SUPPORTING MATERIAL

Table S1: Risk Factor definitions

Risk Factors for ages 6-7	Question (asked to parent)	Positive Response
Low birthweight	What was the weight of your child when he / she was born?	Less than 2.5kg
Paracetamol (1st year)	In the first 12 months of your child's life, did you usually give paracetamol for fever?	Yes
Antibiotics (1st year)	In the first 12 months of your child's life, did your child have any antibiotics?	Yes
Breastfed ever	Was your child breastfed?	Yes
Cat (1st year)	Did you have a cat in your home during the first year of your child's life?	Yes
Farm animals (1st year)	In your child's first year of life, did he / she have regular (at least once a week) contact with farm animals (e.g. cattle, pigs, goats, sheep or poultry)?	Yes
Truck traffic (current)	How often do trucks pass through the street where you live, on weekdays?	Seldom or more frequent
Fast food (current)	In the past 12 months, how often, on average did your child eat fast food / burgers?	At least once a week
Television (current)	During a normal week, how many hours a day (24 hours) does your child watch television?	At least one hour per day
Paternal tobacco (current)	Does your child's father (or male guardian) smoke cigarettes?	Yes
Maternal tobacco (current)	Does your child's mother (or female guardian) smoke cigarettes?	Yes
Paracetamol (current)	In the past 12 months, how often, on average, have you given your child paracetamol?	At least once per month
Open fire cooking (current)	In your house, what fuels are usually used for cooking? Electricity, gas, open fires, other	Any that include open fires

Risk Factors for ages 13-14	Question (asked to child)	Positive Response
Truck traffic (current)	How often do trucks pass through the street where you live, on weekdays?	Seldom or more frequent
Fast food (current)	In the past 12 months, how often, on average did you eat fast food / burgers?	At least once a week
Television (current)	During a normal week, how many hours a day (24 hours) do you watch television?	At least one hour per day
Paternal tobacco (current)	Does your father (or male guardian) smoke cigarettes?	Yes
Maternal tobacco (current)	Does your mother (or female guardian) smoke cigarettes?	Yes
Paracetamol (current)	In the past 12 months, how often, on average, have you taken paracetamol?	At least once per month
Open fire cooking (current)	In your house, what fuels are usually used for cooking? Electricity, gas, open fires, other	Any that include open fires

Table S2: Summary statistics for variables and their prevalence in subjects who had data present for wheeze, sex, maternal education and the given exposure (the "maximum sample").

Age group	Variable	Individual-level		School-level		
		n	Prevalence (%)	n	Median prevalence (%)	Prevalence IQR (%)
6-7 years	Wheeze in the last 12 months	212,480	10.4	2903	10.2	(5.7, 16.7)
	Low birthweight	177,104	8.6	2601	6.3	(3.2, 10.5)
	Paracetamol (1st year)	188,961	65.2	2635	69.6	(56.2, 82.1)
	Antibiotics (1st year)	187,633	54.2	2715	56.0	(46.3, 64.6)
	Breastfed ever	200,012	80.1	2753	84.5	(73.5, 92.9)
	Cat (1st year)	197,501	11.8	2753	10.3	(4.7, 19.3)
	Farm animals (1st year)	189,212	11.3	2686	9.6	(4.3, 17.7)
	Truck traffic (current)	191,713	79.9	2781	85.4	(76.2, 91.7)
	Fast food (current)	188,841	41.1	2850	33.3	(18.6, 51.3)
	Television (current)	204,310	77.8	2855	83.8	(74.1, 90.9)
	Paternal tobacco (current)	203,914	31.5	2800	33.3	(19.2, 46.7)
	Maternal tobacco (current)	207,143	13.9	2833	13.9	(2.9, 30.0)
	Paracetamol (current)	199,057	19.5	2786	16.4	(7.6, 30.9)
	Open fire cooking (current)	192,631	3.1	2776	0.0	(0.0, 2.3)
13-14 years	Wheeze in the last 12 months	350,915	11.4	2511	10.0	(5.6, 15.8)
	Truck traffic (current)	318,661	82.5	2382	87.0	(78.9, 92.5)
	Fast food (current)	320,128	55.2	2421	55.4	(40.8, 69.5)
	Television (current)	339,823	85.3	2483	90.0	(81.2, 94.3)
	Paternal tobacco (current)	310,700	37.5	2293	36.8	(23.6, 48.3)
	Maternal tobacco (current)	338,740	17.9	2467	18.2	(3.8, 33.3)
	Paracetamol (current)	323,051	28.8	2438	30.7	(19.1, 43.7)
	Open fire cooking (current)	312,624	7.6	2355	1.2	(0.0, 4.8)

IQR = interquartile range.

Table S3. Minimally adjusted[A] effects of individual- and school-level exposures on wheeze in the last 12 months in subjects who had data present for wheeze, sex, maternal education and the given exposure (the "maximum sample"). Mixed logistic regression models with random intercepts at the school, centre and country levels.

Age group	Exposure	Individual-level exposure		School-level exposure	
		n	OR (95% CI)	n	OR (95% CI)
6-7 years	Low birthweight	177,104	1.21 (1.14, 1.28)	177,104	2.29 (1.56, 3.38)
	Paracetamol (1st year)	188,961	1.79 (1.72, 1.86)	188,961	1.35 (1.07, 1.69)
	Antibiotics (1st year)	187,633	1.99 (1.92, 2.06)	187,633	1.42 (1.14, 1.77)
	Breastfed ever	200,012	0.94 (0.91, 0.98)	200,012	0.77 (0.59, 1.01)
	Cat (1st year)	197,501	1.37 (1.31, 1.44)	197,501	1.84 (1.41, 2.40)
	Farm animals (1st year)	189,212	1.36 (1.30, 1.42)	189,212	1.77 (1.38, 2.26)
	Truck traffic (current)	191,713	1.22 (1.17, 1.27)	191,713	1.13 (0.90, 1.42)
	Fast food (current)	188,841	1.12 (1.08, 1.16)	188,841	1.62 (1.36, 1.93)
	Television (current)	204,310	1.09 (1.05, 1.14)	204,310	1.64 (1.32, 2.04)
	Paternal tobacco (current)	203,914	1.20 (1.16, 1.24)	203,914	1.85 (1.50, 2.27)
	Maternal tobacco (current)	207,143	1.28 (1.23, 1.34)	207,143	2.56 (2.03, 3.23)
	Paracetamol (current)	199,057	2.36 (2.28, 2.45)	199,057	2.30 (1.81, 2.91)
	Open fire cooking (current)	192,631	1.30 (1.19, 1.43)	192,631	3.28 (2.11, 5.07)
Age group	Exposure	Individual-level exposure		School-level exposure	
		n	OR (95% CI)	n	OR (95% CI)
13-14 years	Truck traffic (current)	318,661	1.22 (1.18, 1.26)	318,661	1.64 (1.21, 2.21)
	Fast food (current)	320,128	1.12 (1.09, 1.14)	320,128	1.37 (1.12, 1.69)
	Television (current)	339,823	1.05 (1.01, 1.08)	339,823	2.09 (1.50, 2.91)
	Paternal tobacco (current)	310,700	1.20 (1.17, 1.23)	310,700	0.81 (0.62, 1.05)
	Maternal tobacco (current)	338,740	1.33 (1.29, 1.37)	338,740	1.78 (1.34, 2.38)
	Paracetamol (current)	323,051	1.84 (1.79, 1.89)	323,051	2.25 (1.72, 2.94)
	Open fire cooking (current)	312,624	1.27 (1.19, 1.35)	312,624	0.79 (0.58, 1.07)

[A]Adjusted for sex and mothers level of education.

Table S4. Fully adjusted[A] effects of individual-level exposures on wheeze in the last 12 months in subjects who had data present for wheeze, sex, maternal education and all exposures of interest (the "common sample"), stratified by country-level affluence. Mixed logistic regression models with random intercepts at the school, centre and country levels.

Age group	Exposure	Affluent Countries (n = 45,164)		Non-Affluent countries (n = 86,760)		Effect modification p-value
		Number exposed (%)	OR (95% CI)	Number exposed (%)	OR (95% CI)	
6-7 years	Low birthweight	2,623 (5.8)	1.17 (1.05, 1.31)	8,051 (9.3)	1.09 (0.99, 1.19)	0.37
	Paracetamol (1st year)	28,106 (62.2)	1.38 (1.28, 1.49)	58,210 (67.1)	1.30 (1.22, 1.39)	0.03
	Antibiotics (1st year)	23,923 (53.0)	1.71 (1.60, 1.82)	50,193 (57.9)	1.60 (1.51, 1.70)	0.04
	Breastfed ever	30,903 (68.4)	1.03 (0.97, 1.10)	76,316 (88.0)	0.88 (0.82, 0.95)	0.006
	Cat (1st year)	6,762 (15.0)	1.09 (1.00, 1.18)	8,423 (9.7)	1.36 (1.26, 1.48)	<0.001
	Farm animals (1st year)	3,710 (8.2)	0.96 (0.87, 1.06)	9,762 (11.3)	1.23 (1.14, 1.33)	<0.001
	Truck traffic (current)	36,889 (81.7)	1.12 (1.04, 1.21)	67,569 (77.9)	1.20 (1.12, 1.29)	0.22
	Fast food (current)	13,924 (30.8)	1.08 (1.02, 1.15)	38,767 (44.7)	1.06 (1.00, 1.12)	0.51
	Television (current)	35,694 (79.0)	1.05 (0.98, 1.13)	69,573 (80.2)	1.04 (0.96, 1.12)	0.89
	Paternal tobacco (current)	18,031 (39.9)	1.10 (1.04, 1.17)	24,595 (28.3)	1.13 (1.06, 1.19)	0.49
	Maternal tobacco (current)	12,410 (27.5)	1.19 (1.12, 1.28)	7,839 (9.0)	1.23 (1.12, 1.34)	0.48
	Paracetamol (current)	5,051 (11.2)	2.38 (2.21, 2.56)	19,030 (21.9)	1.89 (1.79, 2.01)	<0.001
	Open fire cooking (current)	256 (0.6)	1.59 (1.17, 2.18)	2,326 (2.7)	1.40 (1.20, 1.63)	0.60

Age group	Exposure	Affluent Countries (n=50,637)		Non-Affluent Countries (n=187,949)		Effect modification p-value
		Number exposed (%)	OR (95% CI)	Number exposed (%)	OR (95% CI)	
13-14 years	Truck traffic (current)	43,519 (85.9)	1.14 (1.05, 1.24)	154,914 (82.4)	1.17 (1.12, 1.23)	0.11
	Fast food (current)	25,567 (50.5)	1.03 (0.97, 1.08)	102,199 (54.4)	1.09 (1.05, 1.12)	0.34
	Television (current)	46,066 (91.0)	1.04 (0.94, 1.14)	158,202 (84.2)	1.01 (0.96, 1.07)	0.63
	Paternal tobacco (current)	20,731 (40.9)	1.09 (1.03, 1.16)	70,752 (37.6)	1.13 (1.09, 1.17)	0.09
	Maternal tobacco (current)	15,167 (30.0)	1.29 (1.21, 1.37)	28,090 (14.9)	1.20 (1.14, 1.25)	0.69
	Paracetamol (current)	13,453 (26.6)	1.97 (1.85, 2.09)	50,368 (26.8)	1.75 (1.69, 1.82)	<0.001
	Open fire cooking (current)	535 (1.1)	1.14 (0.89, 1.45)	11,930 (6.3)	1.35 (1.24, 1.47)	0.86

[A]Adjusted for sex, mother's level of education and all other variables in the table.

Table S5: Fully adjusted[A] effects of school-level exposures on prevalence on wheeze in the last 12 month in subjects who had data present for wheeze, sex, maternal education and all exposures of interest (the "common sample"), stratified by country-level affluence. Mixed logistic regression models with random intercepts at the school, centre and country levels.

Age group	Exposure	Affluent countries (n = 45,164)		Non-affluent countries (n = 86,760)		Effect modification
		Median prevalence (%)	OR (95% CI)	Median prevalence (%)	OR (95% CI)	p-value
6-7 years	Low birthweight	5.2	1.51 (0.73, 3.14)	7.0	2.01 (1.16, 3.47)	0.37
	Paracetamol (1st year)	75.0	1.30 (0.88, 1.93)	68.7	0.90 (0.63, 1.29)	0.03
	Antibiotics (1st year)	57.1	1.77 (1.22, 2.55)	57.8	1.13 (0.80, 1.61)	0.02
	Breastfed ever	74.1	1.31 (0.92, 1.86)	90.8	0.89 (0.53, 1.51)	0.14
	Cat (1st year)	9.3	0.95 (0.65, 1.41)	9.0	1.50 (0.90, 2.51)	0.08
	Farm animals (1st year)	7.7	1.18 (0.76, 1.84)	10.0	1.53 (0.99, 2.36)	0.16
	Truck traffic (current)	84.4	1.00 (0.68, 1.47)	84.5	1.14 (0.82, 1.60)	0.61
	Fast food (current)	26.9	1.14 (0.80, 1.61)	36.8	1.88 (1.45, 2.45)	0.07
	Television (current)	83.3	1.90 (1.32, 2.73)	85.7	1.82 (1.19, 2.78)	0.72
	Paternal tobacco (current)	42.0	0.83 (0.59, 1.19)	28.6	0.79 (0.54, 1.15)	0.23
	Maternal tobacco (current)	29.0	1.49 (1.06, 2.10)	5.1	3.30 (1.87, 5.83)	0.004
	Paracetamol (current)	11.1	2.32 (1.52, 3.55)	18.2	1.31 (0.89, 1.92)	0.04
	Open fire cooking (current)	0.0	0.82 (0.15, 4.51)	0.0	2.15 (1.16, 3.97)	0.20

Age group	Exposure	Affluent countries (n = 50,637)		Non-affluent countries (n = 187,949)		Effect modification
		Median prevalence	OR (95% CI)	Median prevalence	OR (95% CI)	p-value
13-14 years	Truck traffic (current)	87.7	1.72 (0.69, 4.28)	87.1	1.25 (0.86, 1.80)	0.69
	Fast food (current)	48.3	1.48 (0.91, 2.41)	55.2	1.13 (0.87, 1.47)	0.33
	Television (current)	92.1	1.03 (0.41, 2.57)	89.6	2.17 (1.40, 3.36)	0.43
	Paternal tobacco (current)	43.5	0.39 (0.21, 0.72)	33.6	0.55 (0.38, 0.80)	0.72
	Maternal tobacco (current)	35.5	3.56 (1.86, 6.83)	13.3	2.28 (1.47, 3.53)	0.58
	Paracetamol (current)	29.9	1.85 (1.07, 3.21)	29.2	2.46 (1.73, 3.51)	0.56
	Open fire cooking (current)	0.0	1.23 (0.09, 16.44)	0.8	1.31 (0.85, 2.04)	0.84

[A]Adjusted for sex, mother's lev