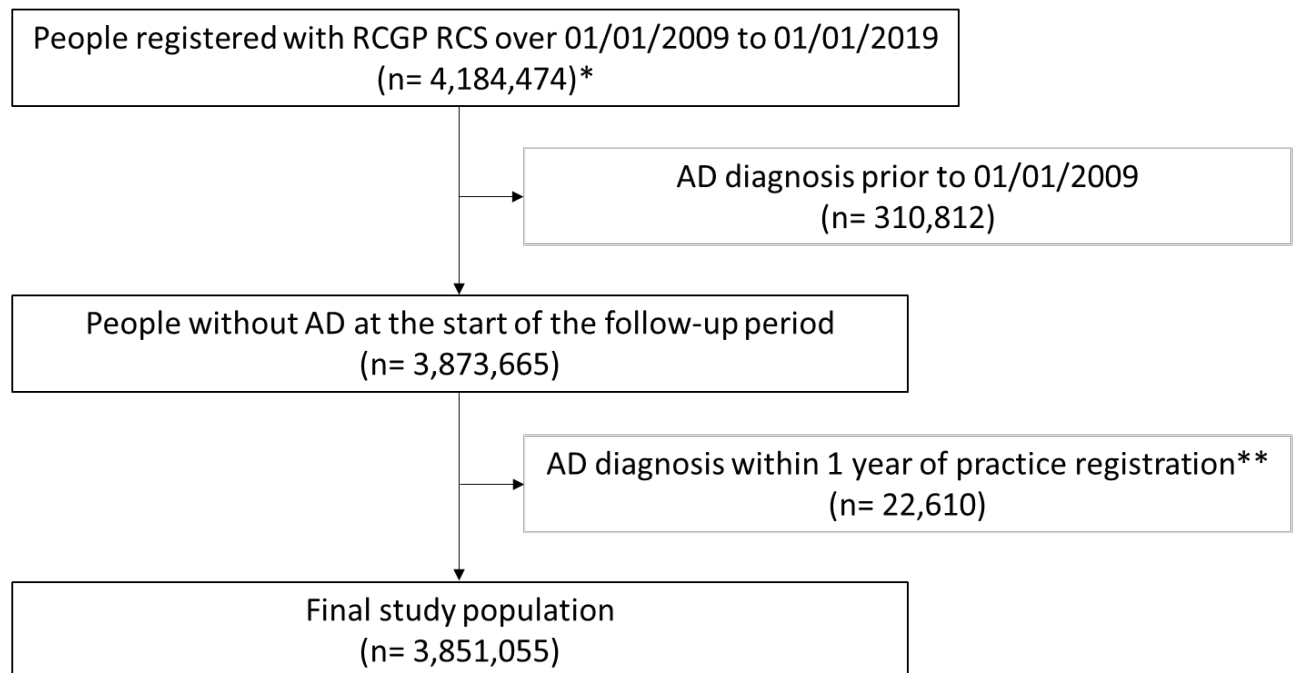


## **Supplementary material for:**

**The epidemiology of atopic dermatitis in children and adults: population-based cohort study**

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### eFlowchart 1: Flowchart for construction of study population

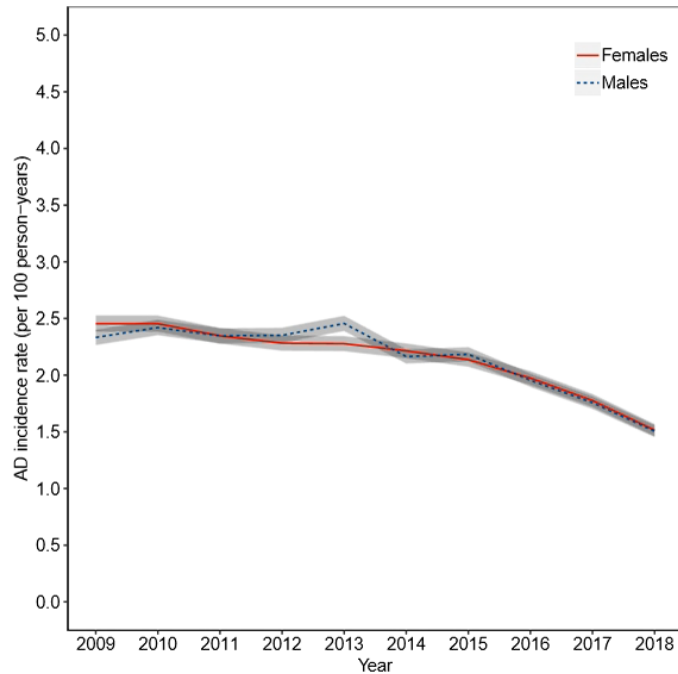


\* Final study population for analysis of AD prevalence

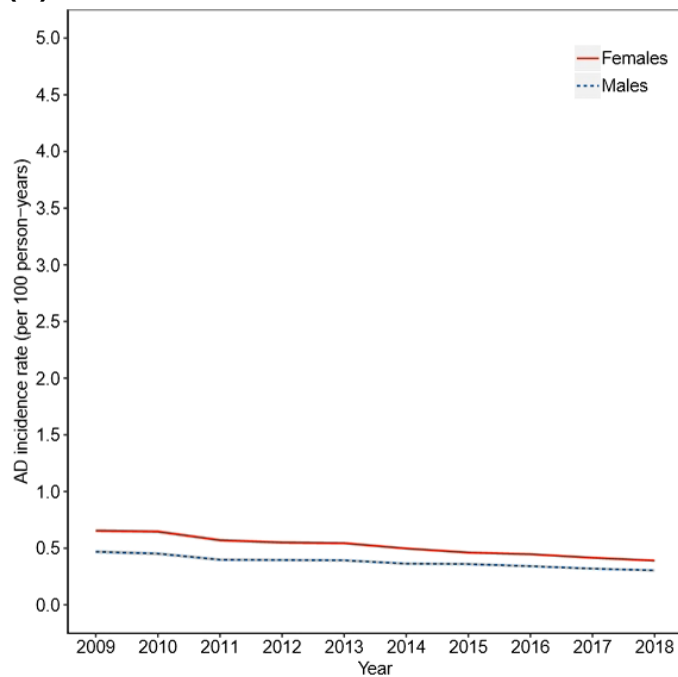
\*\* Not applicable if less than one year old

**eFigure 1: Incidence rates of AD by calendar year, 2009-2018 in (A) children (n=913,606) and (B) adults (n=3,149,160). Grey shading represents 95% confidence intervals.**

**(A) Children**

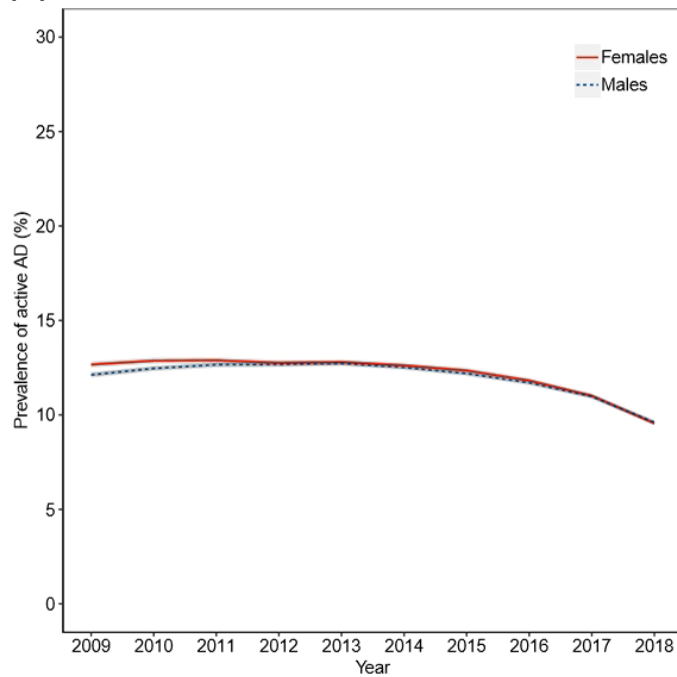


**(B) Adults**

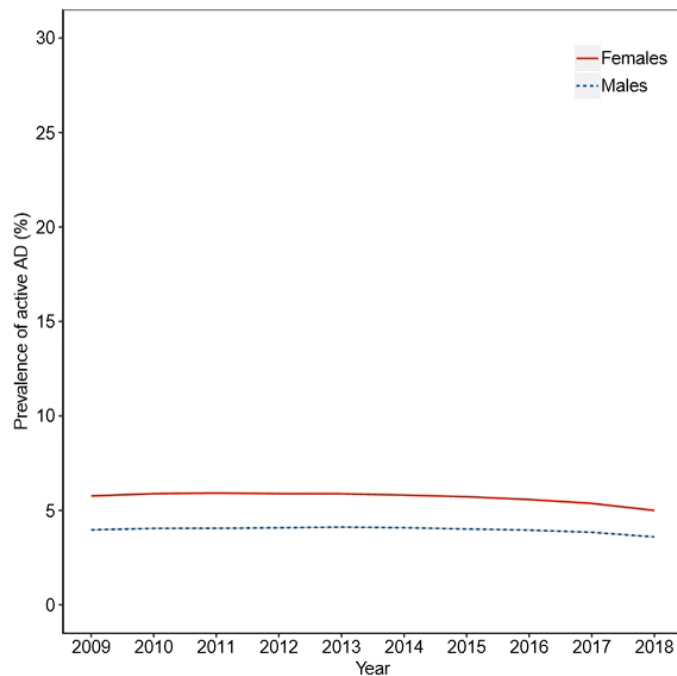


**eFigure 2: The prevalence of active AD, by calendar year in (A) children and (B) adults. Grey shading represents 95% confidence intervals.**

**(A) Children**



**B) Adults**



**eTable 1: The incidence of AD per 100-person years, by age and sex in (A) children (n=913,606) and (B) adults (n=3,149,160)**

**(A) Children**

Incidence rate (95% CI)			
	Overall	Males	Females
Age			
0	15.04 (14.87, 15.22)	17.36 (17.1, 17.62)	12.68 (12.46, 12.91)
1	6.79 (6.69, 6.90)	7.06 (6.92, 7.21)	6.52 (6.38, 6.67)
2	4.05 (3.97, 4.13)	3.96 (3.85, 4.08)	4.13 (4.02, 4.25)
3	2.35 (2.29, 2.41)	2.25 (2.17, 2.34)	2.44 (2.35, 2.53)
4	1.69 (1.64, 1.75)	1.60 (1.53, 1.67)	1.79 (1.71, 1.86)
5	1.39 (1.34, 1.44)	1.26 (1.20, 1.33)	1.52 (1.45, 1.59)
6	1.08 (1.04, 1.12)	0.94 (0.89, 1.00)	1.22 (1.16, 1.29)
7	0.92 (0.88, 0.96)	0.82 (0.77, 0.88)	1.02 (0.96, 1.08)
8	0.85 (0.82, 0.89)	0.78 (0.72, 0.83)	0.94 (0.88, 1.00)
9	0.74 (0.71, 0.78)	0.67 (0.63, 0.72)	0.82 (0.77, 0.88)
10	0.72 (0.69, 0.76)	0.65 (0.60, 0.69)	0.81 (0.75, 0.86)
11	0.63 (0.60, 0.67)	0.57 (0.53, 0.62)	0.69 (0.64, 0.74)
12	0.57 (0.54, 0.61)	0.50 (0.46, 0.54)	0.65 (0.61, 0.70)
13	0.48 (0.45, 0.51)	0.38 (0.34, 0.41)	0.60 (0.55, 0.64)
14	0.49 (0.46, 0.52)	0.36 (0.33, 0.40)	0.63 (0.59, 0.68)
15	0.50 (0.48, 0.53)	0.36 (0.33, 0.39)	0.67 (0.62, 0.72)
16	0.48 (0.45, 0.51)	0.35 (0.32, 0.38)	0.63 (0.58, 0.68)
17	0.50 (0.47, 0.53)	0.33 (0.30, 0.36)	0.69 (0.64, 0.74)

**B) Adults**

Incidence rate (95% CI)			
	Overall	Males	Females
Age			
18-29	0.36 (0.36, 0.37)	0.24 (0.23, 0.25)	0.49 (0.48, 0.50)
30-39	0.36 (0.36, 0.37)	0.25 (0.24, 0.26)	0.49 (0.48, 0.50)
40-49	0.35 (0.34, 0.35)	0.27 (0.26, 0.28)	0.43 (0.42, 0.44)
50-59	0.40 (0.39, 0.41)	0.35 (0.34, 0.35)	0.46 (0.45, 0.47)
60-69	0.55 (0.54, 0.56)	0.54 (0.53, 0.56)	0.55 (0.54, 0.57)
70-79	0.69 (0.68, 0.70)	0.73 (0.71, 0.75)	0.65 (0.63, 0.67)
80+	0.79 (0.78, 0.81)	0.92 (0.89, 0.94)	0.72 (0.70, 0.74)

**eTable 2: Prevalence of atopic dermatitis (AD), by age category and sex in (A) children (n=570,536) and (B) adults (n=2,168,805). Derived using data from 2018.**

**(A) Children**

Prevalence (%) with 95% CIs			
	Overall	Males	Females
Age			
0	5.7 (5.5, 5.9)	6.6 (6.2, 6.9)	4.8 (4.5, 5.1)
1	14.5 (14.1, 14.9)	16.4 (15.8, 16.9)	12.6 (12.1, 13.2)
2	16.5 (16.1, 16.9)	17.7 (17.1, 18.3)	15.2 (14.7, 15.8)
3	15.5 (15.1, 15.9)	16.3 (15.7, 16.9)	14.7 (14.1, 15.2)
4	13.4 (13.0, 13.8)	13.8 (13.3, 14.3)	13.0 (12.5, 13.5)
5	12.3 (12.0, 12.7)	12.5 (12.0, 13.0)	12.1 (11.6, 12.6)
6	11.1 (10.8, 11.5)	11.1 (10.7, 11.6)	11.1 (10.7, 11.6)
7	10.1 (9.8, 10.4)	10 (9.5, 10.4)	10.3 (9.8, 10.8)
8	9.2 (8.9, 9.6)	8.9 (8.4, 9.3)	9.6 (9.2, 10.1)
9	8.6 (8.3, 8.9)	8.6 (8.2, 9.0)	8.6 (8.2, 9.0)
10	8.1 (7.8, 8.4)	7.8 (7.4, 8.2)	8.5 (8.1, 9.0)
11	7.7 (7.5, 8.0)	7.6 (7.2, 8.0)	7.9 (7.5, 8.4)
12	7.0 (6.7, 7.3)	6.5 (6.1, 6.9)	7.6 (7.2, 8.0)
13	6.4 (6.2, 6.7)	6.2 (5.8, 6.6)	6.7 (6.3, 7.1)
14	6.4 (6.2, 6.7)	5.9 (5.6, 6.3)	6.9 (6.5, 7.4)
15	6.2 (5.9, 6.5)	5.04 (5, 5.8)	7.0 (6.6, 7.4)
16	6.0 (5.7, 6.3)	5.0 (4.6, 5.3)	7.1 (6.7, 7.5)
17	6.2 (5.9, 6.4)	5.0 (4.7, 5.3)	7.4 (7.0, 7.8)

**B) Adults**

Prevalence (%) with 95% CIs			
	Overall	Males	Females
Age			
18-29	3.9 (3.8, 4.0)	3.0 (2.9, 3.1)	4.8 (4.7, 4.9)
30-39	2.8 (2.8, 2.9)	1.9 (1.9, 2.0)	3.7 (3.6, 3.8)
40-49	3.0 (2.9, 3.0)	2.2 (2.1, 2.3)	3.7 (3.7, 3.8)
50-59	3.5 (3.4, 3.5)	2.7 (2.7, 2.8)	4.2 (4.1, 4.3)
60-69	4.9 (4.8, 5.0)	4.4 (4.3, 4.5)	5.3 (5.2, 5.4)
70-79	6.8 (6.7, 6.9)	6.9 (6.7, 7.0)	6.8 (6.7, 7.0)
80+	9.9 (9.7, 10.0)	10.5 (10.3, 10.8)	9.4 (9.2, 9.6)

**eTable 3: Incidence of AD by geographical region of England, 2018 (per 100 person-years) with 95% confidence intervals (n=2,336,322)**

	Age category				
	<2	2-11	12-17	18-49	50+
East Midlands	6.8 (5.6-8.1)	1.4 (1.2-1.6)	0.4 (0.3-0.6)	0.2 (0.2-0.3)	0.5 (0.4-0.6)
East of England	5.4 (4.3-6.8)	1.0 (0.8-1.2)	0.5 (0.4-0.7)	0.2 (0.2-0.3)	0.4 (0.4-0.5)
London	9.2 (8.5-9.9)	1.5 (1.4-1.6)	0.5 (0.4-0.6)	0.3 (0.2-0.3)	0.5 (0.4-0.5)
North East	5.3 (3.9-6.9)	1.3 (1.0-1.6)	0.3 (0.2-0.6)	0.3 (0.2-0.3)	0.4 (0.4-0.5)
North West	9.7 (8.8-10.5)	1.5 (1.4-1.6)	0.4 (0.3-0.5)	0.3 (0.2-0.3)	0.5 (0.5-0.6)
South East	6.5 (5.8-7.1)	1.1 (1.0-1.2)	0.3 (0.2-0.3)	0.3 (0.2-0.3)	0.4 (0.4-0.4)
South West	6.3 (5.5-7.1)	1.3 (1.2-1.5)	0.4 (0.3-0.5)	0.3 (0.2-0.3)	0.5 (0.4-0.5)
West Midlands	8.5 (7.4-9.8)	1.5 (1.3-1.6)	0.3 (0.2-0.5)	0.3 (0.2-0.3)	0.5 (0.5-0.6)
Yorkshire and The Humber	6.5 (5.7-7.4)	1.3 (1.1-1.4)	0.4 (0.3-0.5)	0.2 (0.2-0.3)	0.4 (0.3-0.4)

**eTable 4: Adjusted incidence rate ratios (IRR) with 95% CIs for AD by geographical region, 2018 (n=2,336,322). Model adjusted for age category, sex, ethnicity, index of multiple deprivation, and rural/urban classification. ORs are relative to London.**

	Overall IRR (95% CI)	Children <18 IRR (95% CI)	Adults ≥ 18 IRR (95% CI)
East Midlands	1.04 (0.95-1.13)	1.01 (0.88. 1.14)	1.10 (0.96, 1.23)
East of England	0.90 (0.80-0.99)	0.82 (0.68. 0.97)	1.00 (0.86. 1.13)
London	1.00 (ref)	1.00 (ref)	1.00 (ref)
North East	0.94 (0.83-1.06)	0.84 (0.67, 1.01)	1.07 (0.92. 1.22)
North West	1.14 (1.08-1.20)	1.11 (1.03. 1.19)	1.20 (1.11, 1.28)
South East	0.89 (0.83-0.96)	0.83 (0.74. 0.92)	1.00 (0.91, 1.09)
South West	1.03 (0.96-1.10)	0.96 (0.86. 1.05)	1.15 (1.05. 1.25)
West Midlands	1.13 (1.06-1.21)	1.05 (0.95. 1.16)	1.25 (1.14, 1.36)
Yorkshire and The Humber	0.90 (0.82-0.97)	0.90 (0.80. 1.00)	0.93 (0.82. 1.04)

**eTable 5: Prevalence of active AD by geographical region of England, 2018 (n=2,742,094)**

	Age category				
	<2	2-11	12-17	18-49	50+
East Midlands	7%	10%	6%	3%	5%
East of England	6%	9%	5%	2%	4%
London	9%	15%	9%	3%	6%
North East	6%	12%	7%	4%	6%
North West	9%	13%	7%	4%	6%
South East	7%	10%	6%	3%	5%
South West	6%	10%	6%	3%	5%
West Midlands	8%	12%	7%	4%	6%
Yorkshire and The Humber	6%	10%	6%	3%	5%

**eTable 6: Adjusted odds ratios (OR) with 95% CIs for active AD in 2018 by geographical region (n=2,742,094). Model adjusted for age category, sex, ethnicity, index of multiple deprivation, and rural/urban classification. ORs are relative to London.**

	Overall	Children <18	Adults ≥ 18
	OR (95% CI)	OR (95% CI)	OR (95% CI)
East Midlands	1.00 (0.97, 1.02)	0.88 (0.83, 0.92)	1.10 (1.06, 1.14)
East of England	0.77 (0.73, 0.80)	0.70 (0.64, 0.75)	0.83 (0.79, 0.87)
London	1.00 (ref)	1.00 (ref)	1.00 (ref)
North East	1.18 (1.15, 1.21)	1.03 (0.97, 1.08)	1.31 (1.27, 1.35)
North West	1.21 (1.19, 1.23)	1.04 (1.01, 1.07)	1.35 (1.33, 1.37)
South East	0.97 (0.95, 0.99)	0.83 (0.80, 0.87)	1.09 (1.07, 1.12)
South West	1.02 (1.00, 1.04)	0.85 (0.81, 0.89)	1.17 (1.14, 1.20)
West Midlands	1.20 (1.17, 1.22)	1.02 (0.98, 1.06)	1.34 (1.31, 1.37)
Yorkshire and The Humber	0.93 (0.91, 0.96)	0.86 (0.82, 0.89)	1.01 (0.98, 1.04)