksten	1998	Finland	Helsinki	EUR	HIC	1998	Random	13-14; 6-71	Ever diagnosed asthma
Bjorksten	1998	Finland	Turku/Pori	EUR	HIC	1998	Random	13-14; 6-72	Ever diagnosed asthma
Bjorksten	1998	Estonia	Tallinn	EUR	HIC	1998	Random	13-14; 6-73	Ever diagnosed asthma
Bjorksten	1998	Latvia	Riga	EUR	HIC	1998	Random	13-14; 6-74	Ever diagnosed asthma
Bjorksten	1998	Latvia	Rural	EUR	HIC	1998	Random	13-14; 6-75	Ever diagnosed asthma
Bjorksten	1998	Poland	Krakow	EUR	HIC	1998	Random	13-14; 6-76	Ever diagnosed asthma
Bjorksten	1998	Poland	Poznan	EUR	HIC	1998	Random	13-14; 6-77	Ever diagnosed asthma
Bjorksten	1998	Albania	Tirané	EUR	LMIC	1998	Random	13-14; 6-78	Ever diagnosed asthma
Bjorksten	1998	Romania	Cluj	EUR	LMIC	1998	Random	13-14; 6-79	Ever diagnosed asthma

Bjorksten	1998	Russia	Moscow	EUR	LMIC	1998	Random	13-14; 6-80	Ever diagnosed asthma
Bjorksten	1998	Georgia	Kutaisi	EUR	LMIC	1998	Random	13-14; 6-81	Ever diagnosed asthma
Bjorksten	1998	Georgia	Tbilisi	EUR	LMIC	1998	Random	13-14; 6-82	Ever diagnosed asthma
Bjorksten	1998	Uzbekistan	Samarkand	EUR	LMIC	1998	Random	13-14; 6-83	Ever diagnosed asthma
Bjorksten	1998	Uzbekistan	Tashkent	EUR	LMIC	1998	Random	13-14; 6-84	Ever diagnosed asthma
Barry	1991	New Zealand	Hastings & Borough of Havelock North	EUR	HIC	Summer Months, 1991	random	12	Ever diagnosed asthma
Barry	1991	UK	North Cardiff & Vale of Glamorgan	EUR	HIC	Summer Months, 1991	random	12	Ever diagnosed asthma
Akkurt	2003	Turkey	Sivas, Anatonia	EUR	LMIC	2003	random	20-107	Current wheezing

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Isoaho	1994	Finland	Lieto	EUR	HIC	October 1990 December 1991	Random	NA	Newly diagnosed asthma
Papageorgiou	1997	Greece	Athens	EUR	HIC	1997	random	20-44	Ever wheezing
Brozek	2015	Poland	Chorzow	EUR	HIC	1993	Clusterrandom	7-10	Ever diagnosed asthma
Bechtold	2013	Italy	Northeast Italy	EUR	HIC	2000-2004	Random	13	Ever diagnosed asthma
Nriagu	1999	South Africa	Merebank, Durban	AFR	LMIC	1999	Random	18+	Current wheezing
Anderson	2004	UK	British Ishes	EUR	HIC	1995	Random	12-14	Current wheezing
Mallol	2010	Brazil	Latin America	AMR	LMIC	2005-2007	Random	13 -15 months	Current wheezing
Mallol	2010	Spain	Europe	EUR	HIC	2005-2007	Random	13 -15 months	Current wheezing

Johnson	2005	US	Detroit	AMR	HIC	August 2001 - January 2002	Random	<18 - 70+	Ever diagnosed asthma
Solis Soto	2014	Bolivia	Oropeza	AMR	LMIC	July 2011 - December 2011	One-staged cluster	9-15	Ever wheezing
Mattei	2007	Italy	L'Aquila	EUR	HIC	January-March 2004	Random	13-14	Ever diagnosed asthma
Lee	2001	Korea, Rep	Seoul and Provincial center, Korea	WPR	HIC	September-November 1995	Stratified random	6-12	Ever wheezing
Lima	2012	Brazil	National	AMR	LMIC	July 2008 - May 2009	NA	NA	Current wheezing
Hansen	2000	Denmark	Copenhagen	EUR	HIC	1976-1978	Random	20-35	Ever diagnosed asthma
Fukutomi	2011	Japan	Fujieda	WPR	HIC	1985-2006	Random	15+	Ever wheezing
Al Ghobain	2012	Saudi Arabia	Riyadh	EMR	HIC	2010	Two-stage cluster	16-18	Ever wheezing
Kausel	2013	Chile	Region de los Rios and Valdivia	AMR	HIC	2009	Random	10-16	Ever diagnosed asthma
von Mutius	1992	Germany	Leipzig	EUR	HIC	1989-1991	Random	9-11	Ever diagnosed asthma

Alves	1994	Portugal	Oporto	EUR	HIC	1992	Random	20-44	Current wheezing
Liao	2005	Taiwan	Changhwa, Central Taiwan	WPR	HIC	September 2002 - December 2002	Stratified Random	6-8	Ever wheezing
Ehrlich	1995	South Africa	Cape Town	AFR	LMIC	1993	Cluster sampling	7-8	Current wheezing
Arnedo-Pana	2011	Spain	Bilbao	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Asturias	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	San Sebastian	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	La Coruna	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Cartagena	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Barcelona	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Valencia	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma

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Arnedo-Pana	2011	Spain	Madrid	EUR	HIC	2002-2003	Random	6-7	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Bilbao	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Asturias	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	San Sebastian	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma

Arnedo-Pana	2011	Spain	La Coruna	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Cartagena	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Barcelona	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Valencia	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Madrid	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Arnedo-Pana	2011	Spain	Valladolid	EUR	HIC	2002-2003	Random	13-14	Ever diagnosed asthma
Nugmanova	2018	Ukraine	Kiev	EUR	LMIC	2013-2015	Two-step cluster random	18+	Ever diagnosed asthma
Nugmanova	2018	Kazakhstan	Almaty	EUR	LMIC	2013-2015	Two-step cluster random	18+	Ever diagnosed asthma
Nugmanova	2018	Azerbaijan	Baku	EUR	LMIC	2013-2015	Two-step cluster random	18+	Ever diagnosed asthma
Nugmanova	2018	Ukraine	Kiev	EUR	LMIC	2013-2015	Two-step cluster random	18+	Ever wheezing
Nugmanova	2018	Kazakhstan	Almaty	EUR	LMIC	2013-2015	Two-step cluster random	18+	Ever wheezing

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Nugmanova	2018	Azerbaijan	Baku	EUR	LMIC	2013-2015	Two-step cluster random	18+	Ever wheezing
Cazzola	2011	Italy	Italy	EUR	HIC	40148	Random	14+	Ever diagnosed asthma

Heinrich	2002	Germany	Sachsen-Anhalt	EUR	HIC	1992-1993	Random	5-14	Ever diagnosed asthma
James	2010	Australia	Busselton	WPR	HIC	1990	Random	18-54	Ever diagnosed asthma
Ronchetti	2001	Italy	Rome	EUR	HIC	1974-1998	Random	6-14	Ever diagnosed asthma
Wang	2004	Singapore	Singapore	WPR	HIC	1994-2001	Cluster sampling	6-7	Ever wheezing
Bemanin	2015	Afghanistan	Kabul	EMR	LMIC	2010-2011	Random	NA	Ever diagnosed asthma
Robertson	1991	Australia	Melbourne	WPR	HIC	1990	Two stage random	7-15	Current wheezing
Roos	2018	Netherlands	Rotterdam	EUR	HIC	2018	Random	NA	Ever diagnosed asthma
Toelle	2004	Australia	Belmont	WPR	HIC	1992-2002	Random	8-11	Ever diagnosed asthma
Brunner	2005	US	Minnesota	AMR	HIC	2001	Stratified random	13-16	Current wheezing
Hasnain	2009	Pakistan	Karachi	EMR	LMIC	2007	Random	3-16	Ever diagnosed asthma
Reis	2015	Brazil	Salvador	AMR	LMIC	2006	Random	< 4	Current wheezing
Nguyen	2015	US	Orange County	AMR	HIC	June 2011 and April 2012	Random	3-12	Ever diagnosed asthma
Huure	2004	Finland	Southern Finland	EUR	HIC	1983-1999	Random	16-32	Ever diagnosed asthma
Ozdemir	2000	Turkey	Eskisehir, Turkey	EUR	LMIC	1997-1998	Two-step sampling	16-30	Current wheezing
Liao	2009	Taiwan	Changhwa, Central Taiwan	WPR	LMIC	2002-2007	Cluster random	6-8	Ever wheezing

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Strachan	1994	UK	Great Britain	EUR	HIC	March and April, 1992	Two stage stratified random	5-17	Current wheezing
Weiland	1999	Germany	East and West of Germany	EUR	HIC	1995-1996	Random	5-11	Current wheezing
Ronmark	2002	Sweden	Northern Sweden	EUR	HIC	1996-1998	Random	7-8	Ever wheezing
Saraclar	1997	Turkey	Ankara	EUR	LMIC	1994	Random	18+	Ever wheezing
Nishima	2009	Japan	Japan	WPR	HIC	NA	Random	6-12	Ever diagnosed asthma
Lee	2003	US	Boston, Chinatown	AMR	HIC	2003	Random	5-10	Ever diagnosed asthma
Vanfleteren	2012	Netherlands	Maastricht	EUR	HIC	Oct 2007-Mar 2009	Random	40+	Ever diagnosed asthma
Renwick	1996	UK	Leeds	EUR	HIC	Jan 1992 - Feb 1994	Random	NA	Current wheezing
Matsumoto	2015	Japan	Hisayama	SEAR	HIC	2008	Random	40+	Ever diagnosed asthma
Carlsson	2013	Sweden	Stockholm	EUR	HIC	40878	Random	0-85+	Ever diagnosed asthma
Maia	2004	Brazil	Montes Claros, Brazil	AMR	LMIC	2004	Random	13-14	Current wheezing
Kiboneka	2016	Botswana	Gaborone, Botswana	AFR	LMIC	October 2014 to November 2015	Random	6-7; 13-14	Ever wheezing
Hu	1997	US	Los Angeles and San Diego	AMR	HIC	1993	Random	20-22	Ever diagnosed asthma
Pakhale	2008	India	Maharashtra, West India	SEAR	LMIC	November - December, 2004	Random	13-14	Ever diagnosed asthma

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Lawson	2017	Canada	Saskatchewan	AMR	HIC	2013	Random	5-14	Ever diagnosed asthma
Rizwan	2004	UK	Bootle, Merseyside	EUR	HIC	1991	Random	5-11	Ever diagnosed asthma
Freitas	2012	Brazil	Brazilian Amazon islands, Para	AMR	LMIC	2007-2009	Convenienc e	5-8	Ever wheezing
Findley	2003	US	East, Harlem	AMR	HIC	NA	Random	NA	Ever diagnosed asthma
Simon	2003	US	Los Angeles	AMR	HIC	Septemb er 1999-April 2000	Random	< 18	Ever diagnosed asthma
Hoffmann	2007	Germany	East and West, Germany	EUR	HIC	2003	Two-staged	18+	Ever diagnosed asthma
Claudio	2006	US	New York City	AMR	HIC	2002-2003	Stratified Random	4-13	Newly diagnosed asthma
Silva	2013	Brazil	Salvador, Northeast Brazil	AMR	LMIC	AugustDecemb er 2010	Random	6-12	Current wheezing
Bryant-Stephens	2012	US	West and North Philadelphia	AMR	HIC	2006-2008	Random	5-14	Ever diagnosed asthma
Goh	1996	Singapore	Singapore	WPR	HIC	Februar y - Novemb er, 1994	Random	6-7	Ever wheezing
Carillo	2018	US	Hidalgo, County Texas	AMR	HIC	October 2014-May 2016	Random	2-18	Ever diagnosed asthma
Mallol	2010	Argentina	Argentina	AMR	HIC	2010	Random	13-14	Current wheezing
Mallol	2010	Bolivia	Bolivia	AMR	LMIC	2010	Random	13-14	Current wheezing

Mallol	2010	Brazil	Brazil	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Chile	Chile	AMR	HIC	2010	Random	13-14	Current wheezing
Mallol	2010	Colombia	Colombia	AMR	LMIC	2010	Random	13-14	Current wheezing

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Mallol	2010	Costa Rica	Costa Rica	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Cuba	Cuba	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Ecuador	Ecuador	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	El Savador	El Savador	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Honduras	Honduras	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Mexico	Mexico	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Nicaragua	Nicaragua	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Panama	Panama	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Paraguay	Paraguay	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Peru	Peru	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Uruguay	Uruguay	AMR	HIC	2010	Random	13-14	Current wheezing
Mallol	2010	Venezuela	Venezuela	AMR	LMIC	2010	Random	13-14	Current wheezing
Mallol	2010	Argentina	Argentina	AMR	HIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Bolivia	Bolivia	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Brazil	Brazil	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Chile	Chile	AMR	HIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Colombia	Colombia	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Costa Rica	Costa Rica	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Cuba	Cuba	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Ecuador	Ecuador	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	El Savador	El Savador	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma

Mallol	2010	Honduras	Honduras	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Mexico	Mexico	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Nicaragua	Nicaragua	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Panama	Panama	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Paraguay	Paraguay	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Peru	Peru	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Mallol	2010	Uruguay	Uruguay	AMR	HIC	2010	Random	13-14	Ever diagnosed asthma

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Mallol	2010	Venezuela	Venezuela	AMR	LMIC	2010	Random	13-14	Ever diagnosed asthma
Romano-Zelekha	2007	Israel	Isreal	EUR	HIC	1997	Random	13-14	Ever diagnosed asthma
El Ftouh	2009	Algeria	Algeria	AFR	LMIC	January 2008-May 2008	Random stratified	NA	Ever diagnosed asthma
El Ftouh	2009	Morocco	Morocco	EMR	LMIC	January 2008-May 2008	Random stratified	NA	Ever diagnosed asthma
El Ftouh	2009	Tunisia	Tunisia	EMR	LMIC	January 2008-May 2008	Random stratified	NA	Ever diagnosed asthma
Stojanovic-Rist	2006	Serbia	Belgrade, Serbia	EUR	LMIC	1996-2001	Random	19-23	Ever diagnosed asthma
Shamssain	1999	UK	North East, England	EUR	HIC	1999	Random	6-7	Ever wheezing

Kim	2013	Korea, Rep	Korea	WPR	HIC	1998-2008	Multistaged Stratified Probability	20-59	Ever diagnosed asthma
Romanmtowski	2015	Poland	Tricity	EUR	HIC	April 2011 - December 2011	Random	1-18	Ever diagnosed asthma
Brugge	2008	US	Dorchester, Massachusetts	AMR	HIC	2005-2006	Convenience	18+	Current wheezing
Shimwela	2014	Tanzania	Ilala and Bagamoyo	AFR	LMIC	2007	Random	0+	Ever diagnosed asthma
Senthilselvan	2016	Canada	10 Canadian provinces, the Northwest Territories and the Yukon	AMR	HIC	2002-2010	Two-staged statified	0-11	Ever diagnosed asthma

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Ziyab	2017	Kuwait	Kuwait	EMR	HIC	January -May 2015	Random	18-26	Ever wheezing
Kainu	2013	Finland	Helsinki	EUR	HIC	1996-2006	Random	20-69	Ever diagnosed asthma
Gershon	2010	Canada	Ontario	AMR	HIC	1991-2005	Random	0+	Ever diagnosed asthma
Gershon	2010	Canada	Ontario	AMR	HIC	1991-2005	Random	0+	Ever diagnosed asthma
Singh	2016	India	Rajasthan, Punjab, Maharashtra, Kerala and Karnatak	SEAR	LMIC	2001-2003	Random	6-14	Ever diagnosed asthma

Peroni	2009	Italy	Verona, Northern Italy	EUR	HIC	2009	Random	3-5	Current wheezing
Kaur	1998	UK	England, Wales, and Scotland	EUR	HIC	1995	Statified Clustered	12-14	Ever wheezing
Kuehni	2000	UK	Leicester	EUR	HIC	1985-1998	Age-stratified random	8-13	Current wheezing
Delmas	2009	France	France	EUR	HIC	October 2002-October 2003	Random	11-14	Current wheezing
Werneck	1999	Brazil	Itabira or Santa Maria	AMR	LMIC	June - October 1994	Random	7-8	Ever diagnosed asthma
Norzila	2000	Malaysia	Kuala Lumpur	WPR	LMIC	2000	Random	7-12	Ever wheezing
Ngui	2011	Malaysia	Orang Asli	WPR	LMIC	November 2007 - July 2009	Random	0+	Current wheezing
Felix	2015	US	Puerto Rico	AMR	HIC	2008-2010	Random	18+	Ever diagnosed asthma

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Anthracopoulos	2007	Greece	Patras	EUR	HIC	1991-2003	Random	8-10	Current wheezing
Lamnisos	2013	Cyprus	Greek-Cypriot & Turkish-Cypriot	EUR	HIC	2007-2009	Random	7-8 & 13-14	Current wheezing
Bishwajit	2017	Bangladesh	South Asia	SEAR	LMIC	January 2002 December 2002	Random	18+	Ever diagnosed asthma

Bishwajit	2017	India	South Asia	SEAR	LMIC	January 2002 December 2002	Random	18+	Ever diagnosed asthma
Bishwajit	2017	Nepal	South Asia	SEAR	LMIC	January 2002 December 2002	Random	18+	Ever diagnosed asthma
Bishwajit	2017	Pakistan	South Asia	EMR	LMIC	January 2002 December 2002	Random	18+	Ever diagnosed asthma
Bishwajit	2017	Sri Lanka	South Asia	SEAR	LMIC	January 2002 December 2002	Random	18+	Ever diagnosed asthma
Austin	1994	UK	Scotland	EUR	HIC	1992	Random	12-13	Ever diagnosed asthma
Moradi-Lakeh	2015	Saudi Arabia	Saudi	EMR	HIC	2015	Multistaged	15+	Ever diagnosed asthma
Fedortsiv	2012	Ukraine	Ternopil	EUR	LMIC	2010	Cluster	6-14	Ever diagnosed asthma
Trakultivakorn	2007	Thailand	Bangkok and Chiang Mai	SEAR	LMIC	2001	Random	6-7	Ever diagnosed asthma
Gupta	2001	India	Chandigarh, North India	SEAR	LMIC	July 1997-June 1999	Random	9-20	Ever diagnosed asthma

Musafiri	2011	Rwanda	Kigali and Huye, Southern Rwanda	AFR	LMIC	February 2008 and August 2009	Random	15-80	Current wheezing
Kim	2014	Sweden	Vastra Gotaland County	EUR	HIC	2000-2008	Random	15	Current wheezing
Greenlee	2008	US	Marshfield	AMR	HIC	2008	Random	5-17	Ever wheezing
Ma	2017	China	China	WPR	LMIC	2009 and 2011	Random	18+	Ever diagnosed asthma
Middleton	2014	Cyprus	Cyprus	EUR	HIC	2006-2007	Random	15-17	Newly diagnosed asthma
Shakurnia	2010	Iran	Ahvaz city, south-west	EMR	LMIC	2007	Random	6-7	Ever wheezing
Jarvis	1994	UK	Cambridge, Ipswich and Norwich	EUR	HIC	October 1990-June 1991	Random	20-44	Current wheezing
Glushkova	2008	Russia	Vasiljevki, Central St. Petersburg	EUR	LMIC	2003	Random	0-18	Ever diagnosed asthma
Nystad	1997	Norway	Oslo	EUR	HIC	1981 & 1994	Random	6-16	Ever diagnosed asthma
Rose	2006	US	Puerto Ricans and in the Northeast census region	AMR	HIC	1998-2000	Complex Multistaged	18+	Ever diagnosed asthma
Jindal	2000	India	Chandigarh	SEAR	LMIC	July 1995-June 1997	Random	18+	Ever diagnosed asthma

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Peat	1994	Australia	New South Wales	WPR	HIC	June 1982 - 1992	Random	8-10	Ever diagnosed asthma
Gao	2008	Canada	Northwest Territories	AMR	HIC	1994-1995	Random	0-11	Ever diagnosed asthma
Jerning	2013	Sweden	Stockholm, Gothenburg, Uppsala and Umea	EUR	HIC	2008	Random	16-75	Newly diagnosed asthma
Wehrmeister	2010	Brazil	South and Northeast regions	AMR	LMIC	2003	Random	<10	Ever diagnosed asthma
Al Ghobain, M. O., et al.	2012	Saudi Arabia	Riyadh, Saudi Arabia.	EMR	HIC	2009-2010	Random	16-18	Ever wheezing
Barraza Villarreal, A., et al.	2003	Mexico	Juarez, Chihuahua, Mexico,	AMR	LMIC	2003	Random	6-14	Ever diagnosed asthma
Tan, T. N., et al.	2006	Singapore	Singapore	WPR	HIC	2000	Random	4-6	Ever wheezing
Sole, D., et al.	2015	Brazil	Brazil	AMR	LMIC	2012	Random	13-14	Ever wheezing
Kabesch, M., et al.	1999	Germany	Munich, Germany	EUR	HIC	1989-1990	Random	9-11	Current wheezing
Broms, K., et al.	2012	Sweden	Sweden	EUR	HIC	2002-2007	Random	1-6	Ever wheezing
Chan-Yeung, M., et al.	2002	China	Beijing, China	WPR	LMIC	1996-1997	Random	=/>15	Ever wheezing
Mvula, M., et al.	2005	US	New Orleans, US	AMR	HIC	2000	Random	NA	Ever wheezing
Joseph, C. L., et al.	1996	US	Detroit, US	AMR	HIC	1993	Random	NA	Ever diagnosed asthma

Pekkanen, J., et al.	1997	Finland	Helsinki area; Turku and Pori County; Kuo-pio County; and the southern part of Laplan	EUR	HIC	1994-1995	Random	13-14	Ever wheezing

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Habbick, B. F., et al.	1999	Canada	Hamilton & Saskatoon	AMR	HIC	1994-1995	Random	6-7 & 13-14	Ever diagnosed asthma
Shohat, T., et al.	2000	Israel	Israel	EUR	HIC	1997	Random	13-14	Newly diagnosed asthma
Leung, R., et al.	1994	Hong Kong	Hong Kong	WPR	HIC	1992	Random	7, 12 & 15	Ever wheezing
Yeatts, K. B. and C. M. Shy	2001	US	North Carolina	AMR	HIC	1996	Random	13-15	Ever wheezing
Arif, A. A., et al.	2005	US	West Texas	AMR	HIC	2001	Random	=/>65	Ever diagnosed asthma
Meren, M., et al.	2005	Estonia	Tallinn, Narva and Saaremaa	EUR	HIC	1995-2000	Random	15-64	Current wheezing
Larsson, L.	1995	Sweden	Jamtland and Gastrikland.	EUR	HIC	1990-1993	Random	13-24	Ever wheezing
Rona, R. J., et al.	1995	UK	UK	EUR	HIC	1982 & 1992	Random	5-11	Current wheezing
Mellinger-Birdsong, A. K., et al.	2003	US	Georgia	AMR	HIC	2000	Random	0-17	Ever diagnosed asthma
Dow, L., et al.	2001	UK	South west England	EUR	HIC	2001	Random	=/>65	Ever diagnosed asthma
Unlu, M., et al.	2002	Turkey	Afyon	EUR	LMIC	2001	Random	13-18	Current wheezing
Al Ghobain, M. O., et al.	2018	Saudi Arabia	Riyadh, Saudi Arabia.	EMR	HIC	2016	Random	20-44	Current wheezing
McCann, D., et al.	2002	UK	South of England	EUR	HIC	2002	Random	7-9	Ever diagnosed asthma

Pallasaho, P., et al.	2002	Sweden	Helsinki, Stockholm, and Tallinn	EUR	HIC	1996	Random	20-64	Current wheezing
Khan, A. A., et al.	2014	Pakistan	Karachi	EMR	LMIC	2012-2013	Random	3-17	Ever diagnosed asthma
Aberle, N., et al.	2018	Croatia	Brod-Posavina County	EUR	LMIC	2007-2008	Random	10-11	Ever wheezing

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Valery, P. C., et al.	2001	Australia	Torres Strait and Northern Peninsula Area	WPR	HIC	1999	Random	0-17	Ever wheezing
Kurukulaaratchy, R. J., et al.	2002	UK	Isle of Wight	EUR	HIC	1989-1999	Random	10	Current wheezing
Leung, R. and P. Ho	1994	Malaysia	Kota Kinabalu	WPR	HIC	1992	Random	11-20	Ever wheezing
Letamo, G., et al.	2017	Botswana	Botswana	AFR	LMIC	2013	Random	10-64	Ever diagnosed asthma
Yoshihara, S., et al.	2016	Mongolia	Ulaanbaatar	WPR	LMIC	2009	Random	6-7	Ever wheezing
Levesque, B., et al.	2004	Canada	Quebec	AMR	HIC	1999	Random	9, 13 & 16	Ever diagnosed asthma
Schuh, C., et al.	2015	Brazil	Porto Alegre	AMR	LMIC	2013	Random	10-18	Newly diagnosed asthma
Cakir, E., et al.	2010	Turkey	Istanbul's Kartal County	EUR	LMIC	2010	Random	</=16 & >17	Ever wheezing
Zivkovic, Z., et al.	2010	Serbia	Belgrade, Nis, Novi Sad & Sombor	EUR	LMIC	2009	Random	6-7 &13-14	Ever diagnosed asthma
Zivkovic, Z., et al.	2010	Montenegro	Podgorica	EUR	LMIC	2009	Random	6-7 &13-14	Ever diagnosed asthma
Hessel, P. A., et al.	2001	Canada	Alberta (Red deer & Medicine Hat)	AMR	HIC	2000	Random	5-19	Ever diagnosed asthma

Stout, J. W., et al.	2001	US	Tacoma, Washington and Alaska	AMR	HIC	1997-1998	Random	11-16	Ever diagnosed asthma
Chhabra, S. K., et al.	1998	India	Delhi	SEAR	LMIC	1997	Random	4-17	Current wheezing
Jain, A., et al.	2010	India	Manipal	SEAR	LMIC	2009	Random	6-15	Current wheezing
Yemaneberhan, H., et al.	1997	Ethiopia	Jimma	AFR	LMIC	1996	Random	0-70=/>	Current wheezing
Pite, H., et al.	2014	Portugal	Mainland Portugal	EUR	HIC	2008	Random	=/>65	Ever diagnosed asthma

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Ponsonby, A. L., et al.	2008	Australia	Australian Capital Territory	WPR	HIC	1999-2005	Random	4-6	Ever diagnosed asthma
Gonzalez-Garcia, M., et al.	2015	Colombia	Barranquilla, Bucaramanga, Cali, Medellin and Bogota	AMR	LMIC	2015	Random	40-93	Ever wheezing
Teeratakulpisarn, J., et al.	2000	Thailand	Khon Kaen	SEAR	LMIC	2003	Random	6-7 & 13-14	Ever wheezing
Leung, R., et al.	1997	Hong Kong	Hong Kong	WPR	HIC	1994-1995	Random	13-14	Ever diagnosed asthma
Ding, Y. P., et al.	2012	China	Hainan	WPR	LMIC	2012	Random	2-90	Ever diagnosed asthma
Dennis, R. J., et al.	2012	Colombia	Barranquilla, Bogotá, Bucaramanga, Cali, Medellin, and San Andrés Island	AMR	LMIC	2009-2010	Random	1-59	Ever wheezing
Zhu, W. J., et al.	2015	China	Beijing	WPR	LMIC	2010-2011	Random	1-14	Ever diagnosed asthma

Faniran, A. O., et al.	1999	Australia	Sydney	WPR	HIC	1999	Random	8-11	Ever diagnosed asthma
Faniran, A. O., et al.	1999	Nigeria	Ojo	AFR	LMIC	1999	Random	8-11	Ever diagnosed asthma
Nordlund, B., et al.	2014	Sweden	Stockholm	EUR	HIC	1994-2008	Random	0-12	Ever diagnosed asthma
Nelson, K. A., et al.	2009	US	St. Louis, Missouri	AMR	HIC	1992 & 2004	Random	10-12	Current wheezing
Sole, D., et al.	2015	Brazil	Belem	AMR	LMIC	2011-2012	Random	13-14	Ever wheezing
Sole, D., et al.	2015	Brazil	Recife	AMR	LMIC	2011-2012	Random	13-14	Ever wheezing
Sole, D., et al.	2015	Brazil	Macelo	AMR	LMIC	2011-2012	Random	13-14	Ever wheezing
Sole, D., et al.	2015	Brazil	Aracaju	AMR	LMIC	2011-2012	Random	13-14	Ever wheezing
Sole, D., et al.	2015	Brazil	Belo Horizonte	AMR	LMIC	2011-2012	Random	13-14	Ever diagnosed asthma
Sole, D., et al.	2015	Brazil	Sao Paulo	AMR	LMIC	2011-2012	Random	13-14	Ever diagnosed asthma
Sole, D., et al.	2015	Brazil	Curitiba	AMR	LMIC	2011-2012	Random	13-14	Ever diagnosed asthma
Zollner, I. K., et al.	2005	Germany	Baden-Wuerttemberg: Mannheim, Kehl and Aulendorf/Bad Waldsee	EUR	HIC	1992-2001	Random	9-11	Ever diagnosed asthma
Wanlapakorn, N., et al.	2014	Thailand	Bangkok	SEAR	LMIC	2012	Random	6-12	Ever wheezing

Demir, A. U., et al.	2010	Turkey	Ankara	EUR	LMIC	1992-2007	Random	7-12	Ever diagnosed asthma
Wang, H. Y., et al.	2008	China	Guangzhou, Beijing and Hong Kong,	WPR	LMIC	2001-2003	Random	13-14	Ever wheezing
Wang, H. Y., et al.	2008	Canada	Vancouver	AMR	HIC	2001-2003	Random	13-14	Ever wheezing
Pallasaho, P., et al.	1999	Finland	Helsinki	EUR	HIC	1996	Random	20-69	Current wheezing
Tarraf, H., et al.	2018	Egypt	Egypt	EMR	LMIC	2014-2016	Random	18 and above	Ever diagnosed asthma
Tarraf, H., et al.	2018	Gulf countries	Kuwait, Saudi Arabia, and the United Arab Emirates	EMR	LMIC	2014-2016	Random	18 and above	Ever diagnosed asthma
Tarraf, H., et al.	2018	Turkey	Turkey	EUR	LMIC	2014-2016	Random	18 and above	Ever diagnosed asthma
Al-Thamiri, D., et al.	2005	Iraq	Baghdad	EMR	LMIC	2000-2002	Random	6-15	Ever wheezing

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group
Roncada, C., et al.	2016	Brazil	Porto Alegre	AMR	LMIC	2013	Random	8-16	Current wheezing
Peat, J. K., et al.	1992	Australia	Busselton	WPR	HIC	1981 & 1990	Random	18-55	Ever diagnosed asthma
Ekici, A., et al. (2012)	2012	Turkey	Kirikkale	EUR	LMIC	2004	Random	NA	Ever diagnosed asthma
Palvo, F., et al.	2008	Brazil	Sa˜ o Jose´ do Rio Preto, Sa˜ o Paulo	AMR	LMIC	2003-2004	Random	6-7	Ever diagnosed asthma
Tang, S. P., et al.	2017	China	Fuzhou	WPR	LMIC	2010-2011	Random	0-14	Ever diagnosed asthma

Musharrafieh, U., et al.	2009	Lebanon	Beirut, Bekaa, South & North	EMR	LMIC	2005	Random	13-14	Ever wheezing
Dales, R. E., et al.	1994	Canada	British Columbia, Saskatchewan, Ontario, Quebec, and Maritimes	AMR	HIC	1988	Random	5-8	Ever diagnosed asthma
Bartlett, E., et al.	2013	Bangladesh	Abhoynagar, Mirsarai & Kamalapur	SEAR	LMIC	2009	Random	25-65>	Ever diagnosed asthma
Perez-Perdomo, R., et al.	2003	US	Puerto Rico	AMR	HIC	2000	Random	18 and above	Ever diagnosed asthma
Nafti, S., et al.	2009	Algeria	Algeria	AFR	LMIC	2008	Random	16 and above	Newly diagnosed asthma
Nafti, S., et al.	2009	Morocco	Morocco	EMR	LMIC	2008	Random	16 and above	Newly diagnosed asthma
Nafti, S., et al.	2009	Tunisia	Tunisia	EMR	LMIC	2008	Random	16 and above	Newly diagnosed asthma
Manfreda, J., et al.	2001	Canada	Vancouver, Winnipeg, Hamilton, Montreal, Halifax and Prince Edward Island	AMR	HIC	1993-1994	Random	20–44	Current wheezing
Linehan, M. F., et al.	2009	UK	Manchester	EUR	HIC	2002-2004	Random	6-11	Current wheezing
Song, N., et al.	2014	China	Shijiazhuang in Hebei province	WPR	LMIC	2011	Random	6-18	Ever wheezing

Sole, D., et al.	2014	Brazil	Brazil	AMR	LMIC	NA	Random	6-7 & 13-14	Current wheezing
Ronmark, E., et al.	2001	Sweden	Kiruna, Luleå, and Piteå in northern Sweden	EUR	HIC	1996 & 1997	Random	7-8	Ever diagnosed asthma
Brozek, G., et al.	2016	Belarus	Grodno	EUR	LMIC	NA	Random	7-13	Ever diagnosed asthma
Brozek, G., et al.	2016	Belarus	Grodno	EUR	LMIC	NA	Random	7-13	Ever diagnosed asthma
Brozek, G., et al.	2016	Ukraine	Ternopil	EUR	LMIC	NA	Random	7-13	Ever diagnosed asthma
Brozek, G., et al.	2016	Ukraine	Ternopil	EUR	LMIC	NA	Random	7-13	Ever diagnosed asthma
Brozek, G., et al.	2016	Poland	Katowice	EUR	HIC	NA	Random	7-13	Ever diagnosed asthma
Brozek, G., et al.	2016	Poland	Katowice	EUR	HIC	NA	Random	7-13	Ever diagnosed asthma
Portnov, B. A., et al.	2012	Israel	Haifa, Qiryat Tivon, Nesher, Qiryat Ata, Qiryat Motzkin, Qiryat Bialik and Qiryat Yam	EUR	HIC	2008-2009	Random	6-15	Ever diagnosed asthma
Chrischilles, E., et al.	2004	US	Iowa	AMR	HIC	1999-2002	Random	6-14	Ever wheezing
Anthracopoulos, M., et al.	2001	Greece	Patras	EUR	HIC	1978, 1991 & 1998	Random	8-10	Current wheezing
de Marco, R., et al.	2012	Italy	Ferrara, Pavia, Pisa, Sassari, Sassuolo, Siracusa, Turin, Udine and Verona.	EUR	HIC	1990-2010	Random	20-44	Newly diagnosed asthma

Muc, M., et al.	2014	Portugal	Coimbra	EUR	HIC	2012	Random	6-8	Ever wheezing
Tai, A., et al.	2009	Australia	South Australia	WPR	HIC	2006	Random	4-5	Current wheezing
von Maffei, J., et al.	2001	US	Virginia and Connecticut	AMR	HIC	1993-1996	Random	0-18	Ever diagnosed asthma
Tug, T. and Y. Acik	2002	Turkey	Elazig Region	EUR	LMIC	2002	Random	NA	Ever wheezing
Sy, D. Q., et al.	2007	Vietnam	Dalat Highlands	WPR	LMIC	2004	Random	NA	Ever diagnosed asthma
Erhabor, G. E., et al.	2016	Nigeria	Obafemi Awolowo University, Ileife	AFR	LMIC	2012	Random	15-39 & 22-73	Current wheezing
Chang, H. J., et al.	2012	Canada	Canada	AMR	HIC	2006-2007	Random	6-14 & 15-64	Ever diagnosed asthma
Duhme, H., et al.	1998	Germany	Münster, western Germany, and Greifswald, eastern Ger-many	EUR	HIC	1994-1995	Random	5-8 & 12-15	Ever wheezing
Lin, J., et al.	2018	China	Mainland China (Beijing, Shanghai, Jiangsu, Guangdong, Liaoning, Sichuan, Henan and Shanxi)	WPR	LMIC	2010-2012	Random	15 & above	Ever diagnosed asthma
Lin, R., et al.	2014	China	Qingdao	WPR	LMIC	2010-2011	Random	1-14	Ever diagnosed asthma
Saraclar, Y., et al.	1997	Turkey	Ankara	EUR	LMIC	1991-1992	Random	6-13	Ever diagnosed asthma

Author	Year Published	Country	Study site	WHO Region	WB Income Region	Investigation Date	Sampling Strategy	Age range	Group

Erhabor, G. E., et al.	2006	Nigeria	Ile-Ife	AFR	LMIC	NA	Random	15-35	Current wheezing
Sharma, B. S., et al.	2012	India	Jaipur	SEAR	LMIC	2008-2009	Random	5-15	Ever wheezing
Sole, D., et al.	1999	Brazil	Sao Paulo	AMR	LMIC	1995	Random	6-7 & 13-14	Ever wheezing
Kraai, S., et al.	2013	Venezuela	Warao	AMR	LMIC	2012	Random	2-10	Ever wheezing
Ormerod, L. P., et al.	1999	UK	Blackburn	EUR	HIC	1990-1991	Random	0 & above	Ever wheezing
Solet, J. L., et al.	2019	France	Reunion	EUR	HIC	2016	Random	18-44	Newly diagnosed asthma
Timonen, K. L., et al.	1995	Finland	Kuopio	EUR	HIC	1993-1994	Random	7-12	Newly diagnosed asthma
Saraclar, Y., et al.	1998	Turkey	Ankara	EUR	LMIC	1996	Random	7-14	Ever wheezing
Saraclar, Y., et al.	1998	Turkey	Ankara	EUR	LMIC	1996	Random	7-14	Ever diagnosed asthma
Saraclar, Y., et al.	1998	Turkey	Ankara	EUR	LMIC	1996	Random	7-14	Current wheezing
Saraclar, Y., et al.	1998	Turkey	Ankara	EUR	LMIC	1996	Random	7-14	Newly diagnosed asthma

Table S6. List of the included articles

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Appendix 5. Estimation of the regional and national numbers of people with asthma in 2019

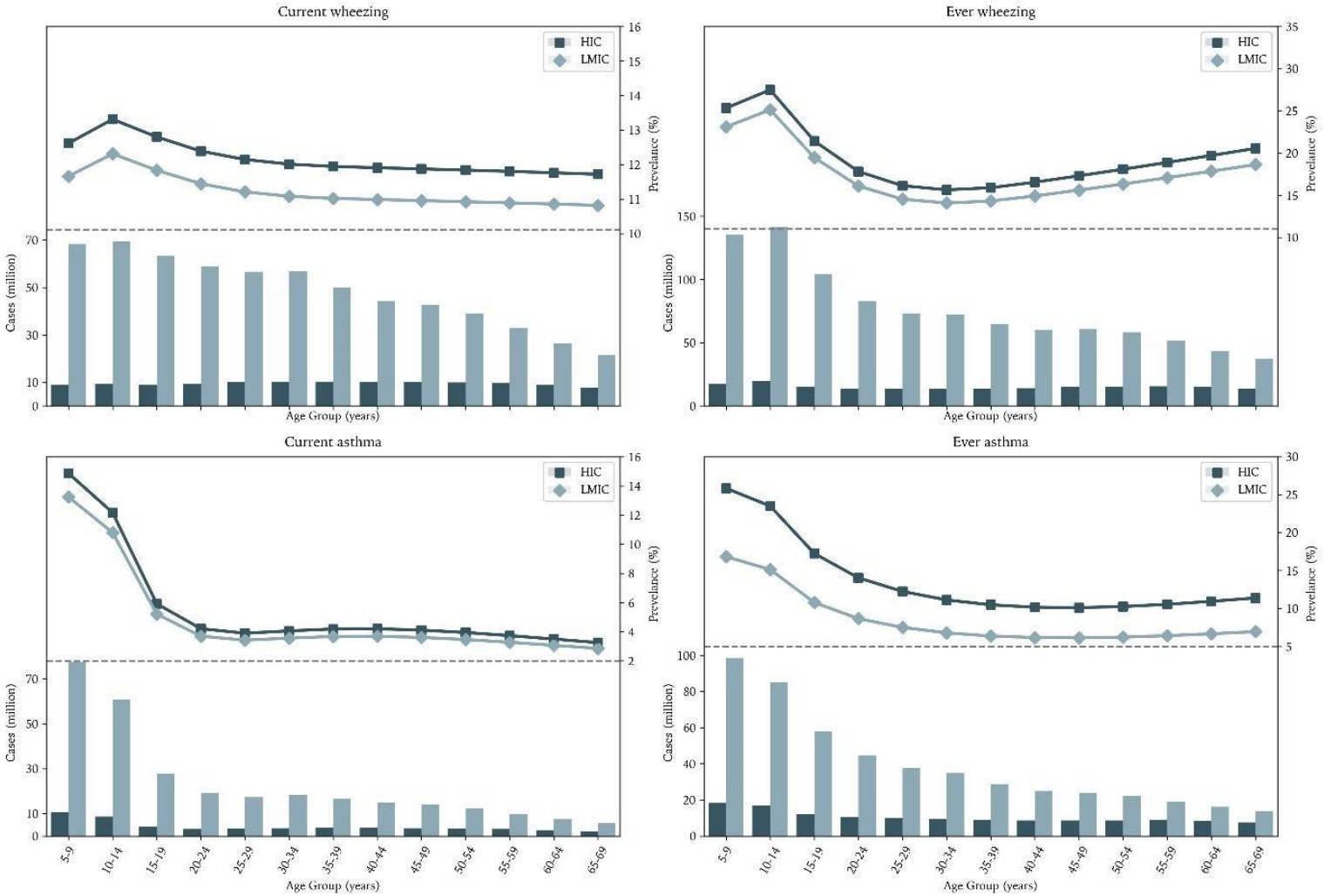

Figure S3. The age-specific prevalence (points) and number of cases (bar) of asthma in 2019, by income

Table S7. The estimated numbers of people with current wheezing, ever wheezing, current asthma and ever asthma in HICs, LMICs and worldwide in 2019, by age group and sex

Age group	Male			Female			Overall		
	HIC	LMIC	Worldwide	HIC	LMIC	Worldwide	HIC	LMIC	Worldwide
	Current wheezing (million, 95% CI)								
5-9 years	4.76 (3.88-5.82)	36.90 (29.56-45.77)	41.67 (33.44-51.58)	4.15 (3.37-5.08)	31.54 (25.20-39.23)	35.69 (28.57-44.31)	8.91 (7.25-10.89)	68.44 (54.76-85.00)	77.36 (62.01-95.89)
10-14 years	5.10 (4.16-6.22)	37.42 (30.00-46.36)	42.52 (34.15-52.58)	4.44 (3.61-5.43)	31.89 (25.50-39.62)	36.33 (29.11-45.05)	9.54 (7.77-11.65)	69.31 (55.50-85.98)	78.85 (63.26-97.63)
15-19 years	4.84 (3.94-5.90)	34.23 (27.41-42.45)	39.06 (31.34-48.36)	4.21 (3.42-5.16)	29.11 (23.25-36.21)	33.32 (26.67-41.37)	9.05 (7.36-11.06)	63.33 (50.66-78.66)	72.38 (58.02-89.72)
20-24 years	5.04 (4.07-6.19)	31.79 (25.30-39.68)	36.83 (29.37-45.86)	4.33 (3.50-5.34)	27.21 (21.60-34.06)	31.54 (25.10-39.40)	9.37 (7.57-11.53)	59.00 (46.90-73.73)	68.37 (54.47-85.26)
25-29 years	5.51 (4.43-6.80)	30.36 (24.04-38.07)	35.87 (28.47-44.87)	4.62 (3.71-5.72)	26.26 (20.75-33.03)	30.88 (24.45-38.74)	10.12 (8.14-12.51)	56.62 (44.79-71.10)	66.75 (52.93-83.61)
30-34 years	5.61 (4.50-6.93)	30.24 (23.90-38.00)	35.85 (28.41-44.93)	4.71 (3.78-5.85)	26.63 (21.00-33.56)	31.35 (24.78-39.40)	10.32 (8.28-12.78)	56.88 (44.90-71.55)	67.20 (53.18-84.33)
35-39 years	5.56 (4.47-6.88)	26.37 (20.84-33.13)	31.93 (25.31-40.00)	4.79 (3.84-5.94)	23.50 (18.53-29.61)	28.29 (22.37-35.55)	10.35 (8.30-12.82)	49.86 (39.37-62.73)	60.21 (47.67-75.55)
40-44 years	5.45 (4.38-6.74)	23.30 (18.42-29.27)	28.76 (22.80-36.01)	4.75 (3.81-5.89)	20.97 (16.54-26.42)	25.72 (20.34-32.31)	10.20 (8.19-12.63)	44.27 (34.96-55.69)	54.47 (43.15-68.32)
45-49 years	5.44 (4.37-6.73)	22.32 (17.64-28.05)	27.76 (22.00-34.78)	4.79 (3.84-5.94)	20.22 (15.94-25.48)	25.01 (19.77-31.42)	10.23 (8.20-12.67)	42.54 (33.57-53.53)	52.76 (41.78-66.20)
50-54 years	5.27 (4.23-6.53)	20.29 (16.01-25.54)	25.57 (20.24-32.07)	4.72 (3.78-5.87)	18.67 (14.70-23.56)	23.39 (18.47-29.43)	10.00 (8.01-12.40)	38.96 (30.71-49.10)	48.96 (38.72-61.50)
55-59 years	5.11	16.96	22.06	4.68	15.82	20.50	9.78	32.77	42.56

years	(4.09-6.34)	(13.35-21.38)	(17.44-27.72)	(3.73-5.82)	(12.42-20.01)	(16.16-25.83)	(7.82-12.16)	(25.77-41.39)	(33.59-53.55)
60-64 years	4.57 (3.65-5.69)	13.45 (10.56-17.01)	18.03 (14.21-22.71)	4.35 (3.46-5.43)	12.92 (10.11-16.39)	17.27 (13.58-21.82)	8.93 (7.11-11.13)	26.37 (20.67-33.40)	35.30 (27.79-44.53)
	3.92	10.84	14.76	3.92	10.79	14.71	7.84	21.63	29.47

Age group	Male			Female			Overall		
	HIC	LMIC	Worldwide	HIC	LMIC	Worldwide	HIC	LMIC	Worldwide
65-69 years	(3.11-4.90)	(8.48-13.76)	(11.59-18.66)	(3.11-4.92)	(8.41-13.73)	(11.52-18.65)	(6.22-9.81)	(16.89-27.49)	(23.12-37.31)
Overall (5-69 years)	66.17 (53.27-81.66)	334.48 (265.50-418.47)	400.65 (318.77-500.13)	58.47 (46.94-72.38)	295.52 (233.95-370.90)	353.99 (280.90-443.28)	124.64 (100.21-154.04)	630.00 (499.46-789.37)	754.64 (599.67-943.41)
Ever wheezing (million, 95% CI)									
5-9 years	9.59 (7.76-11.67)	73.35 (59.57-89.14)	82.94 (67.33-100.82)	8.31 (6.68-10.18)	62.26 (50.29-76.15)	70.57 (56.97-86.34)	17.90 (14.44-21.85)	135.61 (109.86-165.30)	153.51 (124.30-187.15)
10-14 years	10.55 (8.59-12.76)	76.59 (62.52-92.55)	87.14 (71.11-105.31)	9.16 (7.41-11.15)	64.94 (52.70-79.01)	74.10 (60.11-90.16)	19.71 (16.00-23.92)	141.53 (115.22-171.56)	161.25 (131.22-195.47)
15-19 years	8.14 (6.51-10.03)	56.59 (45.49-69.59)	64.73 (52.00-79.62)	7.02 (5.58-8.71)	47.57 (38.05-58.82)	54.58 (43.64-67.53)	15.15 (12.09-18.74)	104.16 (83.54-128.41)	119.31 (95.64-147.15)
20-24 years	7.29 (5.75-9.13)	45.03 (35.72-56.17)	52.32 (41.47-65.30)	6.18 (4.85-7.78)	37.94 (29.98-47.57)	44.13 (34.83-55.36)	13.47 (10.60-16.91)	82.97 (65.70-103.74)	96.44 (76.30-120.65)
25-29 years	7.37 (5.76-9.31)	39.68 (31.23-49.93)	47.05 (36.99-59.24)	6.08 (4.73-7.72)	33.73 (26.44-42.64)	39.81 (31.17-50.36)	13.44 (10.49-17.03)	73.42 (57.67-92.57)	86.86 (68.16-109.60)
30-34 years	7.35 (5.73-9.32)	38.74 (30.40-48.90)	46.10 (36.13-58.22)	6.08 (4.72-7.75)	33.52 (26.20-42.50)	39.60 (30.92-50.25)	13.44 (10.45-17.07)	72.26 (56.60-91.39)	85.70 (67.05-108.47)
35-39 years	7.45 (5.82-9.44)	34.52 (27.10-43.54)	41.98 (32.92-52.98)	6.32 (4.91-8.04)	30.24 (23.65-38.31)	36.55 (28.55-46.35)	13.77 (10.72-17.48)	64.76 (50.75-81.85)	78.53 (61.47-99.33)
40-44 years	7.63 (5.97-9.64)	31.89 (25.08-40.12)	39.52 (31.05-49.76)	6.55 (5.10-8.31)	28.22 (22.11-35.68)	34.76 (27.21-43.99)	14.18 (11.06-17.95)	60.10 (47.20-75.79)	74.28 (58.26-93.75)

45-49 years	7.98 (6.25-10.05)	32.04 (25.25-40.23)	40.02 (31.50-50.28)	6.93 (5.40-8.78)	28.57 (22.42-36.06)	35.50 (27.82-44.84)	14.90 (11.65-18.83)	60.62 (47.67-76.29)	75.52 (59.32-95.12)
50-54 years	8.11 (6.36-10.20)	30.56 (24.10-38.32)	38.66 (30.46-48.52)	7.16 (5.59-9.07)	27.70 (21.75-34.92)	34.86 (27.34-43.98)	15.27 (11.95-19.27)	58.26 (45.85-73.23)	73.53 (57.80-92.50)
55-59 years	8.22 (6.45-10.33)	26.77 (21.11-33.54)	34.99 (27.56-43.87)	7.44 (5.81-9.41)	24.63 (19.33-31.03)	32.07 (25.14-40.44)	15.66 (12.26-19.73)	51.40 (40.45-64.57)	67.05 (52.71-84.31)
60-64 years	7.71 (6.05-9.68)	22.25 (17.54-27.88)	29.96 (23.59-37.56)	7.25 (5.66-9.17)	21.10 (16.55-26.59)	28.35 (22.21-35.76)	14.96 (11.71-18.85)	43.35 (34.09-54.47)	58.31 (45.80-73.32)
Age group	**Male**			**Female**			**Overall**		
	HIC	**LMIC**	**Worldwide**	**HIC**	**LMIC**	**Worldwide**	**HIC**	**LMIC**	**Worldwide**
65-69 years	6.91 (5.42-8.68)	18.79 (14.79-23.55)	25.70 (20.21-32.23)	6.85 (5.34-8.66)	18.47 (14.47-23.30)	25.32 (19.80-31.95)	13.76 (10.76-17.33)	37.26 (29.25-46.85)	51.02 (40.01-64.19)
Overall (5-69 years)	104.30 (82.42-130.25)	526.80 (419.89-653.46)	631.10 (502.31-783.71)	91.30 (71.78-114.72)	458.89 (363.94-572.58)	550.20 (435.72-687.30)	195.60 (154.20-244.97)	985.70 (783.83-1,226.04)	1,181.30 (938.03-1,471.01)
Current asthma (million, 95% CI)									
5-9 years	5.51 (4.10-7.30)	41.18 (24.26-67.07)	46.70 (28.36-74.37)	4.98 (3.70-6.61)	36.51 (21.44-59.76)	41.49 (25.14-66.38)	10.50 (7.80-13.92)	77.69 (45.70-126.83)	88.19 (53.50-140.75)
10-14 years	4.59 (3.40-6.12)	32.30 (18.81-53.55)	36.88 (22.21-59.66)	4.13 (3.05-5.52)	28.49 (16.55-47.43)	32.62 (19.61-52.95)	8.72 (6.45-11.64)	60.79 (35.37-100.97)	69.50 (41.82-112.61)
15-19 years	2.20 (1.61-3.00)	14.86 (8.49-25.56)	17.06 (10.09-28.56)	1.98 (1.44-2.70)	13.04 (7.44-22.48)	15.02 (8.88-25.18)	4.18 (3.05-5.71)	27.90 (15.93-48.03)	32.08 (18.98-53.74)
20-24 years	1.69 (1.21-2.35)	10.13 (5.72-17.72)	11.82 (6.92-20.07)	1.50 (1.07-2.08)	8.94 (5.04-15.67)	10.44 (6.11-17.75)	3.18 (2.28-4.43)	19.07 (10.76-33.39)	22.26 (13.03-37.82)
25-29 years	1.74 (1.24-2.44)	9.14 (5.14-16.07)	10.89 (6.37-18.52)	1.51 (1.07-2.11)	8.16 (4.58-14.36)	9.66 (5.65-16.47)	3.25 (2.31-4.56)	17.30 (9.72-30.43)	20.55 (12.02-34.99)
30-34 years	1.87 (1.32-2.62)	9.59 (5.38-16.85)	11.45 (6.71-19.47)	1.62 (1.15-2.27)	8.71 (4.89-15.33)	10.33 (6.03-17.61)	3.49 (2.47-4.89)	18.29 (10.27-32.18)	21.78 (12.74-37.08)

35-39 years	1.92 (1.36-2.70)	8.67 (4.87-15.25)	10.60 (6.23-17.95)	1.71 (1.21-2.40)	7.98 (4.47-14.05)	9.68 (5.68-16.45)	3.63 (2.57-5.10)	16.65 (9.34-29.30)	20.28 (11.91-34.40)
40-44 years	1.90 (1.34-2.67)	7.71 (4.32-13.57)	9.61 (5.67-16.24)	1.70 (1.20-2.40)	7.16 (4.01-12.62)	8.86 (5.22-15.02)	3.60 (2.55-5.06)	14.87 (8.34-26.19)	18.47 (10.88-31.25)
45-49 years	1.86 (1.31-2.61)	7.25 (4.06-12.77)	9.11 (5.37-15.38)	1.69 (1.19-2.37)	6.78 (3.79-11.95)	8.46 (4.98-14.33)	3.54 (2.50-4.99)	14.02 (7.86-24.72)	17.57 (10.36-29.71)
50-54 years	1.73 (1.23-2.44)	6.34 (3.55-11.18)	8.08 (4.78-13.62)	1.60 (1.13-2.25)	6.02 (3.37-10.63)	7.62 (4.50-12.89)	3.33 (2.36-4.69)	12.37 (6.92-21.82)	15.70 (9.28-26.51)
55-59 years	1.59 (1.13-2.24)	5.03 (2.82-8.87)	6.62 (3.94-11.12)	1.50 (1.06-2.12)	4.84 (2.71-8.55)	6.34 (3.77-10.67)	3.10 (2.19-4.36)	9.87 (5.52-17.43)	12.96 (7.71-21.79)
	1.34	3.75	5.09	1.31	3.71	5.03	2.65	7.46	10.11

Age group	Male			Female			Overall		
	HIC	LMIC	Worldwide	HIC	LMIC	Worldwide	HIC	LMIC	Worldwide
60-64 years	(0.95-1.89)	(2.10-6.62)	(3.04-8.51)	(0.93-1.85)	(2.08-6.57)	(3.00-8.42)	(1.88-3.74)	(4.17-13.19)	(6.05-16.93)
65-69 years	1.07 (0.76-1.51)	2.82 (1.58-5.00)	3.90 (2.34-6.51)	1.11 (0.78-1.56)	2.90 (1.62-5.13)	4.00 (2.40-6.69)	2.18 (1.54-3.08)	5.72 (3.20-10.13)	7.90 (4.74-13.20)
Overall (5-69 years)	29.02 (20.95-39.90)	158.77 (91.10-270.08)	187.79 (112.05-309.97)	26.34 (18.99-36.27)	143.23 (81.99-244.53)	169.56 (100.98-280.80)	55.35 (39.93-76.16)	302.00 (173.09-514.61)	357.35 (213.03-590.77)
Ever asthma (million, 95% CI)									
5-9 years	8.94 (7.34-10.76)	48.52 (38.95-59.90)	57.45 (46.29-70.66)	9.31 (7.68-11.13)	50.19 (40.45-61.68)	59.50 (48.14-72.81)	18.25 (15.02-21.89)	98.71 (79.40-121.58)	116.95 (94.43-143.47)
10-14 years	8.24 (6.73-9.98)	41.89 (33.50-51.95)	50.13 (40.23-61.94)	8.60 (7.06-10.35)	43.27 (34.73-53.43)	51.86 (41.79-63.78)	16.84 (13.79-20.33)	85.16 (68.23-105.38)	102.00 (82.02-125.71)
15-19 years	5.94 (4.78-7.31)	28.34 (22.45-35.57)	34.28 (27.23-42.88)	6.25 (5.05-7.66)	29.38 (23.33-36.75)	35.63 (28.39-44.41)	12.19 (9.83-14.97)	57.72 (45.78-72.32)	69.91 (55.62-87.28)
20-24 years	5.19 (4.15-6.45)	21.8 (17.19-27.52)	26.99 (21.34-33.97)	5.42 (4.35-6.70)	22.82 (18.03-28.72)	28.24 (22.37-35.42)	10.61 (8.50-13.15)	44.62 (35.22-56.24)	55.23 (43.71-69.39)

25-29 years	5.05 (4.02-6.30)	18.39 (14.46-23.28)	23.43 (18.48-29.58)	5.15 (4.11-6.40)	19.48 (15.34-24.60)	24.62 (19.46-31.00)	10.19 (8.13-12.70)	37.86 (29.80-47.88)	48.06 (37.93-60.58)
30-34 years	4.72 (3.75-5.90)	16.74 (13.14-21.24)	21.46 (16.89-27.14)	4.83 (3.85-6.03)	18.07 (14.21-22.87)	22.90 (18.06-28.90)	9.55 (7.60-11.93)	34.81 (27.35-44.11)	44.36 (34.95-56.04)
35-39 years	4.42 (3.51-5.55)	13.76 (10.79-17.47)	18.18 (14.30-23.02)	4.65 (3.69-5.81)	15.04 (11.82-19.06)	19.68 (15.51-24.87)	9.07 (7.20-11.35)	28.80 (22.61-36.54)	37.87 (29.81-47.89)
40-44 years	4.22 (3.34-5.29)	11.81 (9.26-15.01)	16.03 (12.60-20.30)	4.48 (3.56-5.61)	13.04 (10.24-16.53)	17.52 (13.80-22.14)	8.70 (6.90-10.90)	24.84 (19.50-31.54)	33.54 (26.40-42.44)
45-49 years	4.19 (3.32-5.26)	11.27 (8.84-14.33)	15.47 (12.16-19.59)	4.51 (3.58-5.64)	12.53 (9.84-15.89)	17.03 (13.42-21.53)	8.70 (6.90-10.90)	23.80 (18.67-30.21)	32.50 (25.58-41.11)
50-54 years	4.14 (3.28-5.19)	10.42 (8.17-13.25)	14.56 (11.45-18.43)	4.52 (3.59-5.65)	11.77 (9.24-14.92)	16.28 (12.83-20.57)	8.65 (6.87-10.84)	22.19 (17.42-28.16)	30.84 (24.28-39.00)
55-59 years	4.13 (3.27-5.17)	8.99 (7.05-11.42)	13.12 (10.33-16.59)	4.61 (3.67-5.76)	10.29 (8.08-13.04)	14.90 (11.75-18.80)	8.74 (6.94-10.93)	19.28 (15.14-24.45)	28.01 (22.07-35.38)
Age group	**Male**			**Female**			**Overall**		
	HIC	**LMIC**	**Worldwide**	**HIC**	**LMIC**	**Worldwide**	**HIC**	**LMIC**	**Worldwide**
60-64 years	3.84 (3.05-4.81)	7.42 (5.83-9.42)	11.27 (8.88-14.23)	4.45 (3.55-5.56)	8.74 (6.87-11.07)	13.20 (10.42-16.63)	8.30 (6.60-10.37)	16.17 (12.70-20.50)	24.46 (19.3-30.87)
65-69 years	3.43 (2.73-4.29)	6.25 (4.91-7.92)	9.68 (7.63-12.22)	4.18 (3.33-5.21)	7.62 (5.99-9.64)	11.80 (9.33-14.85)	7.61 (6.06-9.50)	13.87 (10.90-17.57)	21.48 (16.96-27.07)
Overall (5-69 years)	66.45 (53.27-82.26)	245.61 (194.54-308.28)	312.05 (247.81-390.53)	70.95 (57.07-87.50)	262.21 (208.18-328.20)	333.17 (265.25-415.70)	137.40 (110.34-169.75)	507.82 (402.72-636.47)	645.22 (513.06-806.23)

Table S8. Estimated numbers of people with current wheezing or ever asthma in World Bank income and World Health Organization combined regions in 2019, by age group

Age group	AFR	AMR	SEAR	EUR	EMR	WPR
Current wheezing (million, 95% CI)						
5-9 years	20.38 (16.31-25.32)	7.57 (6.10-9.34)	20.05 (16.04-24.90)	6.85 (5.53-8.43)	8.76 (7.01-10.86)	14.67 (11.76-18.19)
10-14 years	19.00 (15.21-23.57)	8.13 (6.55-10.02)	22.16 (17.74-27.49)	7.02 (5.67-8.63)	8.27 (6.63-10.25)	15.03 (12.06-18.61)
15-19 years	15.72 (12.58-19.53)	7.94 (6.40-9.80)	21.48 (17.18-26.68)	6.34 (5.12-7.80)	7.23 (5.79-8.97)	14.12 (11.32-17.51)
20-24 years	13.03 (10.35-16.28)	7.88 (6.31-9.79)	20.24 (16.09-25.30)	6.30 (5.06-7.80)	6.66 (5.30-8.32)	14.42 (11.49-17.99)
25-29 years	10.97 (8.68-13.78)	7.87 (6.27-9.81)	18.87 (14.92-23.69)	6.92 (5.53-8.62)	6.47 (5.13-8.11)	15.57 (12.34-19.52)
30-34 years	9.35 (7.38-11.76)	7.47 (5.94-9.33)	17.71 (13.98-22.28)	7.64 (6.08-9.53)	6.16 (4.88-7.74)	18.66 (14.75-23.43)
35-39 years	7.87 (6.21-9.90)	7.05 (5.60-8.81)	16.64 (13.14-20.94)	7.57 (6.03-9.44)	5.41 (4.28-6.79)	15.38 (12.17-19.31)
40-44 years	6.38 (5.04-8.03)	6.49 (5.16-8.10)	14.80 (11.69-18.62)	7.36 (5.87-9.17)	4.51 (3.57-5.66)	14.64 (11.58-18.37)
45-49 years	5.12 (4.04-6.44)	6.03 (4.80-7.54)	13.24 (10.45-16.66)	7.23 (5.76-9.00)	3.67 (2.90-4.61)	17.22 (13.62-21.62)
50-54 years	4.05 (3.19-5.10)	5.74 (4.56-7.18)	11.61 (9.15-14.63)	7.07 (5.64-8.82)	3.04 (2.40-3.83)	17.18 (13.57-21.61)
55-59 years	3.22 (2.53-4.06)	5.50 (4.36-6.89)	9.84 (7.74-12.42)	7.09 (5.63-8.86)	2.46 (1.94-3.10)	14.12 (11.13-17.79)
60-64 years	2.48 (1.94-3.14)	4.84 (3.83-6.08)	7.97 (6.25-10.10)	6.42 (5.09-8.05)	1.91 (1.50-2.41)	11.35 (8.92-14.34)
65-69 years	1.82 (1.42-2.31)	4.01 (3.16-5.05)	5.96 (4.66-7.58)	5.55 (4.38-6.99)	1.36 (1.06-1.73)	10.52 (8.24-13.34)
Overall (569 years)	119.39 (94.88-149.24)	86.53 (69.05-107.74)	200.57 (159.02-251.29)	89.36 (71.39-111.14)	65.91 (52.39-82.37)	192.88 (152.94-241.64)
Ever asthma (million, 95% CI)						
5-9 years	27.91 (22.45-34.38)	14.63 (11.90-17.79)	27.76 (22.33-34.20)	11.63 (9.48-14.11)	13.03 (10.5-16.02)	22.48 (18.15-27.58)
10-14 years	22.17 (17.77-27.44)	13.48 (10.92-16.49)	26.14 (20.94-32.35)	10.27 (8.33-12.51)	10.50 (8.42-12.97)	19.69 (15.83-24.28)
15-19 years	13.62 (10.80-17.06)	9.90 (7.91-12.28)	18.79 (14.90-23.54)	7.02 (5.63-8.69)	6.81 (5.41-8.52)	13.86 (11.03-17.31)
20-24 years	9.36 (7.39-11.80)	8.23 (6.54-10.28)	14.69 (11.60-18.52)	5.86 (4.67-7.30)	5.22 (4.12-6.56)	11.85 (9.38-14.89)
25-29 years	6.97 (5.49-8.82)	7.34 (5.81-9.20)	12.11 (9.53-15.31)	5.7 (4.52-7.14)	4.48 (3.53-5.66)	11.31 (8.92-14.26)
30-34 years	5.43 (4.27-6.88)	6.39 (5.05-8.03)	10.40 (8.17-13.18)	5.74 (4.55-7.21)	3.91 (3.08-4.95)	12.27 (9.66-15.51)
35-39 years	4.32 (3.39-5.48)	5.69 (4.50-7.17)	9.23 (7.24-11.71)	5.41 (4.28-6.81)	3.25 (2.55-4.11)	9.80 (7.71-12.40)

40-44 years	3.40 (2.67-4.32)	5.11 (4.04-6.44)	7.97 (6.26-10.12)	5.15 (4.07-6.48)	2.63 (2.07-3.33)	9.15 (7.20-11.58)
45-49 years	2.72 (2.13-3.45)	4.76 (3.76-6.00)	7.11 (5.58-9.03)	5.07 (4.01-6.37)	2.13 (1.67-2.7)	10.65 (8.38-13.48)
50-54 years	2.19 (1.72-2.78)	4.65 (3.67-5.85)	6.34 (4.98-8.05)	5.08 (4.02-6.39)	1.79 (1.41-2.27)	10.74 (8.45-13.60)
55-59 years	1.8 (1.41-2.28)	4.65 (3.68-5.85)	5.55 (4.36-7.04)	5.23 (4.14-6.57)	1.5 (1.18-1.89)	9.24 (7.28-11.69)
60-64 years	1.44 (1.13-1.83)	4.31 (3.41-5.41)	4.69 (3.68-5.94)	4.94 (3.91-6.20)	1.2 (0.95-1.53)	7.87 (6.2-9.94)
65-69 years	1.11 (0.87-1.40)	3.74 (2.97-4.69)	3.66 (2.88-4.64)	4.47 (3.55-5.61)	0.9 (0.71-1.14)	7.64 (6.02-9.64)
Overall (569 years)	102.44 (81.49-127.91)	92.88 (74.16-115.5)	154.45 (122.45-193.64)	81.57 (65.16-101.39)	57.34 (45.59-71.65)	156.55 (124.2-196.14)

Table S9. Estimated prevalence and number of people aged 0-79 years living with current wheezing or ever asthma in 201 countries and territories in 2019

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Antigua and Barbuda	9.13 (7.34-11.27)	10.85 (8.73-13.40)	3.14 (2.53-3.87)	3.74 (3.01-4.61)
Aruba	9.81 (7.89-12.13)	10.82 (8.70-13.37)	12.66 (10.17-15.63)	13.95 (11.21-17.23)
Bahamas	32.21 (25.94-39.75)	9.36 (7.53-11.55)	52.36 (42.14-64.53)	15.21 (12.24-18.75)
Barbados	20.75 (16.69-25.65)	8.69 (6.99-10.73)	7.99 (6.42-9.86)	3.34 (2.69-4.13)
Curaçao	14.66 (11.78-18.12)	10.86 (8.73-13.42)	20.56 (16.53-25.36)	15.23 (12.25-18.79)
Guadeloupe	35.13 (28.25-43.41)	10.87 (8.74-13.43)	50.33 (40.48-62.07)	15.58 (12.53-19.21)
Martinique	32.48 (26.10-40.16)	10.84 (8.71-13.40)	44.73 (35.93-55.24)	14.92 (11.99-18.43)
Puerto Rico	259.90 (208.94-321.24)	10.81 (8.69-13.36)	304.32 (244.66-375.48)	12.66 (10.18-15.62)
Trinidad and Tobago	130.19 (104.72-160.83)	10.79 (8.68-13.34)	69.99 (56.29-86.32)	5.8 (4.67-7.16)
United States Virgin Islands	9.07 (7.30-11.21)	10.84 (8.72-13.39)	13.09 (10.53-16.13)	15.64 (12.58-19.27)
Argentina	4,220.30 (3,399.07-5,207.02)	11.22 (9.03-13.84)	621.98 (501.08-765.54)	1.65 (1.33-2.03)
Chile	2,501.78 (2,012.75-3,090.04)	15.37 (12.36-18.98)	1,222.74 (983.20-1,508.36)	7.51 (6.04-9.27)
French Guiana	27.00 (21.77-33.29)	10.92 (8.81-13.46)	41.29 (33.33-50.69)	16.7 (13.48-20.50)
Uruguay	320.00 (257.52-395.14)	11.22 (9.03-13.86)	14.16 (11.39-17.46)	0.50 (0.40-0.61)
Canada	2,973.83 (2,389.96-3,676.91)	9.66 (7.76-11.95)	5,508.26 (4,422.56-6,806.78)	17.9 (14.37-22.11)
United States of America	29,757.10 (23,931.59-36,767.14)	10.92 (8.79-13.50)	40,956.46 (32,927.11-50,533.52)	15.03 (12.09-18.55)
Cyprus	159.93 (128.66-197.54)	15.74 (12.66-19.44)	138.73 (111.40-171.42)	13.65 (10.96-16.87)
Israel	924.55 (745.02-1,140.1)	13.25 (10.68-16.34)	798.09 (643.63-981.13)	11.44 (9.23-14.06)
Czechia	1,220.59 (980.84-1,509.28)	14.11 (11.34-17.44)	1,113.78 (893.81-1,377.16)	12.87 (10.33-15.92)
Hungary	1,099.25 (883.22-1,359.42)	13.85 (11.13-17.13)	689.36 (552.94-852.85)	8.69 (6.97-10.75)
Poland	4,153.21 (3,337.10-5,136.02)	13.25 (10.65-16.39)	2,951.86 (2,368.28-3,650.93)	9.42 (7.56-11.65)
Slovakia	664.72 (534.18-821.90)	14.47 (11.63-17.89)	473.91 (380.22-586.15)	10.32 (8.28-12.76)
Channel Islands	19.95 (16.03-24.66)	14.05 (11.29-17.37)	17.10 (13.72-21.15)	12.04 (9.66-14.89)
Denmark	534.56 (429.77-660.69)	11.60 (9.33-14.34)	839.76 (674.43-1,037.38)	18.23 (14.64-22.52)
Estonia	147.90 (118.87-182.85)	13.83 (11.11-17.10)	137.47 (110.38-169.86)	12.85 (10.32-15.88)

Finland	494.95 (397.84-611.87)	11.32 (9.10-13.99)	655.44 (526.44-809.61)	14.99 (12.04-18.51)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Iceland	29.45 (23.69-36.38)	10.42 (8.38-12.87)	47.23 (37.98-58.26)	16.71 (13.43-20.61)
Ireland	514.57 (414.03-635.49)	12.59 (10.13-15.55)	663.28 (533.60-817.76)	16.22 (13.05-20)
Latvia	231.59 (186.10-286.35)	15.26 (12.26-18.87)	173.98 (139.62-215.12)	11.46 (9.20-14.18)
Lithuania	286.98 (230.60-354.89)	12.98 (10.43-16.05)	294.74 (236.54-364.41)	13.33 (10.70-16.48)
Norway	505.51 (406.51-624.64)	11.47 (9.22-14.17)	896.24 (719.99-1,106.81)	20.33 (16.33-25.11)
Sweden	878.33 (706.21-1,085.49)	11.09 (8.92-13.71)	1,315.69 (1,057.14-1,624.46)	16.61 (13.35-20.51)
United Kingdom	7,659.82 (6,159.39-9,465.51)	14.09 (11.33-17.41)	7,333.47 (5,892.47-9,054.36)	13.49 (10.84-16.65)
Croatia	502.87 (404.02-621.93)	15.04 (12.08-18.6)	300.46 (241.09-371.57)	8.99 (7.21-11.11)
Greece	1,320.80 (1,061.43-1,633.08)	15.90 (12.78-19.66)	774.83 (621.61-958.39)	9.33 (7.48-11.54)
Italy	5,834.37 (4,687.11-7,216.27)	12.25 (9.84-15.16)	4,452.15 (3,570.52-5,509.13)	9.35 (7.50-11.57)
Malta	44.56 (35.81-55.11)	12.66 (10.17-15.65)	34.95 (28.04-43.24)	9.93 (7.96-12.28)
Portugal	1,027.72 (825.74-1,270.97)	12.67 (10.18-15.66)	334.75 (268.47-414.21)	4.13 (3.31-5.11)
Slovenia	200.98 (161.46-248.59)	11.93 (9.58-14.76)	212.21 (170.27-262.45)	12.6 (10.11-15.58)
Spain	4,922.36 (3,955.48-6,086.72)	13.03 (10.47-16.11)	2,500.16 (2,005.88-3,092.29)	6.62 (5.31-8.18)
Austria	966.92 (776.97-1,195.66)	13.37 (10.74-16.53)	984.54 (789.72-1218.00)	13.61 (10.92-16.84)
Belgium	1,178.35 (947.34-1,456.40)	12.65 (10.17-15.64)	1,390.48 (1,116.95-1,717.32)	14.93 (11.99-18.44)
France	7,424.13 (5,969.67-9,174.56)	14.34 (11.53-17.72)	6,915.35 (5,558-8,535.42)	13.36 (10.74-16.49)
Germany	8,560.49 (6,877.24-10,588.01)	12.95 (10.40-16.01)	12,089.65 (9,696.24-14,958.61)	18.28 (14.66-22.62)
Luxembourg	63.10 (50.72-77.99)	12.11 (9.73-14.97)	95.70 (76.79-118.36)	18.37 (14.74-22.71)
Netherlands	1,726.23 (1,387.58-2,133.92)	12.5 (10.05-15.45)	2,434.39 (1,954.59-3,008.23)	17.63 (14.15-21.78)
Switzerland	879.56 (706.82-1,087.56)	12.68 (10.19-15.68)	1,463.27 (1,173.95-1,809.85)	21.09 (16.92-26.09)
Bahrain	198.04 (159.41-244.45)	13.08 (10.53-16.15)	85.62 (68.73-105.84)	5.66 (4.54-6.99)
Kuwait	513.06 (413.00-633.25)	13.28 (10.69-16.39)	462.30 (371.55-570.67)	11.97 (9.62-14.77)
Oman	448.07 (360.82-552.84)	10.04 (8.09-12.39)	334.71 (268.99-413.17)	7.50 (6.03-9.26)
Qatar	314.42 (253.03-388.16)	11.74 (9.45-14.49)	265.60 (212.73-329.16)	9.91 (7.94-12.29)
Saudi Arabia	3,430.72 (2,763.67-4,231.63)	11.18 (9.01-13.79)	2,835.21 (2,282.20-3,493.28)	9.24 (7.44-11.38)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
State of Palestine	507.17 (409.68-623.93)	12.05 (9.73-14.82)	434.81 (351.87-532.36)	10.33 (8.36-12.64)
United Arab Emirates	1,142.90 (919.75-1,410.99)	12.41 (9.99-15.32)	1,180.48 (946.05-1,461.95)	12.82 (10.27-15.87)
China, Hong Kong SAR	776.13 (623.39-960.08)	12.57 (10.1-15.55)	969.75 (776.71-1201.76)	15.71 (12.58-19.46)
China, Macao SAR	71.88 (57.75-88.88)	12.80 (10.28-15.82)	89.01 (71.32-110.25)	15.85 (12.7-19.63)
China, Taiwan Province of China	2,654.01 (2,133.09-3,280.85)	13.01 (10.46-16.08)	3,150.75 (2,524.88-3,902.21)	15.45 (12.38-19.13)
Japan	11,341.30 (9,114.00-14,022.33)	12.02 (9.66-14.86)	15,220.2 (12,207.53-18,831.26)	16.13 (12.93-19.95)
Republic of Korea	5,605.77 (4,505.54-6,929.77)	12.77 (10.27-15.79)	6,807.92 (5,456.36-8,430.27)	15.51 (12.43-19.21)
Brunei Darussalam	44.77 (36.06-55.23)	11.51 (9.27-14.20)	64.44 (51.85-79.44)	16.57 (13.33-20.42)
Singapore	577.07 (463.62-713.65)	11.27 (9.05-13.93)	755.21 (604.76-936.09)	14.74 (11.81-18.27)
Australia	2,042.65 (1,643.20-2,523.12)	9.88 (7.95-12.20)	2,696.05 (2,167.44-3,326.63)	13.04 (10.48-16.09)
New Zealand	389.32 (313.20-480.86)	9.88 (7.95-12.21)	523.60 (421.06-645.84)	13.29 (10.69-16.40)
New Caledonia	32.38 (26.08-39.94)	13.19 (10.62-16.26)	41.35 (33.27-50.95)	16.84 (13.55-20.75)
Guam	18.90 (15.23-23.31)	13.25 (10.68-16.34)	15.82 (12.74-19.48)	11.09 (8.93-13.66)
Burundi	1,357.82 (1,079.39-1,696.80)	14.43 (11.47-18.03)	1,236.02 (983.65-1,542.57)	13.14 (10.45-16.40)
Comoros	102.19 (81.17-127.79)	14.27 (11.34-17.85)	90.97 (72.31-113.70)	12.70 (10.10-15.88)
Eritrea	394.63 (313.59-493.32)	13.55 (10.77-16.93)	389.53 (309.83-486.45)	13.37 (10.64-16.70)
Ethiopia	12,596.34 (10,009.66-15,746.94)	13.49 (10.72-16.87)	11,723.08 (9,321.54-14,645.66)	12.56 (9.98-15.69)
Kenya	6,212.09 (4,935.81-7,766.74)	13.80 (10.96-17.25)	5,591.49 (4,444.97-6,987.52)	12.42 (9.87-15.52)
Madagascar	3,487.12 (2,770.90-4,359.40)	15.48 (12.3-19.35)	3,120.46 (2,480.87-3,899.06)	13.85 (11.01-17.31)
Malawi	2,217.43 (1,762.89-2,770.78)	14.30 (11.37-17.87)	2,009.52 (1,598.85-2,508.60)	12.96 (10.31-16.18)
Mauritius	97.11 (76.85-121.88)	8.75 (6.93-10.99)	87.42 (69.14-109.93)	7.88 (6.23-9.91)
Mayotte	30.34 (24.10-37.93)	13.54 (10.76-16.93)	29.40 (23.38-36.74)	13.12 (10.43-16.40)
Mozambique	3,612.44 (2,872.03-4,513.77)	14.52 (11.55-18.15)	3,497.35 (2,782.93-4,365.35)	14.06 (11.19-17.55)
Réunion	100.14 (79.30-125.62)	13.32 (10.55-16.71)	99.34 (78.69-124.69)	13.21 (10.47-16.58)
Rwanda	1,528.14 (1,213.89-1,911.03)	14.44 (11.47-18.05)	1,320.00 (1,049.33-1,649.57)	12.47 (9.91-15.58)
Seychelles	7.27 (5.76-9.12)	8.56 (6.78-10.73)	7.37 (5.84-9.25)	8.67 (6.87-10.88)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
South Sudan	1,359.67 (1,080.56-1,699.57)	14.85 (11.80-18.57)	1,198.61 (953.25-1,497.09)	13.09 (10.41-16.35)
Uganda	5,159.79 (4,103.5-6,445.28)	14.22 (11.31-17.77)	4,902.04 (3,902.20-6,115.75)	13.51 (10.76-16.86)
United Republic of Tanzania	6,329.01 (5,030.79-7,909.69)	13.26 (10.54-16.58)	6,160.42 (4,901.18-7,690.97)	12.91 (10.27-16.12)
Zambia	2,045.30 (1,626.30-2,555.28)	13.82 (10.99-17.27)	2,015.66 (1,603.94-2,515.85)	13.62 (10.84-17.00)
Zimbabwe	1,577.03 (1,253.52-1,970.96)	12.79 (10.17-15.98)	1,530.98 (1,218.03-1,911.37)	12.41 (9.88-15.50)
Angola	2,993.75 (2,380.58-3,740.02)	11.59 (9.21-14.47)	3,477.04 (2,767.77-4,338.10)	13.46 (10.71-16.79)
Cameroon	2,708.09 (2,152.25-3,384.99)	12.60 (10.02-15.75)	2,861.41 (2,275.95-3,573.42)	13.32 (10.59-16.63)
Central African Republic	588.18 (467.74-734.76)	14.90 (11.85-18.61)	576.98 (459.14-720.12)	14.61 (11.63-18.24)
Chad	1,844.82 (1,467.16-2,304.4)	14.31 (11.38-17.87)	1,773.38 (1,411.7-2,212.41)	13.75 (10.95-17.16)
Congo	565.36 (449.23-706.81)	12.56 (9.98-15.71)	611.11 (486-763.33)	13.58 (10.8-16.96)
Democratic Republic of the Congo	10,258.98 (8,156.54-12,818.17)	14.66 (11.66-18.32)	10,018.30 (7,973.71-12,501.19)	14.32 (11.4-17.87)
Equatorial Guinea	151.49 (120.30-189.50)	13.22 (10.49-16.53)	149.19 (118.5-186.64)	13.02 (10.34-16.28)
Gabon	159.30 (126.47-199.33)	8.78 (6.97-10.99)	207.28 (164.67-259.25)	11.42 (9.08-14.29)
Sao Tome and Principe	22.91 (18.21-28.64)	12.71 (10.10-15.89)	25.75 (20.49-32.16)	14.28 (11.36-17.84)
Botswana	230.21 (182.72-288.13)	11.63 (9.23-14.56)	237.21 (188.34-296.86)	11.99 (9.52-15.00)
Eswatini	127.82 (101.55-159.82)	13.08 (10.39-16.35)	114.67 (91.15-143.32)	11.73 (9.33-14.66)
Lesotho	242.04 (192.12-302.90)	13.37 (10.61-16.73)	203.18 (161.27-254.39)	11.22 (8.91-14.05)
Namibia	251.01 (199.33-314.01)	11.88 (9.44-14.87)	249.32 (198.10-311.75)	11.80 (9.38-14.76)
South Africa	4,869.11 (3,861.24-6,099.23)	9.55 (7.57-11.96)	5,189.59 (4,116.14-6,503.29)	10.17 (8.07-12.75)
Benin	1,340.88 (1,065.57-1,676.19)	13.79 (10.96-17.24)	1,349.57 (1,073.40-1,685.46)	13.88 (11.04-17.34)
Burkina Faso	2,361.05 (1,877.14-2,950.09)	14.15 (11.25-17.68)	2,273.09 (1,808.73-2,837.31)	13.62 (10.84-17)
Cabo Verde	45.30 (35.93-56.75)	9.37 (7.43-11.74)	50.83 (40.31-63.71)	10.52 (8.34-13.18)
Côte d'Ivoire	2,743.77 (2,180.57-3,429.61)	12.88 (10.23-16.1)	2,811.06 (2,235.54-3,511.22)	13.19 (10.49-16.48)
Gambia	281.84 (224.05-352.20)	14.70 (11.69-18.37)	285.59 (227.22-356.54)	14.90 (11.85-18.6)
Ghana	3,085.53 (2,450.15-3,860.00)	11.95 (9.49-14.95)	3,190.98 (2,535.51-3,989.95)	12.36 (9.82-15.46)
Guinea	1,558.08 (1,238.64-1,946.97)	14.79 (11.76-18.48)	1,484.50 (1,181.02-1,853.38)	14.09 (11.21-17.59)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Guinea-Bissau	235.62 (187.25-294.54)	14.77 (11.73-18.46)	225.22 (179.13-281.28)	14.11 (11.23-17.63)
Liberia	587.27 (466.63-734.23)	14.24 (11.32-17.81)	580.85 (461.86-725.64)	14.09 (11.20-17.60)
Mali	2,348.81 (1,868.04-2,933.84)	14.77 (11.75-18.45)	2,359.42 (1,878.37-2,943.25)	14.84 (11.81-18.51)
Mauritania	446.43 (354.64-558.26)	11.83 (9.40-14.79)	466.11 (370.53-582.49)	12.35 (9.82-15.44)
Niger	2,606.78 (2,073.59-3,255.48)	14.18 (11.28-17.71)	2,538.88 (2,022.1-3,165.47)	13.81 (11.00-17.22)
Nigeria	21,888.51 (17,396.47-27,358.82)	13.26 (10.54-16.57)	22,382.08 (17,806.27-27,944.38)	13.56 (10.79-16.93)
Senegal	1,714.85 (1,362.86-2,143.52)	12.73 (10.12-15.91)	1,785.64 (1,420.49-2,229.58)	13.26 (10.54-16.55)
Sierra Leone	1,004.39 (798.15-1,255.57)	15.33 (12.18-19.16)	928.14 (738.02-1,159.50)	14.17 (11.26-17.70)
Togo	918.84 (730.07-1,148.78)	13.58 (10.79-16.97)	896.87 (713.18-1,120.40)	13.25 (10.54-16.55)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Algeria	2,923.38 (2,317.66-3,662.84)	8.05 (6.38-10.08)	3,546.38 (2,813.30-4,443.24)	9.76 (7.74-12.23)
Western Sahara	69.53 (55.12-87.11)	13.42 (10.64-16.81)	67.76 (53.72-84.98)	13.08 (10.37-16.40)
Cuba	969.28 (766.57-1,217.40)	10.18 (8.05-12.78)	753.44 (595.73-947.77)	7.91 (6.26-9.95)
Dominican Republic	827.57 (656.12-1,036.90)	8.96 (7.11-11.23)	798.49 (633.27-1,000.74)	8.65 (6.86-10.84)
Grenada	8.94 (7.08-11.21)	9.32 (7.38-11.69)	6.80 (5.39-8.54)	7.09 (5.62-8.90)
Haiti	1,259.15 (999.31-1,576.08)	13.03 (10.34-16.3)	1,045.92 (830.44-1,309.02)	10.82 (8.59-13.54)
Jamaica	235.88 (186.89-295.73)	9.28 (7.35-11.64)	195.36 (154.78-245.13)	7.69 (6.09-9.65)
Saint Lucia	14.24 (11.27-17.86)	8.94 (7.08-11.22)	9.78 (7.74-12.30)	6.14 (4.86-7.72)
Saint Vincent and the Grenadines	8.68 (6.88-10.89)	9.06 (7.18-11.37)	7.10 (5.62-8.91)	7.40 (5.86-9.29)
Belize	32.98 (26.17-41.30)	9.72 (7.71-12.16)	27.45 (21.78-34.39)	8.09 (6.42-10.13)
Costa Rica	376.32 (297.98-472.10)	8.63 (6.83-10.82)	340.32 (269.44-427.40)	7.80 (6.18-9.80)
El Salvador	491.98 (390.08-616.38)	8.93 (7.08-11.19)	463.66 (367.68-581.15)	8.42 (6.68-10.55)
Guatemala	1,734.00 (13,76.68-2,169.65)	11.56 (9.18-14.46)	1,459.61 (1,159.17-1,826.24)	9.73 (7.73-12.18)
Honduras	930.09 (738.14-1,164.20)	11.01 (8.74-13.78)	795.87 (631.66-996.53)	9.42 (7.48-11.80)
Mexico	10,458.76 (8,290.24-13,107.03)	9.46 (7.50-11.85)	9,536.92 (7,560.55-11,958.10)	8.62 (6.84-10.81)
Nicaragua	647.07 (513.22-810.41)	11.40 (9.04-14.28)	537.29 (426.28-673.04)	9.47 (7.51-11.86)
Panama	317.60 (251.74-398.04)	8.77 (6.95-10.99)	288.93 (229.08-362.22)	7.98 (6.32-10.00)
Bolivia (Plurinational State of)	943.84 (748.86-1,181.73)	9.67 (7.67-12.11)	861.25 (683.56-1078.39)	8.82 (7.00-11.05)
Brazil	16,200.03 (12,828.26-20,322.03)	8.81 (6.98-11.06)	14,822.16 (11,734.61-18,615.77)	8.06 (6.38-10.13)
Colombia	3,781.47 (2,995.64-4,741.76)	8.64 (6.84-10.83)	3,520.98 (2,788.81-4,419.68)	8.04 (6.37-10.10)
Ecuador	1,360.13 (1,078.40-1,704.09)	9.13 (7.24-11.44)	1,202.46 (953.58-1,507.14)	8.07 (6.4-10.12)
Guyana	65.83 (52.20-82.46)	9.74 (7.73-12.2)	50.62 (40.15-63.43)	7.49 (5.94-9.39)
Paraguay	617.79 (490.03-773.69)	10.20 (8.09-12.78)	531.53 (421.68-665.90)	8.78 (6.96-11.00)
Peru	2,619.08 (2,075.10-3,283.69)	9.39 (7.44-11.77)	2,343.69 (1,857.15-2,940.35)	8.40 (6.66-10.54)
Suriname	46.07 (36.52-57.73)	9.15 (7.25-11.47)	40.63 (32.21-50.93)	8.07 (6.40-10.12)
Venezuela (Bolivarian Republic of)	2,227.91 (1,766.10-,2791.86)	9.00 (7.14-11.28)	2,157.37 (1,711.16-2,703.42)	8.72 (6.92-10.93)
Bangladesh	19,266.07 (15,281.52-24,127.90)	13.46 (10.67-16.85)	14,302.13 (11,340.35-17,929.00)	9.99 (7.92-12.52)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Bhutan	66.74 (52.92-83.59)	9.99 (7.92-12.51)	56.48 (44.77-70.85)	8.45 (6.70-10.60)
India	134,560.31 (106,691.80-168,578.76)	11.22 (8.90-14.06)	105,727.37 (83,817.84-132,567.25)	8.82 (6.99-11.06)
Maldives	42.37 (33.58-53.12)	8.76 (6.95-10.99)	34.46 (27.26-43.32)	7.13 (5.64-8.96)
Nepal	3,234.17 (2,566.37-4,048.81)	12.96 (10.29-16.23)	2,428.48 (1,926.97-3,041.59)	9.73 (7.72-12.19)
Sri Lanka	2,252.07 (1,783.85-2,824.26)	12.39 (9.82-15.54)	1,547.57 (1,226.23-1,941.69)	8.52 (6.75-10.69)
Dem. People's Republic of Korea	2,529.46 (2,002.80-3,173.27)	11.40 (9.03-14.30)	2,000.09 (1,582.91-2,513.07)	9.02 (7.14-11.33)
Indonesia	26,111.82 (20,701.16-32,716.52)	11.00 (8.72-13.78)	21,045.78 (16,681.51-26,394.47)	8.87 (7.03-11.12)
Myanmar	6,269.54 (4,970.17-7,856.05)	13.13 (10.41-16.45)	4,536.62 (3,595.94-5,689.37)	9.50 (7.53-11.91)
Thailand	6,064.30 (4,797.69-7,613.92)	10.07 (7.96-12.64)	4,660.74 (3,685.53-5,862.01)	7.74 (6.12-9.73)
Timor-Leste	168.88 (134.18-211.16)	15.59 (12.38-19.49)	124.17 (98.67-155.26)	11.46 (9.11-14.33)
Armenia	239.40 (189.48-300.45)	9.45 (7.48-11.85)	160.67 (127.18-201.82)	6.34 (5.02-7.96)
Azerbaijan	804.93 (637.48-1,009.59)	9.09 (7.20-11.40)	549.93 (435.54-690.37)	6.21 (4.92-7.79)
Georgia	348.08 (275.44-436.93)	10.46 (8.28-13.13)	219.59 (173.82-275.83)	6.60 (5.22-8.29)
Turkey	7,129.77 (5,649.62-8,937.89)	9.88 (7.83-12.39)	5,021.33 (3,979.07-6,299.38)	6.96 (5.51-8.73)
Kazakhstan	1,489.44 (1,180.22-1,867.16)	9.42 (7.47-11.81)	1,041.85 (826.33-1,305.65)	6.59 (5.23-8.26)
Kyrgyzstan	586.19 (465.00-734.07)	10.64 (8.44-13.33)	384.42 (305.15-481.26)	6.98 (5.54-8.74)
Tajikistan	820.95 (651.70-1,027.33)	10.47 (8.31-13.10)	548.11 (435.47-685.45)	6.99 (5.55-8.74)
Turkmenistan	486.13 (385.51-608.95)	9.46 (7.50-11.85)	343.44 (272.53-430.14)	6.68 (5.30-8.37)
Uzbekistan	2,653.96 (2,104.07-3,325.36)	9.22 (7.31-11.55)	1,892.73 (1,501.04-2,372.21)	6.57 (5.21-8.24)
Belarus	747.80 (591.21-939.54)	9.34 (7.38-11.74)	507.23 (401.12-637.93)	6.34 (5.01-7.97)
Bulgaria	582.54 (460.43-732.09)	10.33 (8.17-12.99)	363.75 (287.53-457.71)	6.45 (5.10-8.12)
Republic of Moldova	346.66 (274.13-435.45)	9.73 (7.69-12.22)	203.02 (160.48-255.46)	5.70 (4.50-7.17)
Romania	1,660.09 (1,312.53-2,085.62)	10.41 (8.23-13.08)	987.04 (780.37-1,241.73)	6.19 (4.90-7.79)
Russian Federation	12,082.34 (9,553.96-15,177.64)	9.88 (7.81-12.41)	7,942.89 (6,283.04-9,986.17)	6.49 (5.14-8.16)
Ukraine	3,494.12 (2,762.51-4,389.87)	9.44 (7.46-11.86)	2,282.30 (1,804.55-2,870.96)	6.17 (4.87-7.76)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Albania	258.23 (204.36-324.11)	10.61 (8.40-13.32)	161.01 (127.37-202.42)	6.61 (5.23-8.32)
Bosnia and Herzegovina	358.00 (283.00-449.86)	12.80 (10.12-16.08)	192.57 (152.22-242.31)	6.88 (5.44-8.66)
Montenegro	61.29 (48.49-76.95)	11.58 (9.16-14.54)	37.22 (29.45-46.78)	7.03 (5.57-8.84)
North Macedonia	175.48 (138.79-220.38)	9.83 (7.78-12.35)	108.63 (85.89-136.64)	6.09 (4.81-7.66)
Serbia	857.23 (677.82-1076.89)	11.79 (9.32-14.81)	486.23 (384.45-611.62)	6.69 (5.29-8.41)
Djibouti	121.58 (96.44-152.24)	14.33 (11.37-17.95)	104.10 (82.56-130.45)	12.27 (9.73-15.38)
Somalia	1,827.27 (1,453.17-2,282.49)	14.67 (11.67-18.32)	1,724.45 (1,372.64-2,151.56)	13.84 (11.02-17.27)
Egypt	7,879.56 (6,252.45-9,864.08)	9.30 (7.38-11.64)	7,320.26 (5,812.31-9,161.38)	8.64 (6.86-10.81)
Libya	644.56 (511.09-807.46)	10.79 (8.55-13.51)	601.46 (476.93-753.96)	10.07 (7.98-12.62)
Morocco	2,766.99 (2,192.91-3,468.12)	8.76 (6.95-10.98)	2,776.05 (2,200.93-3,480.52)	8.79 (6.97-11.02)
Sudan	4,268.90 (3,391.90-5,337.08)	11.95 (9.49-14.94)	3,809.51 (3,028.85-4,759.75)	10.66 (8.48-13.32)
Tunisia	937.46 (742.50-1,175.72)	9.30 (7.36-11.66)	874.21 (692.55-1,097.14)	8.67 (6.87-10.88)
Iraq	3,047.51 (2,420.65-3,811.31)	9.14 (7.26-11.43)	3,290.46 (2,615.04-4,113.39)	9.87 (7.85-12.34)
Jordan	809.25 (642.43-1,012.61)	9.19 (7.29-11.5)	892.14 (708.43-1,116.38)	10.13 (8.04-12.68)
Lebanon	701.94 (556.30-879.81)	11.76 (9.32-14.74)	628.89 (498.43-788.80)	10.53 (8.35-13.21)
Syrian Arab Republic	1,350.63 (1,071.50-1,691.15)	9.17 (7.28-11.49)	1,321.10 (1,048.19-1,654.84)	8.97 (7.12-11.24)
Yemen	2,736.49 (2,174.13-3,421.53)	11.09 (8.81-13.87)	2,572.52 (2,045.01-3,214.85)	10.43 (8.29-13.03)
Afghanistan	4,088.76 (3,250.73-5,108.80)	12.79 (10.17-15.99)	3,614.11 (2,874.88-4,512.92)	11.31 (9.00-14.12)
Iran (Islamic Republic of)	6,176.24 (4,891.90-7,745.82)	8.56 (6.78-10.73)	6,336.54 (5,019.16-7,953.51)	8.78 (6.95-11.02)
Pakistan	21,999.25 (17,465.24-27,526.45)	11.99 (9.52-15.01)	19,131.56 (15,194.1-23,936.22)	10.43 (8.28-13.05)
China	141,265.12 (111,759.24-177,360.43)	11.28 (8.93-14.17)	93,753.42 (74,139.29-117,913.23)	7.49 (5.92-9.42)
Mongolia	336.35 (266.69-421.39)	12.11 (9.60-15.17)	251.04 (199.16-314.51)	9.04 (7.17-11.32)
Cambodia	1,852.55 (1,469.67-2,319.69)	12.96 (10.28-16.22)	1,242.88 (986.32-1,556.50)	8.69 (6.90-10.89)
Lao People's Democratic Republic	912.43 (724.19-1,141.96)	14.68 (11.65-18.38)	590.27 (468.54-738.98)	9.50 (7.54-11.89)
Malaysia	2,563.28 (2,031.39-3,212.85)	9.16 (7.26-11.49)	2,101.81 (1,664.88-2,638.02)	7.51 (5.95-9.43)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Philippines	11,537.20 (9,153.92-14,444.37)	12.25 (9.72-15.34)	8,206.83 (6,512.75-10,277.55)	8.71 (6.92-10.91)
Viet Nam	9,441.48 (7,478.34-11,840.28)	11.24 (8.90-14.09)	6,128.99 (4,853.68-7,695.03)	7.29 (5.78-9.16)
Fiji	103.96 (82.43-130.23)	13.46 (10.67-16.86)	71.29 (56.55-89.33)	9.23 (7.32-11.57)
Papua New Guinea	11,06.39 (878.54-1,384.10)	14.69 (11.66-18.37)	708.41 (562.67-886.22)	9.40 (7.47-11.76)
Solomon Islands	86.97 (69.10-108.74)	15.69 (12.46-19.61)	57.57 (45.77-71.93)	10.38 (8.26-12.97)
Vanuatu	36.12 (28.69-45.18)	14.29 (11.35-17.88)	24.64 (19.58-30.8)	9.75 (7.75-12.19)
Kiribati	16.87 (13.39-21.11)	16.89 (13.41-21.13)	11.17 (8.87-13.97)	11.19 (8.89-13.99)

Country	Current wheezing		Ever asthma	
	Number of cases (thousand, 95% CI)	Prevalence (%)	Number of cases (thousand, 95% CI)	Prevalence (%)
Micronesia (Fed. States of)	11.38 (9.03-14.24)	11.44 (9.08-14.32)	7.59 (6.03-9.51)	7.63 (6.06-9.56)
French Polynesia	27.68 (21.92-34.71)	11.33 (8.97-14.21)	19.43 (15.38-24.39)	7.95 (6.30-9.99)
Samoa	21.87 (17.37-27.37)	13.30 (10.56-16.64)	14.30 (11.36-17.88)	8.70 (6.91-10.87)
Tonga	11.12 (8.83-13.91)	12.55 (9.97-15.70)	7.49 (5.95-9.37)	8.45 (6.72-10.57)

Table S10. Pooled odds ratios of associated factors of current wheezing and ever asthma by World Bank region

Factor	WB region	Current wheezing				Ever asthma			
		Data points	Odds ratio	Lower CI	Upper CI	Data points	Odds ratio	Lower CI	Upper CI
Age <7	Global	6	0.773	0.613	0.975	11	1.078	0.927	1.254
	HIC	3	0.980	0.897	1.071	8	1.071	0.916	1.251
	LMIC	3	0.630	0.425	0.931	3	1.210	0.754	1.941
Age 8-14	Global	6	0.973	0.877	1.080	6	1.110	0.987	1.248
	HIC	3	0.930	0.896	0.965	3	1.056	0.963	1.158
	LMIC	3	1.025	0.810	1.296	3	1.411	0.875	2.276
Age 15+	Global	3	0.960	0.865	1.066	9	1.341	1.109	1.623
	HIC	3	0.960	0.865	1.066	6	1.201	0.979	1.472
	LMIC	-	-	-	-	3	1.933	1.591	2.348
Age 50+	Global	3	1.066	0.727	1.562	6	1.118	0.964	1.298
	HIC	3	1.066	0.727	1.562	3	1.193	0.983	1.447
	LMIC	-	-	-	-	3	1.042	1.032	1.053
Allergic rhinitis	Global	3	3.070	2.549	3.698	6	6.485	3.628	11.59
	HIC	3	3.070	2.549	3.698	3	3.885	3.038	4.968
	LMIC	-	-	-	-	3	11.962	3.105	46.083
Atopy/Allergies	Global	6	2.445	1.935	3.09	15	4.089	3.399	4.92
	HIC	3	2.147	1.756	2.625	11	4.294	3.516	5.245
	LMIC	3	3.210	2.550	4.040	4	3.567	2.171	5.859
Bedroom sharing	Global	3	0.975	0.709	1.340	-	-	-	-
	HIC	3	0.975	0.709	1.340	-	-	-	-
	LMIC	-	-	-	-	-	-	-	-
Biomass	Global	10	1.135	1.053	1.351	6	1.219	1.079	1.518
	HIC	6	1.010	0.892	1.145	3	1.065	0.831	1.366
	LMIC	4	1.506	1.089	2.522	3	1.295	1.053	1.760
Birth weight <2.5 Kg	Global	3	1.766	0.963	3.240	-	-	-	-
	HIC	3	1.766	0.963	3.240	-	-	-	-
	LMIC	-	-	-	-	-	-	-	-
BMI <18.5 Kg/m²	Global	-	-	-	-	3	1.270	0.781	2.068
	HIC	-	-	-	-	3	1.270	0.781	2.068
	LMIC	-	-	-	-	-	-	-	-
BMI 25-29.9 Kg/m²	Global	4	1.169	0.678	2.015	10	0.993	0.863	1.144
	HIC	4	1.169	0.678	2.015	10	0.993	0.863	1.144
	LMIC	-	-	-	-	-	-	-	-
BMI 30+ Kg/m²	Global	3	1.468	0.888	2.427	17	1.368	1.151	1.627
	HIC	3	1.468	0.888	2.427	13	1.438	1.207	1.712
	LMIC	-	-	-	-	4	1.184	0.856	1.638

BMI >85th percentile	Global	3	1.410	0.840	2.368	3	1.459	0.897	2.374
	HIC	-	-	-	-	3	1.459	0.897	2.374
	LMIC	3	1.410	0.840	2.368	-	-	-	-
Carpets	Global	3	0.925	0.501	1.708	6	1.029	0.862	1.229
	HIC	-	-	-	-	6	1.029	0.862	1.229
	LMIC	3	0.925	0.501	1.708	-	-	-	-
Central heating	Global	6	0.931	0.437	1.983	4	1.112	0.932	1.326
	HIC	3	1.290	1.162	1.432	4	1.112	0.932	1.326
	LMIC	3	0.590	0.313	1.111	-	-	-	-
Cockroaches	Global	6	1.216	0.549	2.69	-	-	-	-
	HIC	3	0.800	0.566	1.131	-	-	-	-
	LMIC	3	1.800	1.48	2.190	-	-	-	-
Current smoker	Global	7	2.164	1.647	2.844	14	1.205	1.075	1.351
	HIC	3	2.721	1.696	4.368	8	1.190	1.060	1.336
	LMIC	4	1.683	1.476	1.919	6	1.267	1.040	1.708
Ever smoker	Global	7	2.385	1.883	3.021	7	1.261	1.010	1.575
	HIC	4	2.084	1.781	2.438	4	1.102	1.065	1.258
	LMIC	3	4.483	2.985	6.733	3	1.578	1.242	2.005
Ex smoker	Global	3	1.604	1.222	2.105	8	1.242	1.069	1.443
	HIC	3	1.604	1.222	2.105	8	1.242	1.069	1.443
	LMIC	-	-	-	-	-	-	-	-
Environmental tobacco smoke/ Second-hand smoke	Global	10	1.039	0.833	1.295	14	1.234	1.063	1.431
	HIC	3	0.860	0.668	1.107	8	1.103	1.039	1.296
	LMIC	7	1.161	0.873	1.545	6	1.525	1.111	2.095
Eczema	Global	7	2.823	1.98	4.027	8	2.817	1.866	4.252
	HIC	4	2.395	1.533	3.741	4	2.606	2.216	3.065
	LMIC	3	3.761	1.709	8.281	4	2.816	1.073	7.390
Exclusive breastfeeding	Global	7	1.030	0.783	1.354	6	0.834	0.606	1.146
	HIC	3	1.266	0.974	1.644	3	1.098	0.796	1.514
	LMIC	4	0.795	0.593	1.065	3	0.546	0.334	0.893
Family history of allergy	Global	9	2.314	1.803	2.969	6	4.712	1.823	12.176
	HIC	6	2.272	1.706	3.025	3	3.010	2.246	4.033
	LMIC	3	2.460	1.672	3.620	3	5.702	0.729	44.633
Family history of asthma	Global	14	2.844	2.342	3.454	18	3.209	2.429	4.240
	HIC	5	2.306	1.936	2.746	12	2.876	2.450	3.376

	LMIC	9	3.310	2.443	4.484	6	4.529	2.435	8.422
Family history atopy	Global	7	1.458	1.153	1.842	10	1.981	1.430	2.746
	HIC	3	1.800	1.436	2.256	7	1.978	1.500	2.608
	LMIC	4	1.239	1.013	1.515	3	1.707	0.516	5.654
Farming	Global	3	0.846	0.636	1.125	-	-	-	-
	HIC	3	0.846	0.636	1.125	-	-	-	-
	LMIC	-	-	-	-	-	-	-	-
Female	Global	14	1.029	0.846	1.252	25	0.972	0.854	1.106
	HIC	8	1.086	0.838	1.407	22	0.967	0.840	1.113
	LMIC	6	0.941	0.692	1.279	3	1.007	0.757	1.338
Male	Global	15	1.176	0.984	1.406	20	1.159	0.981	1.369
	HIC	11	1.143	1.025	1.413	13	1.327	1.128	1.562
	LMIC	4	1.294	0.930	1.801	7	0.862	0.483	1.541

Factor	WB region	Current wheezing				Ever asthma			
		Data points	Odds ratio	Lower CI	Upper CI	Data points	Odds ratio	Lower CI	Upper CI
Health insurance	Global	-	-	-	-	3	1.057	0.974	1.148
	HIC	-	-	-	-	3	1.057	0.974	1.148
	LMIC	-	-	-	-	-	-	-	-
High income	Global	3	0.836	0.688	1.015	3	1.219	0.731	2.036
	HIC	3	0.836	0.688	1.015	3	1.219	0.731	2.036
	LMIC	-	-	-	-	-	-	-	-
Low income	Global	-	-	-	-	3	1.034	0.649	1.646
	HIC	-	-	-	-	3	1.034	0.649	1.646
	LMIC	-	-	-	-	-	-	-	-
Hypertension	Global	-	-	-	-	3	1.055	0.848	1.311
	HIC	-	-	-	-	3	1.055	0.848	1.311
	LMIC	-	-	-	-	-	-	-	-
College or higher	Global	6	1.068	0.918	1.244	8	0.883	0.703	1.111
	HIC	3	1.100	0.938	1.289	5	0.913	0.639	1.305
	LMIC	3	0.780	0.462	1.317	3	0.800	0.717	0.893
Middle school or lower	Global	3	1.066	0.727	1.562	8	1.021	0.849	1.228
	HIC	3	1.066	0.727	1.562	5	1.009	0.724	1.406
	LMIC	-	-	-	-	3	1.351	0.629	2.902
Dampness	Global	10	1.411	1.170	1.701	7	1.250	1.028	1.521
	HIC	7	1.391	1.171	1.651	4	1.301	1.075	1.574
	LMIC	3	1.537	0.862	2.742	3	1.071	0.523	2.191
Mould	Global	3	2.000	1.225	3.266	5	1.792	1.098	3.217
	HIC	3	2.000	1.225	3.266	5	1.792	1.098	3.217
	LMIC	-	-	-	-	-	-	-	-

Indoor water leaking	Global	6	1.352	1.051	1.740	6	1.470	0.918	2.354
	HIC	3	1.600	0.687	3.728	3	1.567	0.687	3.578
	LMIC	3	1.330	1.021	1.732	3	1.300	1.038	1.627
Overcrowding	Global	3	1.041	0.858	1.263	6	0.891	0.687	1.156
	HIC	-	-	-	-	3	0.962	0.690	1.343
	LMIC	3	1.041	0.858	1.263	3	0.736	0.514	1.056
Parents high education	Global	6	0.928	0.853	1.010	6	1.277	1.035	1.574
	HIC	3	0.946	0.851	1.051	3	1.210	0.964	1.520
	LMIC	3	0.888	0.760	1.037	3	1.780	1.083	2.927
Parents' low education	Global	6	1.130	0.792	1.612	8	0.938	0.748	1.177
	HIC	3	1.338	1.058	1.692	8	0.938	0.748	1.177
	LMIC	3	0.750	0.461	1.221	-	-	-	-
Parents' low income	Global	-	-	-	-	4	1.406	0.891	2.219
	HIC	-	-	-	-	4	1.406	0.891	2.219
	LMIC	-	-	-	-	-	-	-	-
Parents' smoking	Global	7	1.295	1.120	1.497	24	1.383	1.218	1.571
	HIC	4	1.296	1.066	1.574	18	1.207	1.085	1.343
	LMIC	3	1.300	1.026	1.646	6	1.862	1.431	2.424
Parents' unemployed	Global	3	0.980	0.789	1.218	3	1.804	1.119	2.907
	HIC	-	-	-	-	-	-	-	-

Factor	WB region	Current wheezing				Ever asthma			
		Data points	Odds ratio	Lower CI	Upper CI	Data points	Odds ratio	Lower CI	Upper CI
	LMIC	3	0.980	0.789	1.218	3	1.804	1.119	2.907
Pets	Global	19	1.059	0.964	1.163	21	1.212	0.979	1.502
	HIC	9	0.955	0.858	1.062	15	1.187	0.921	1.530
	LMIC	10	1.179	1.040	1.336	6	1.311	0.898	1.913
Previous respiration infection	Global	6	2.044	1.095	3.814	3	1.890	0.947	3.774
	HIC	3	1.537	0.930	2.538	3	1.890	0.947	3.774
	LMIC	3	3.600	2.830	4.580	-	-	-	-
Rural	Global	6	0.839	0.568	1.240	4	1.190	0.787	1.801
	HIC	3	0.924	0.582	1.467	4	1.190	0.787	1.801
	LMIC	3	0.630	0.438	0.906	-	-	-	-
Urban	Global	6	1.016	0.883	1.168	12	1.227	1.036	1.453
	HIC	3	1.003	0.822	1.223	7	1.093	0.896	1.335
	LMIC	3	1.057	0.821	1.360	5	1.456	1.151	1.842
Siblings 2+	Global	6	0.920	0.657	1.287	6	0.845	0.72	0.992
	HIC	3	0.826	0.671	1.016	3	0.822	0.677	0.999
	LMIC	3	1.300	0.365	4.624	3	0.950	0.669	1.349

Traffic pollution	Global	-	-	-	-	6	1.709	1.246	2.342
	HIC	-	-	-	-	3	1.914	0.582	6.297
	LMIC	-	-	-	-	3	1.611	1.426	1.819

CI – confidence interval, WB – World Bank.
There are 49 associated factors in total (45 Asthma ever and 43 Current wheeze). Blank spaces are those not reported or with less than 3 data points. HIC and LMIC datapoints add up to give the total.
*Meta-ORs included in the regional and national-level estimates.
ORs for binary variable associated factors are compared with those without the factor.

A total of 43 factors were explored for current wheezing and 45 were for ever asthma. Significant associated factors of both "current wheezing" and "ever asthma" globally included having history of allergic rhinitis, atopy or allergies for adults, and family history of asthma, atopy or allergies for children. This was also applicable for all categories of smoking (current, former, and ever) for adults, and having one or both parents smoking for children. In addition, having eczema was significantly associated with "current wheezing" and "ever asthma" in both adults and children globally. However, environmental tobacco smoke (second-hand tobacco smoke) was only statistically significant associated factor of "ever asthma" across all settings. Dampness, mould and indoor water leaking were major associated factors in LMICs. The effects of sex on "current wheezing" and "ever asthma" were still unclear. However, being a male was slightly associated with a higher risk in HICs. Obesity was also a major associated factor of "ever asthma" in HICs, while biomass exposures and traffic pollution were significant associated factors in LMICs

Additional notes on associated factors of asthma

The contributions of climate, weather and environmental factors to asthma in different settings are still subject to further research. For example, the high prevalence of asthma in some tropical settings may not explain similar or higher prevalence rates observed in nontropical settings in the EUR. This suggests an interplay of several contextual factors, including environmental, genetic, socioeconomic, and demographic factors and perhaps seasonal variations in the onset of respiratory infections, a known risk of chronic respiratory diseases.(4) Indeed, this complex interplay of risk factors plays important roles in the global pattern of asthma symptoms with important differences within and between countries.(5)
We could not directly account for indoor and outdoor air pollution, however, exposures to products of biomass combustion and traffic pollution are leading risk factors for asthma in LMICs, particularly in several cities in China and South-east Asia, where limited restrictions on traffic and industrial pollution have continued to have huge impacts on their large populations.(6, 7) For instance, in a recent global study, about 50% of emergency rooms visits attributable to poor air quality occurred in China, India, Pakistan and Bangladesh.(8) In emerging economies like Nigeria, Egypt and Ethiopia, the prevalent use of solid fuels like wood and charcoal for domestic purposes particularly in urban slums and rural areas, and harvesting and threshing in rural agriculture, are additional risks besides those from factory fumes, contributing to indoor air pollution and other unfavorable household conditions.(9, 10) Besides, there is a need to equally consider poor and vulnerable populations in HICs who are also exposed to adverse living conditions, air pollution, and damp environments.
Studies have shown that in genetically susceptible persons, being obese or overweight tends to increase the risk of asthma.(11, 12) In this study, obesity was only a significant risk factor for asthma in HICs, with our findings in LMICs rather inconclusive due to limited datasets reporting this. Other than a chronic inflammatory response, the mechanisms of the relationship between obesity and asthma across different contexts remain largely unknown.(12) There are speculations of a lack of differentiation between breathlessness in obese individuals and actual wheeze due to asthma.(13) Indeed, this association needs to be investigated further in large global studies, as many studies reporting the association appear not well powered or with low-quality evidence.(14) However, weight loss in obese asthma patients has been associated with significant improvements in asthma symptoms, exacerbations, exercise intolerance and response to some medications,(15) further suggesting a need for research to better understand the mechanism of this interaction to guide new therapies and specific management options. While we could not account specifically for age-sex differences in asthma risks across settings as most studies did not report this, hormonal factors have been indicated in the pattern of asthma observed in both sexes, with asthma common among boys before attaining puberty and girls having a higher risk thereafter.(7, 16, 17)
Meanwhile, the effects of exclusive breastfeeding in early life against asthma are still debated, we however found this to be modestly protective for asthma ever only in LMICs, albeit. The findings of a longitudinal study in Tasmania did show that exclusive breastfeeding may be protective in children before attaining 7 years but associated with increased risk in later life.(18) In a Canadian birth cohort, wheezing was reduced by 62% and 37% among infants with exclusive breastfeeding or partial breastfeeding at 6 months.(19)

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