



COVID Symptom Study Report

27 February 2021

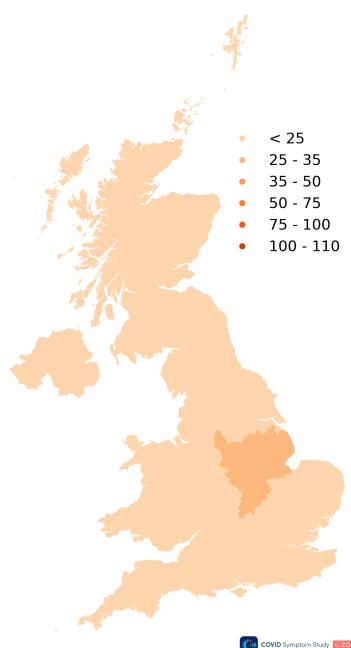
Analysis by ZOE and King's College London

covid.joinzoe.com

Daily new cases of COVID - Incidence (based on 2 weeks up to 23 February 2021)

We estimate there have been 9726 daily new cases of COVID in the UK on average over the two weeks up to 23 February 2021. This is based on the number of newly symptomatic app users per day, and the proportion of these who give positive swab tests.

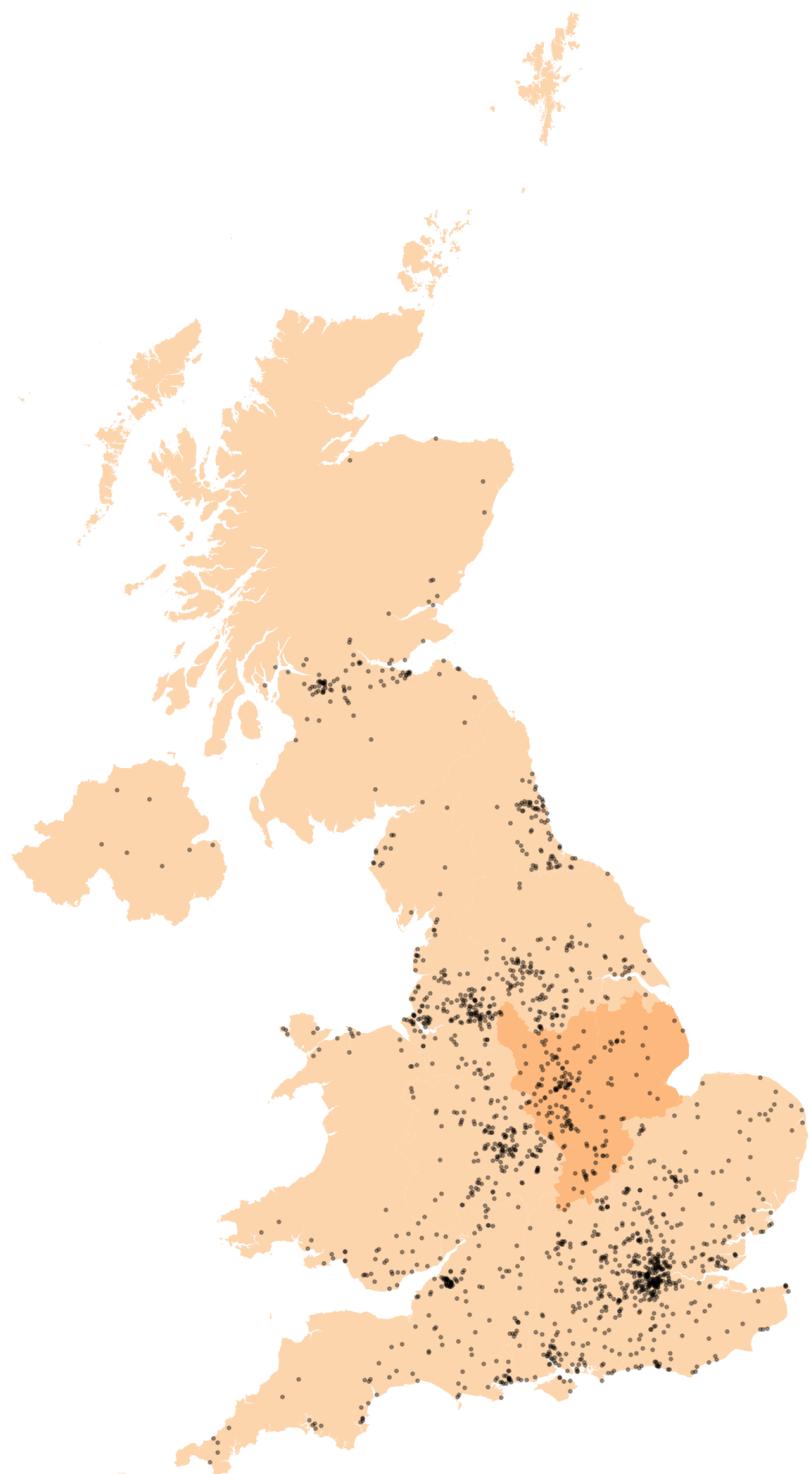
Daily new cases of COVID per 100,000 (23 February 2021) [\[1\]](#)



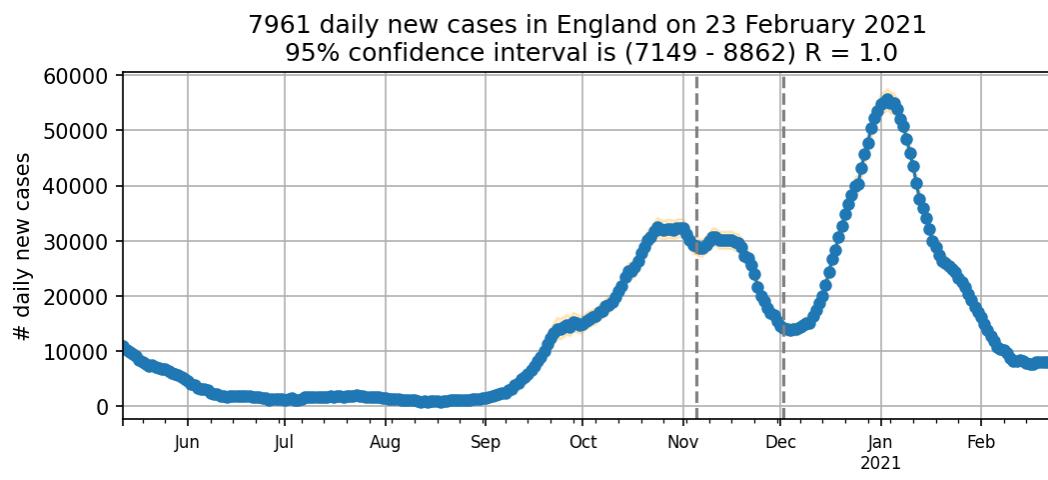
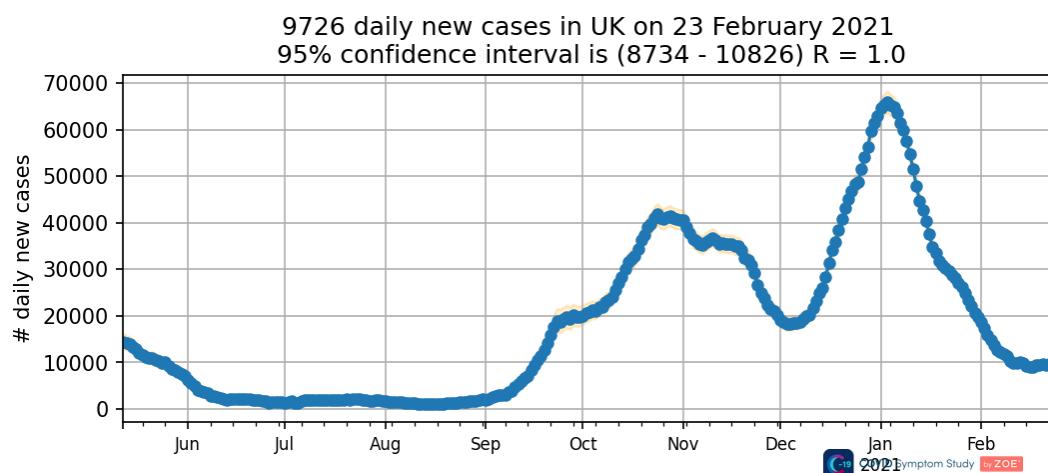
	Daily new cases per 100,000	R
England	13 - 16	1.0 (0.9 - 1.0)
Scotland	11 - 30	1.1 (1.0 - 1.2)
Wales	8 - 24	0.9 (0.7 - 1.0)
South East	9 - 15	0.9 (0.8 - 1.0)
London	10 - 19	0.9 (0.8 - 1.0)
South West	8 - 16	1.0 (0.9 - 1.2)
East of England	6 - 13	0.8 (0.6 - 1.0)
North West	10 - 20	1.1 (0.9 - 1.2)
East Midlands	21 - 37	1.1 (1.0 - 1.3)
West Midlands	13 - 26	1.0 (0.8 - 1.1)
Yorkshire and The Humber	14 - 28	1.1 (1.0 - 1.3)
North East	10 - 29	0.9 (0.7 - 1.0)
Northern Ireland	4 - 47	- (- -)

[1] Please refer to the publication by [Varsavsky et al. \(2020\)](#) for details on how R values are calculated

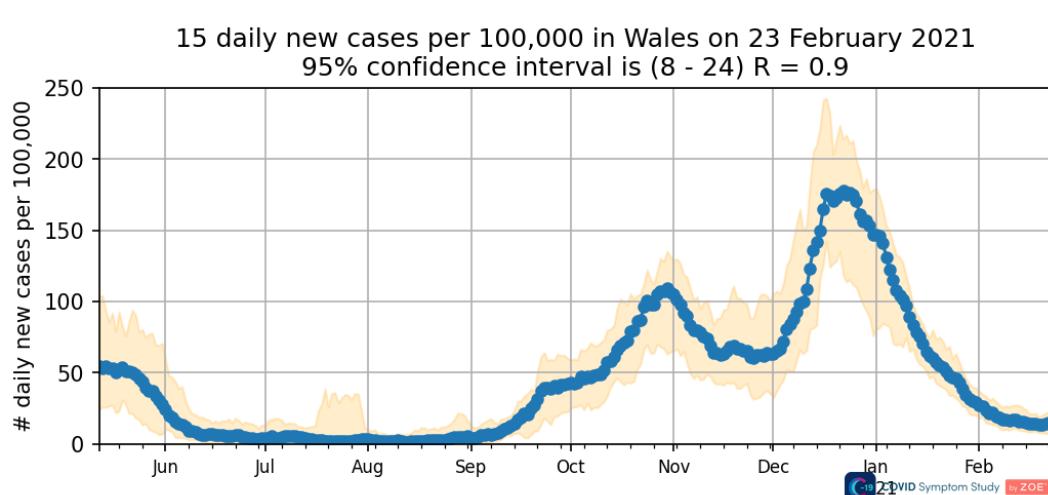
Location of positive test results reported in the UK
in the 2 weeks up to 23 February 2021



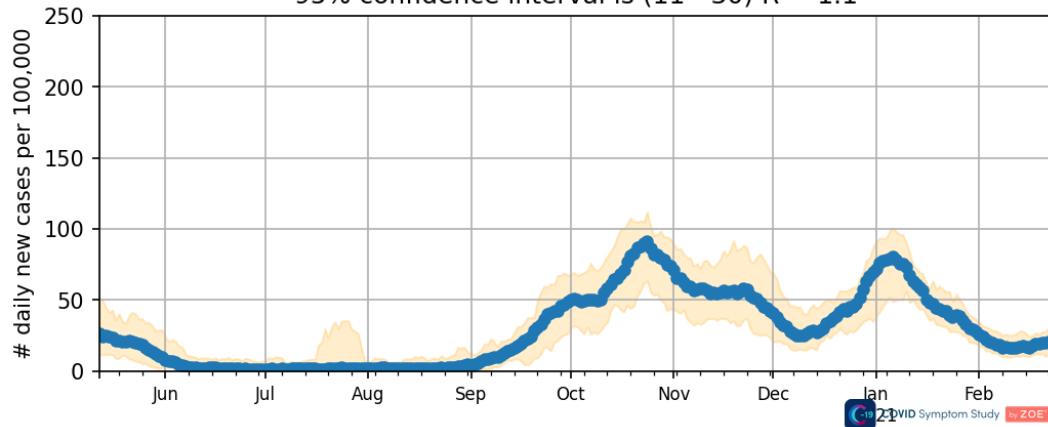
Changes in daily new cases of COVID in UK (based on 2 weeks up to each date)



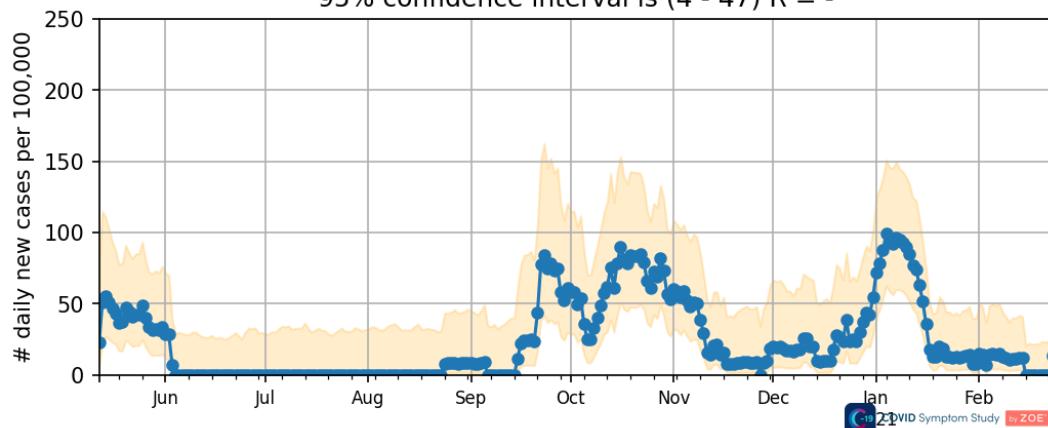
Changes in daily new cases of COVID per 100,000 in different regions (based on 2 weeks up to each date)



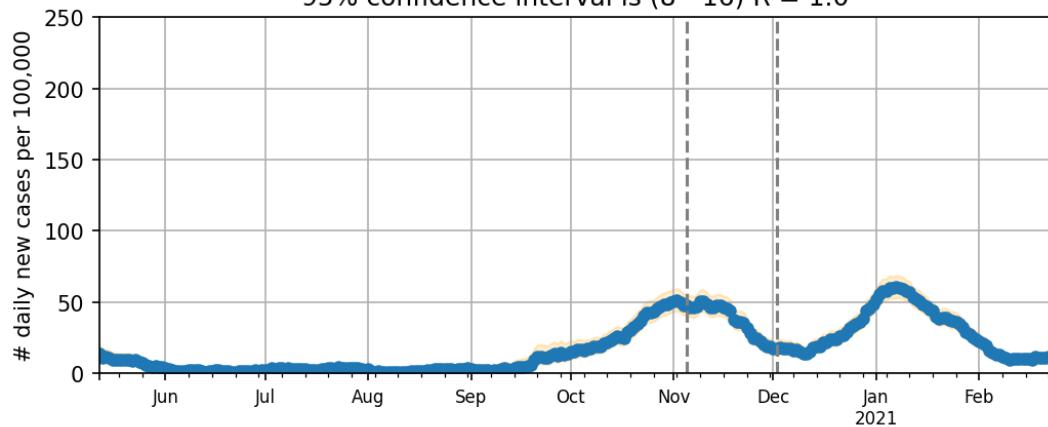
19 daily new cases per 100,000 in Scotland on 23 February 2021
95% confidence interval is (11 - 30) R = 1.1



14 daily new cases per 100,000 in Northern Ireland on 23 February 2021
95% confidence interval is (4 - 47) R = -



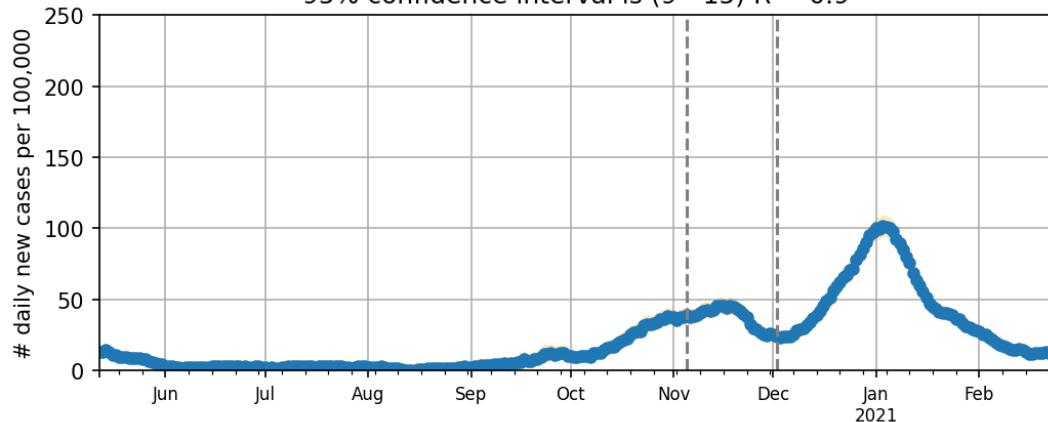
11 daily new cases per 100,000 in South West on 23 February 2021
95% confidence interval is (8 - 16) R = 1.0



Dashed lines: the beginning and the end of the 2nd national lockdown in England



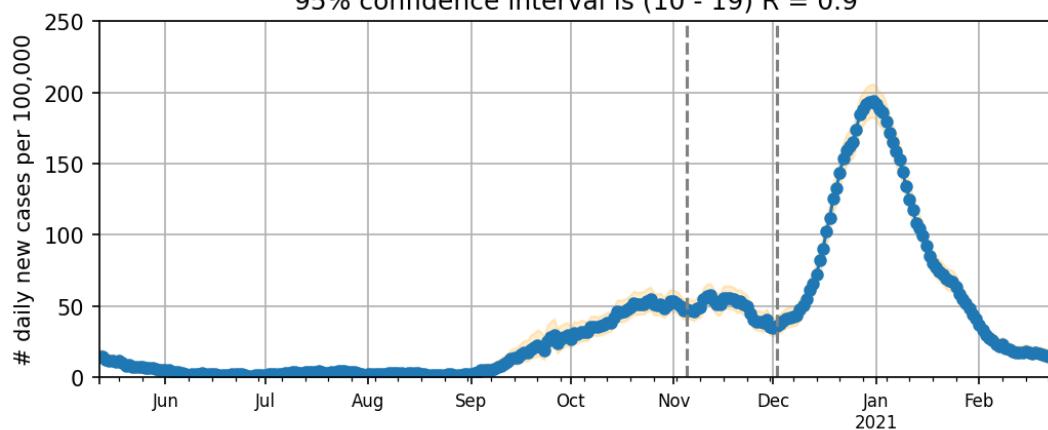
12 daily new cases per 100,000 in South East on 23 February 2021
95% confidence interval is (9 - 15) R = 0.9



Dashed lines: the beginning and the end of the 2nd national lockdown in England

ZOE COVID Symptom Study by ZOE

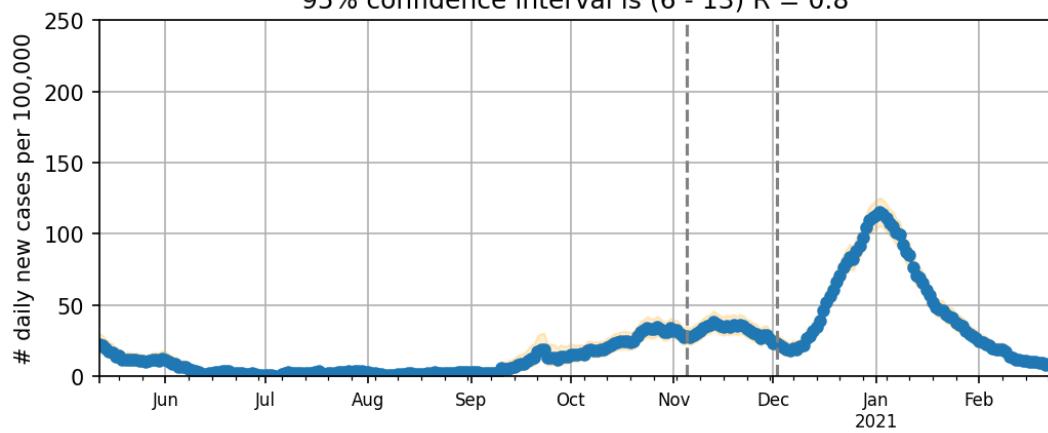
14 daily new cases per 100,000 in London on 23 February 2021
95% confidence interval is (10 - 19) R = 0.9



Dashed lines: the beginning and the end of the 2nd national lockdown in England

ZOE COVID Symptom Study by ZOE

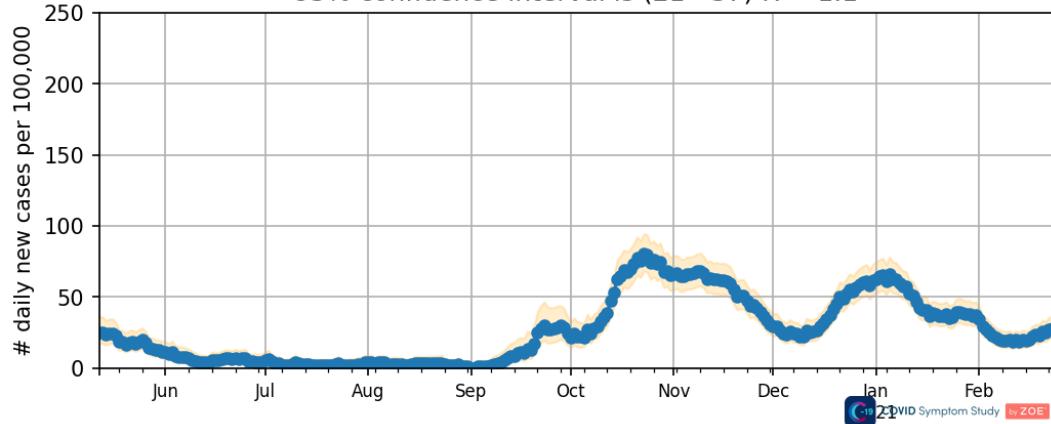
9 daily new cases per 100,000 in East of England on 23 February 2021
95% confidence interval is (6 - 13) R = 0.8



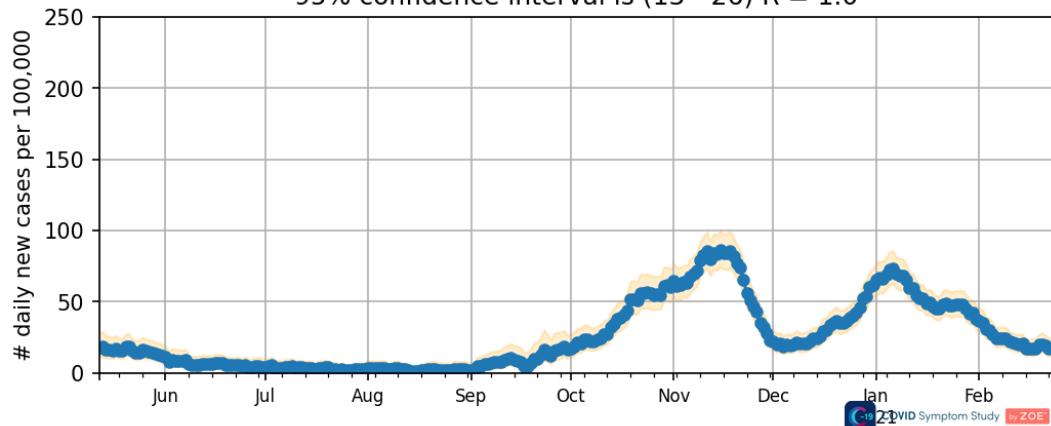
Dashed lines: the beginning and the end of the 2nd national lockdown in England

ZOE COVID Symptom Study by ZOE

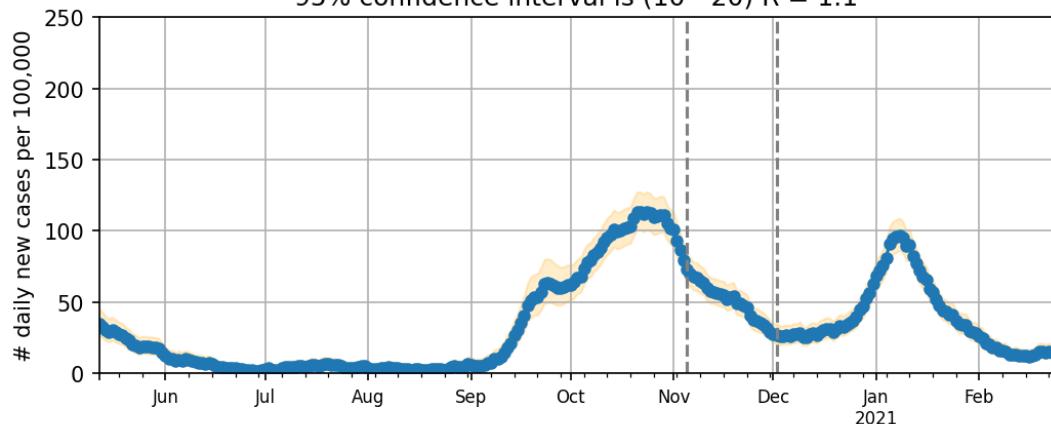
28 daily new cases per 100,000 in East Midlands on 23 February 2021
95% confidence interval is (21 - 37) R = 1.1



18 daily new cases per 100,000 in West Midlands on 23 February 2021
95% confidence interval is (13 - 26) R = 1.0

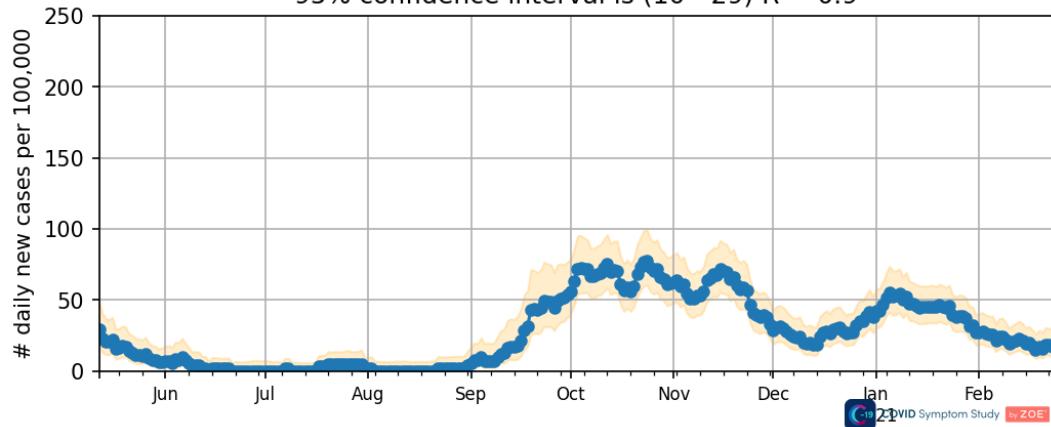


14 daily new cases per 100,000 in North West on 23 February 2021
95% confidence interval is (10 - 20) R = 1.1

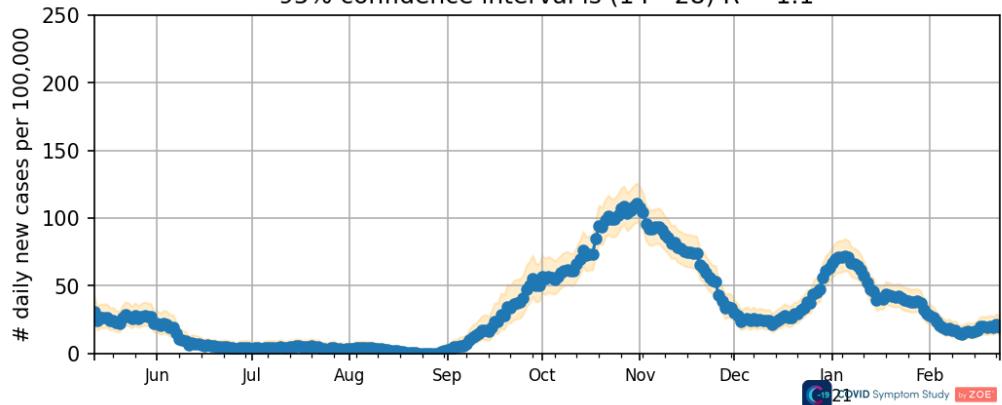


Dashed lines: the beginning and the end of the 2nd national lockdown in England

17 daily new cases per 100,000 in North East on 23 February 2021
95% confidence interval is (10 - 29) R = 0.9



20 daily new cases per 100,000 in Yorkshire and The Humber on 23 February 2021
95% confidence interval is (14 - 28) R = 1.1



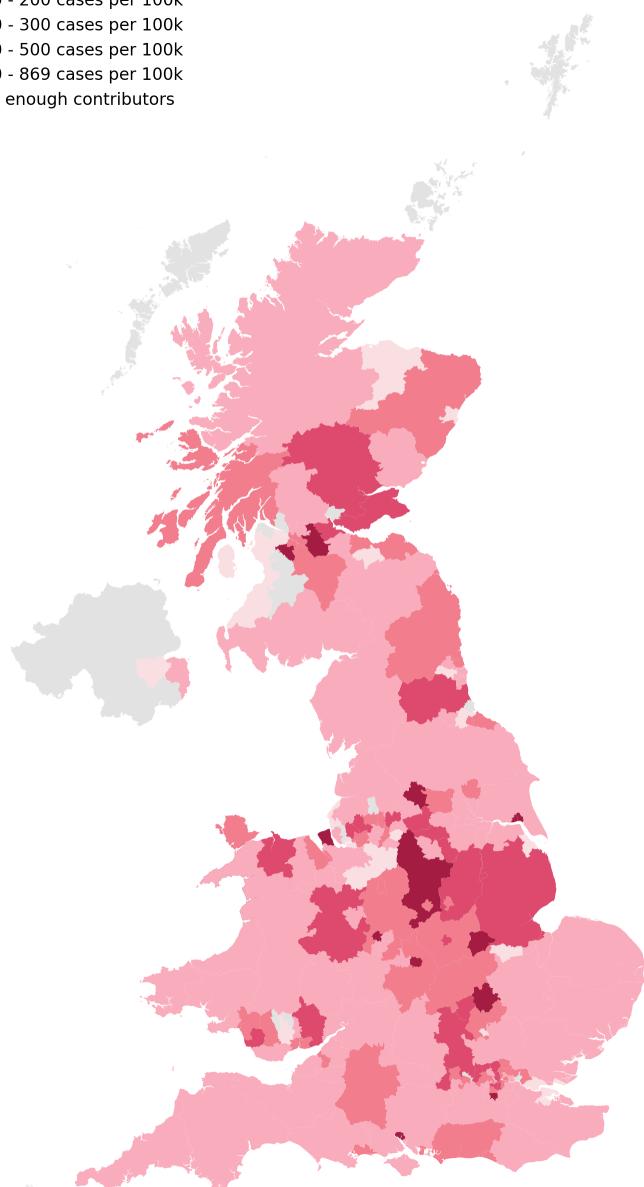
COVID active cases - Prevalence (on 26 February 2021)

The COVID active cases (prevalence) or Symptomatic COVID estimate is based on the most recent report for each contributor that logged during the previous 7 days.

Estimated rate of people with Symptomatic COVID

Based on data from 1015327 contributors that logged from 19 February 2021 to 26 February 2021

- 0 - 100 cases per 100k
- 100 - 200 cases per 100k
- 200 - 300 cases per 100k
- 300 - 500 cases per 100k
- 500 - 869 cases per 100k
- Not enough contributors



COVID active cases - English tier system

The local restriction tiers by area were replaced by a national lockdown on the 4th of January 2021.

The table below contains the previous 7 days' average prevalence rates for the English tier regions. The tier areas and the tier assignments are defined by the Department of Health and Social Care and we provide estimated rates based on data from the CSS App.

		Current tier assignment	Prevalence rate (per 100,000)	Last week's trend	Prevalence rate among 60+ (per 100,000)	Last week's trend among 60+
Region	Subregion					
North West	Liverpool City Region	5.0	259	●	157	●
	Greater Manchester	5.0	219	●	84	●
	Lancashire, Blackpool, and Blackburn with Darwen	5.0	199	▼	33	▼
	Cumbria	5.0	173	●	39	●
	Warrington and Cheshire	5.0	149	●	71	●
North East	Tees Valley (LA5)	5.0	378	●	69	●
	North East 7 (LA7)	5.0	228	●	71	●
Yorkshire and The Humber	South Yorkshire	5.0	354	●	543	●
	West Yorkshire	5.0	307	●	90	●
	The Humber	5.0	262	▲	87	▲
	York and North Yorkshire	5.0	150	●	42	●
East Midlands	Leicester and Leicestershire	5.0	456	●	84	●
	Nottingham and Nottinghamshire	5.0	293	●	157	●
	Derby and Derbyshire	5.0	284	▲	23	▲
	Lincolnshire	5.0	227	▲	97	▲
	Northamptonshire	5.0	191	●	81	●
West Midlands	Rutland	5.0	missing	●	missing	●
	Birmingham and Black Country	5.0	399	▼	125	▼
	Shropshire and Telford & Wrekin	5.0	303	▼	124	▼
	Warwickshire, Coventry and Solihull	5.0	270	●	43	●
	Staffordshire and Stoke-on-Trent	5.0	234	●	211	●
London	Worcestershire	5.0	207	●	68	●
	Herefordshire	5.0	108	●	17	●
	London	5.0	274	▼	82	▼
East of England	Bedfordshire and Milton Keynes	5.0	379	●	80	●
	Essex, Thurrock and Southend on Sea	5.0	194	▼	119	▼

		Current tier assignment	Prevalence rate (per 100,000)	Last week's trend	Prevalence rate among 60+ (per 100,000)	Last week's trend among 60+
Region	Subregion					
	Norfolk	5.0	190	▼	34	▼
	Cambridgeshire and Peterborough	5.0	131	●	101	●
	Suffolk	5.0	121	●	95	●
	Hertfordshire	5.0	102	▼	40	▼
	Buckinghamshire	5.0	372	●	64	●
	Hampshire, Portsmouth and Southampton.	5.0	286	▼	54	▼
	Reading, Wokingham, Bracknell Forest, Windsor and Maidenhead, West Berkshire	5.0	235	●	37	●
South East	Surrey	5.0	172	●	68	●
	Oxfordshire	5.0	170	●	115	●
	East and West Sussex, and Brighton and Hove	5.0	150	●	120	●
	Kent & Medway	5.0	111	▼	76	▼
	Isle of Wight	5.0	missing	●	missing	●
	Slough	5.0	missing	●	missing	●
	Wiltshire and Swindon	5.0	301	●	58	●
	Gloucestershire	5.0	252	●	76	●
	Bristol, South Gloucestershire, North Somerset	5.0	195	●	111	●
South West	Dorset, Bournemouth, Christchurch and Poole	5.0	136	●	75	●
	Somerset and Bath and North East Somerset	5.0	111	●	25	●
	Devon	5.0	103	●	24	●
	Cornwall and Isles of Scilly	5.0	103	●	73	●

[*] The districts in the county are assigned to multiple different tiers.

- ▲ implies an increase in prevalence in the past week
- implies that prevalence has been fairly constant in the past week
- ▼ implies a decrease in prevalence in the past week
- too few respondents

Supplementary table on regions for tier assignment - English tier system

The local restriction tiers by area were replaced by a national lockdown on the 4th of January 2021.

In addition to case detection rates, tier assignment decisions take into account the rate at which cases are rising or falling, the positivity rate (the number of positive cases detected as a percentage of tests taken) and the pressure on the NHS. Therefore, in the table below we report the R rate, the positivity rate and the percentage of hospital bed capacity occupied by COVID patients for each region in England. [\[2\]](#)

Region	Positivity rate	Incidence rate (per 100,000)	R rate	% hospital bed occupancy
South East	2.53 %	11.9	0.9	12.13 %
London	2.46 %	14.0	0.9	15.63 %
South West	2.38 %	11.4	1.0	6.14 %
East of England	1.96 %	8.9	0.8	12.08 %
North West	3.12 %	14.3	1.1	12.43 %
East Midlands	6.03 %	28.0	1.1	14.62 %
West Midlands	3.83 %	18.0	1.0	14.62 %
Yorkshire and The Humber	3.99 %	19.6	1.1	11.18 %
North East	3.86 %	16.8	0.9	11.18 %

[2] The % hospital bed occupancy is calculated as a ratio of the Total number of confirmed COVID-19 patients in hospital on the reporting date ([source: coronavirus.gov.uk](#)) and the overnight bed availability for acute and general cases ([source: NHS Statistics](#)). This statistics is published on NHS Region level, therefore the same occupancy rate corresponds to East and West Midlands, and North East and Yorkshire.

Symptomatic COVID by Region

Symptomatic COVID cases

East Midlands	14971
East of England	9583
London	21712
North East	5721
North West	14755
(*) Northern Ireland	1658
Scotland	14374
South East	17340
South West	8885
Wales	6811
West Midlands	17421
Yorkshire and The Humber	15887
TOTAL	149124

(*) The number of respondents in Northern Ireland is low to generate a good estimate.

Symptomatic COVID by Socio-economic status (IMD)

Symptomatic COVID cases per 100,000 people

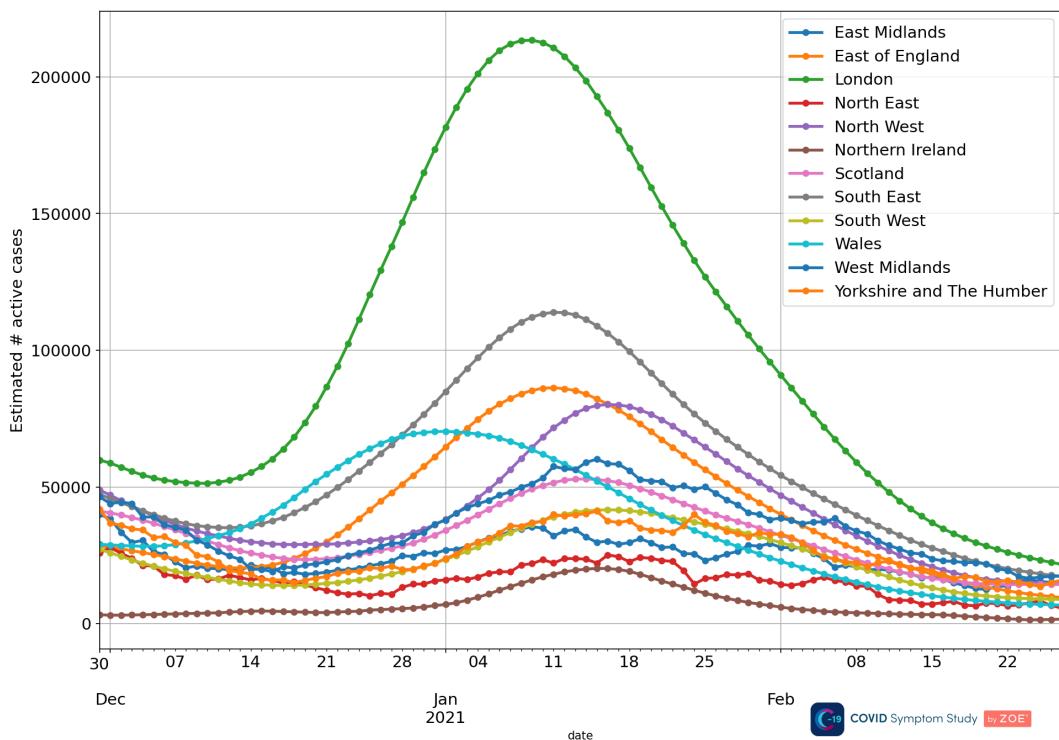
LOW (1st - 3rd decile)	292
MEDIUM (4th - 6th decile)	239
HIGH (7th - 10th decile)	167
TOTAL	227

Symptomatic COVID by Age

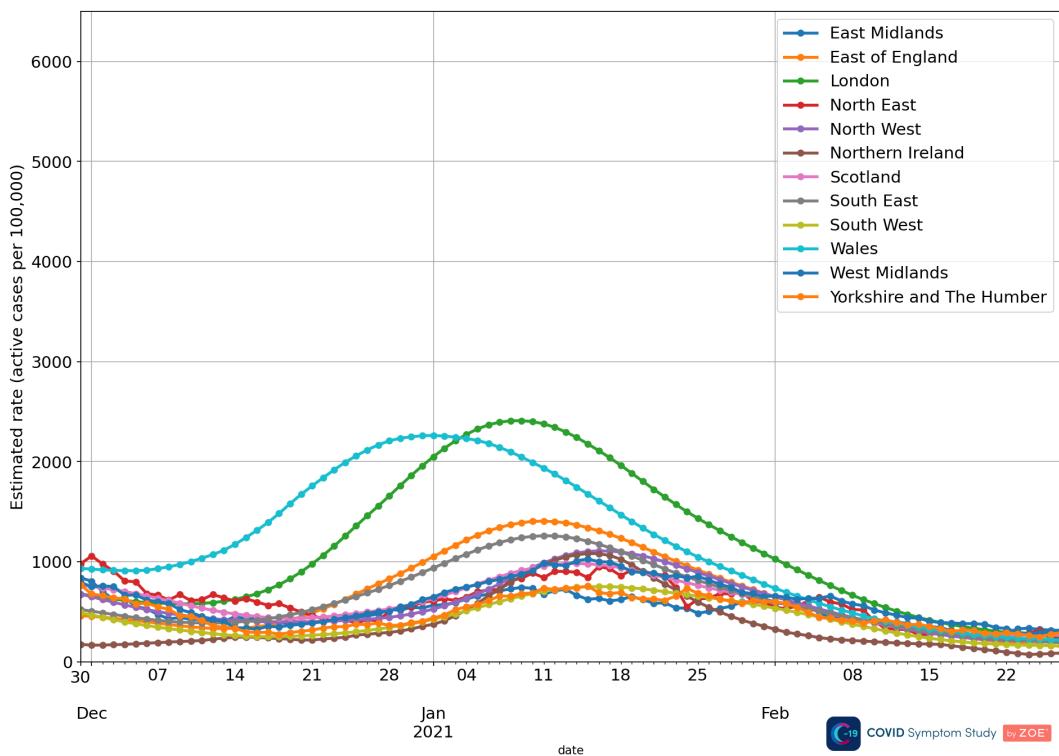
Symptomatic COVID cases per 100,000 people

Age 0 - 9	109
Age 10 - 19	172
Age 20 - 29	394
Age 30 - 39	438
Age 40 - 49	278
Age 50 - 59	218
Age 60 - 69	96
Age 70 - 79	48
Age 80 - 89	68
TOTAL	227

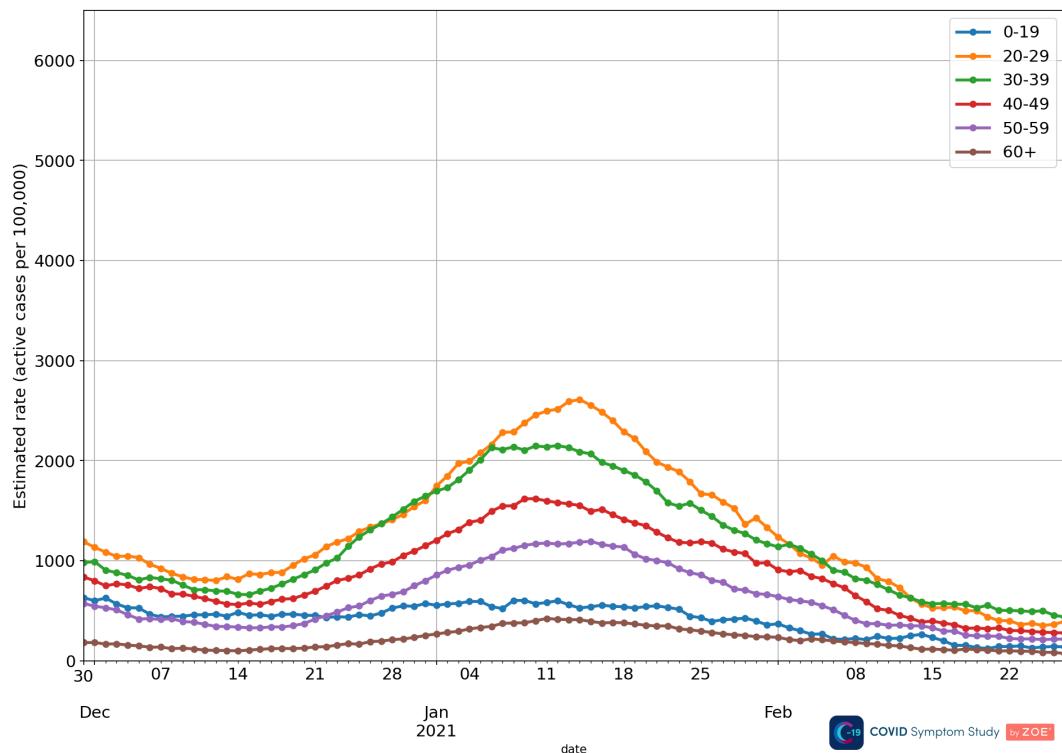
Estimate of people with Symptomatic COVID across Nations and Regions



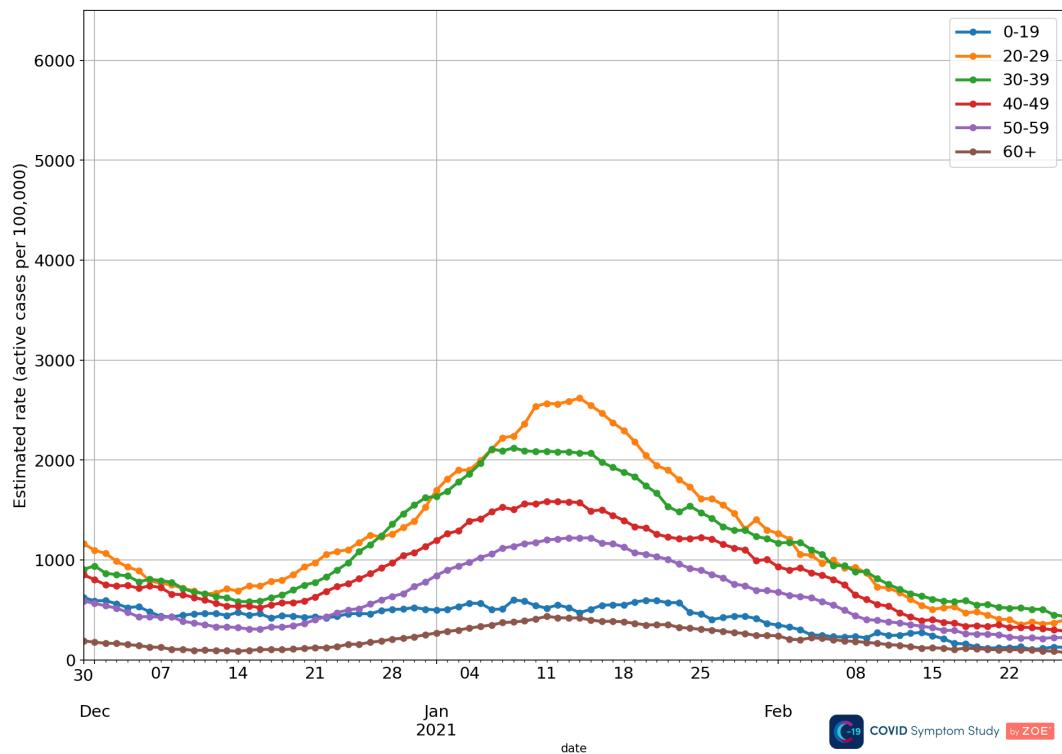
Estimated rate of people with Symptomatic COVID across Nations and Regions



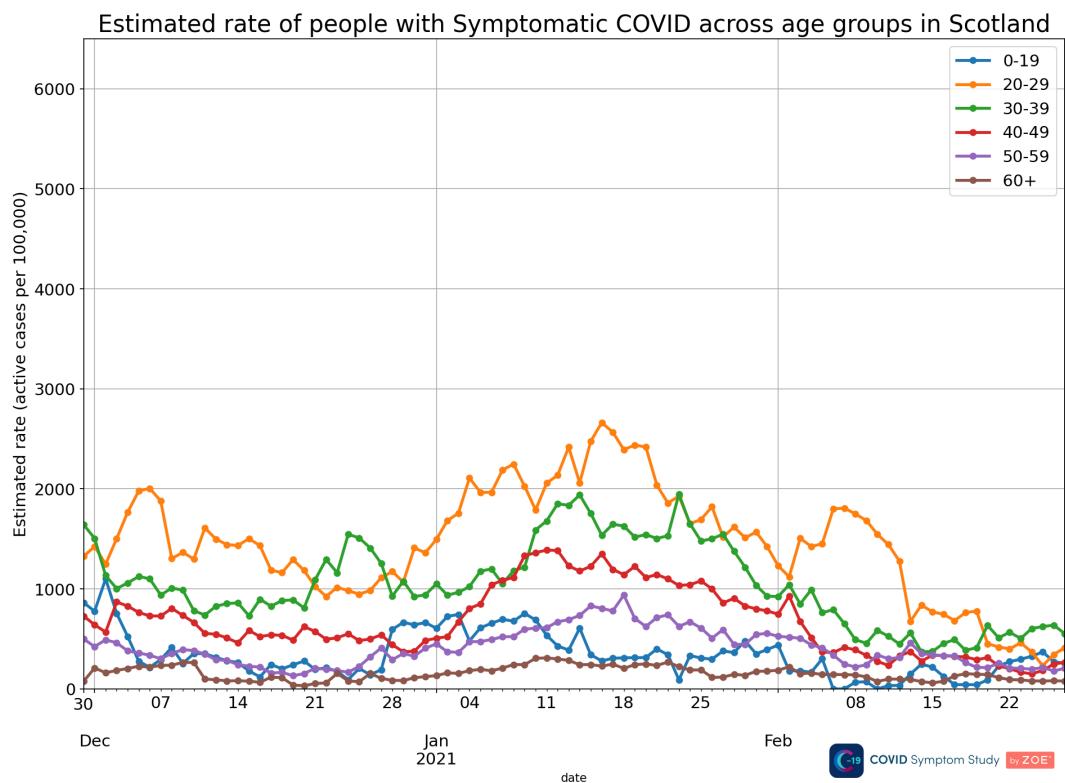
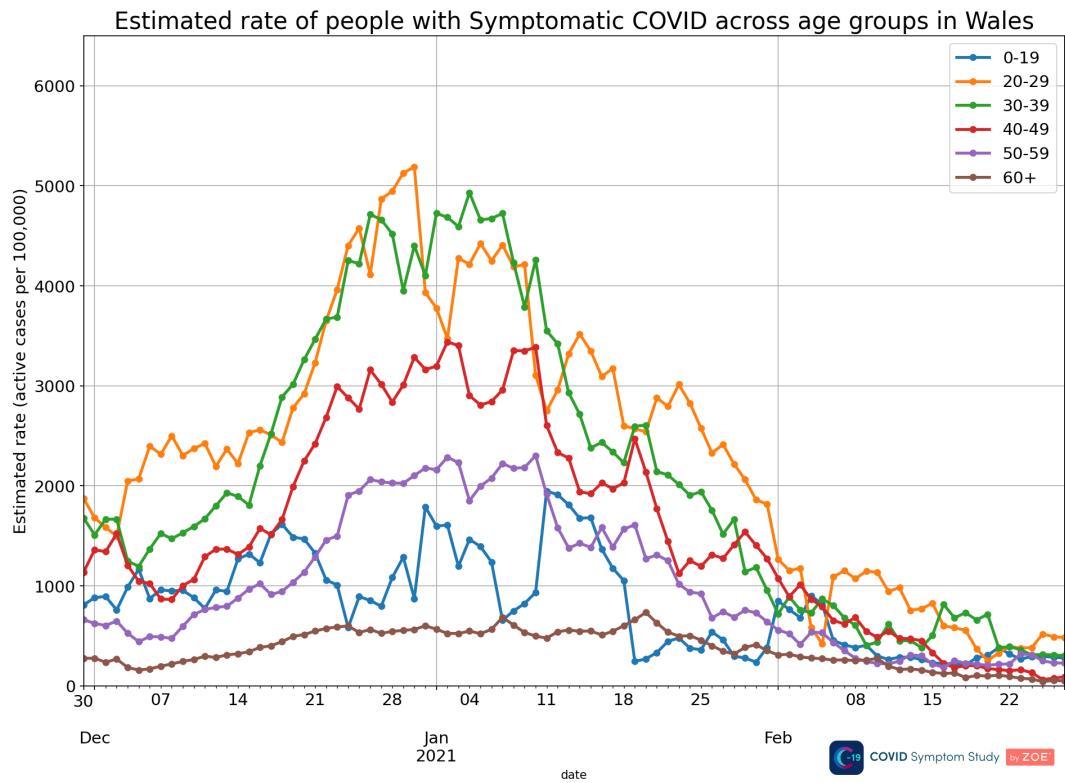
Estimated rate of people with Symptomatic COVID across age groups in the UK

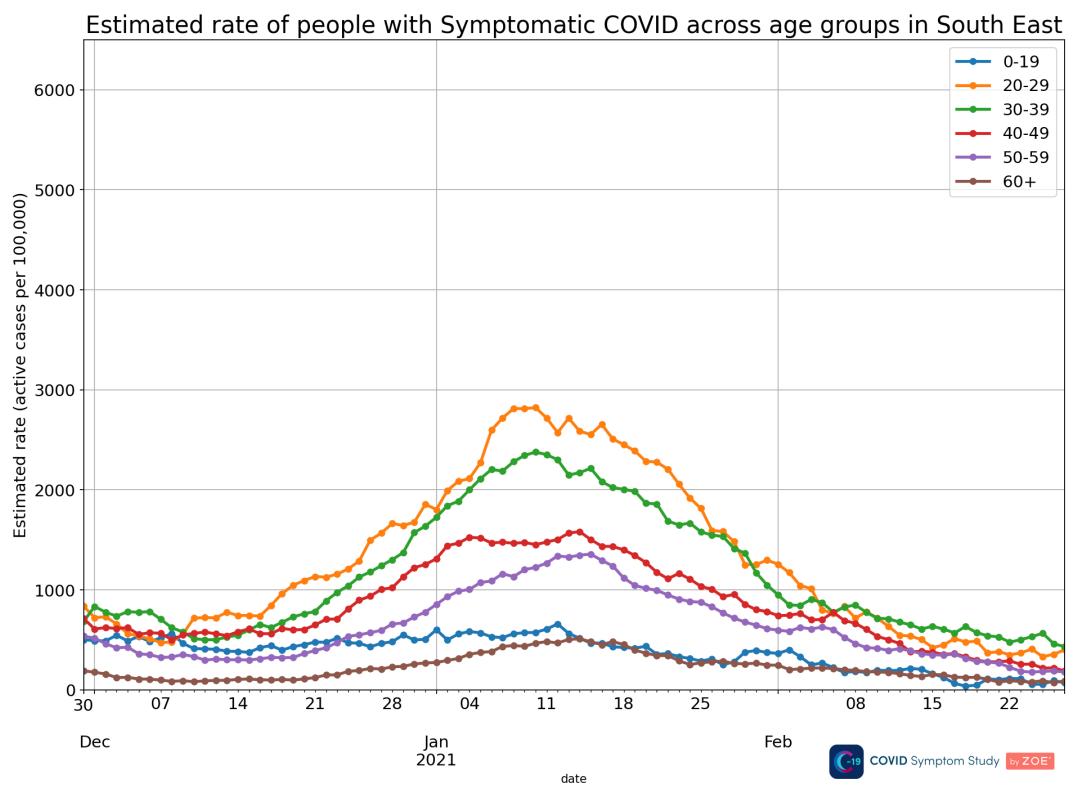
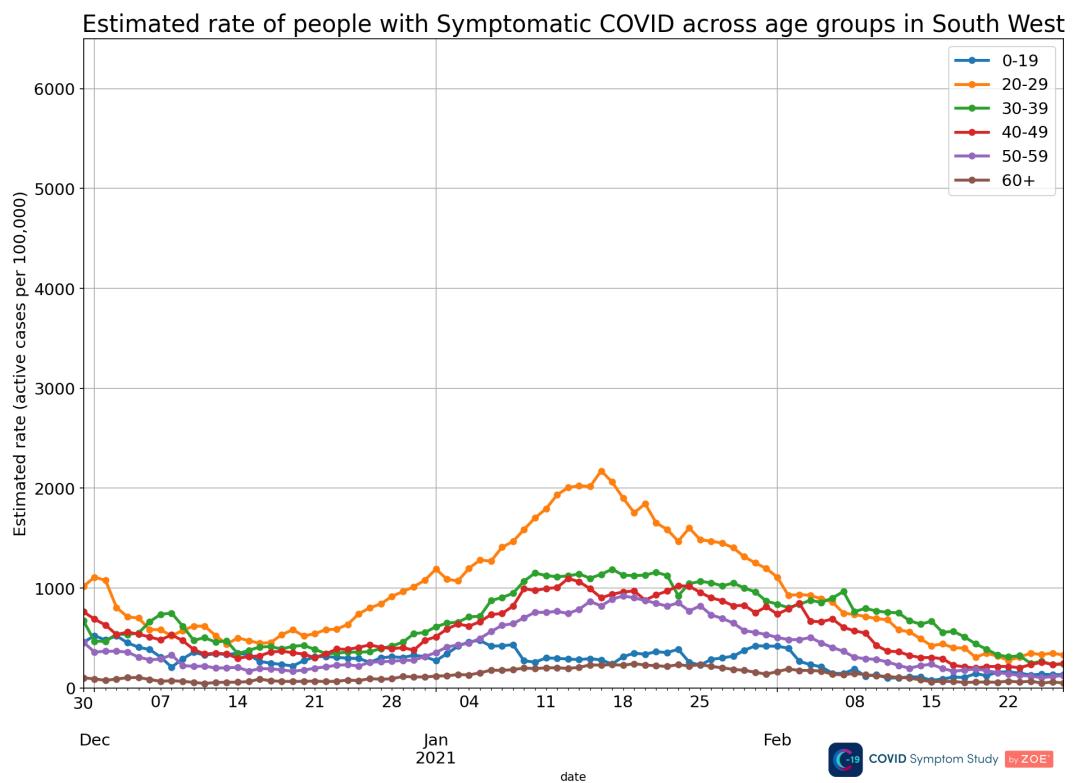


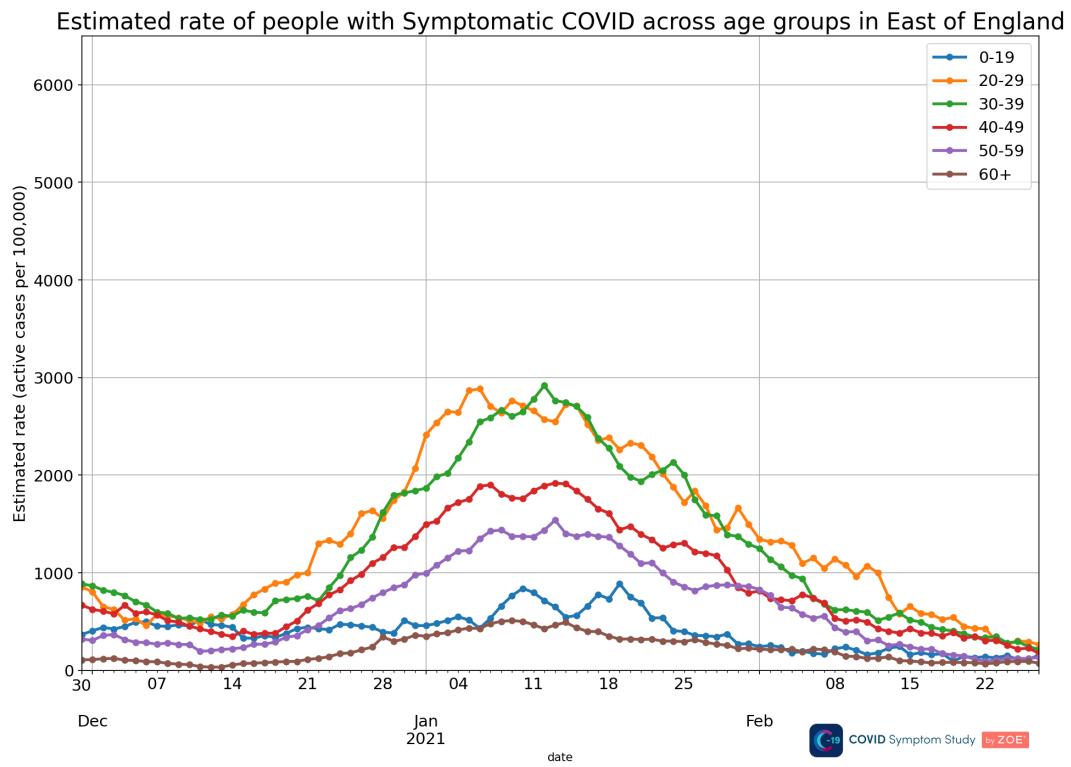
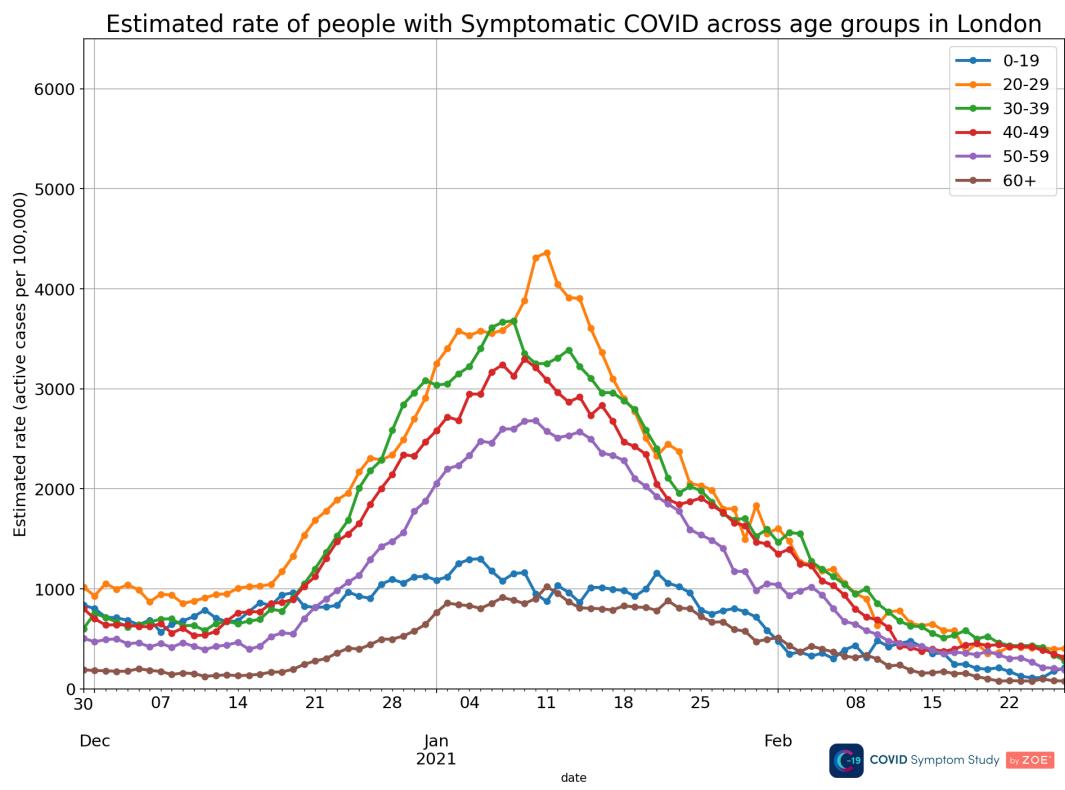
Estimated rate of people with Symptomatic COVID across age groups in England

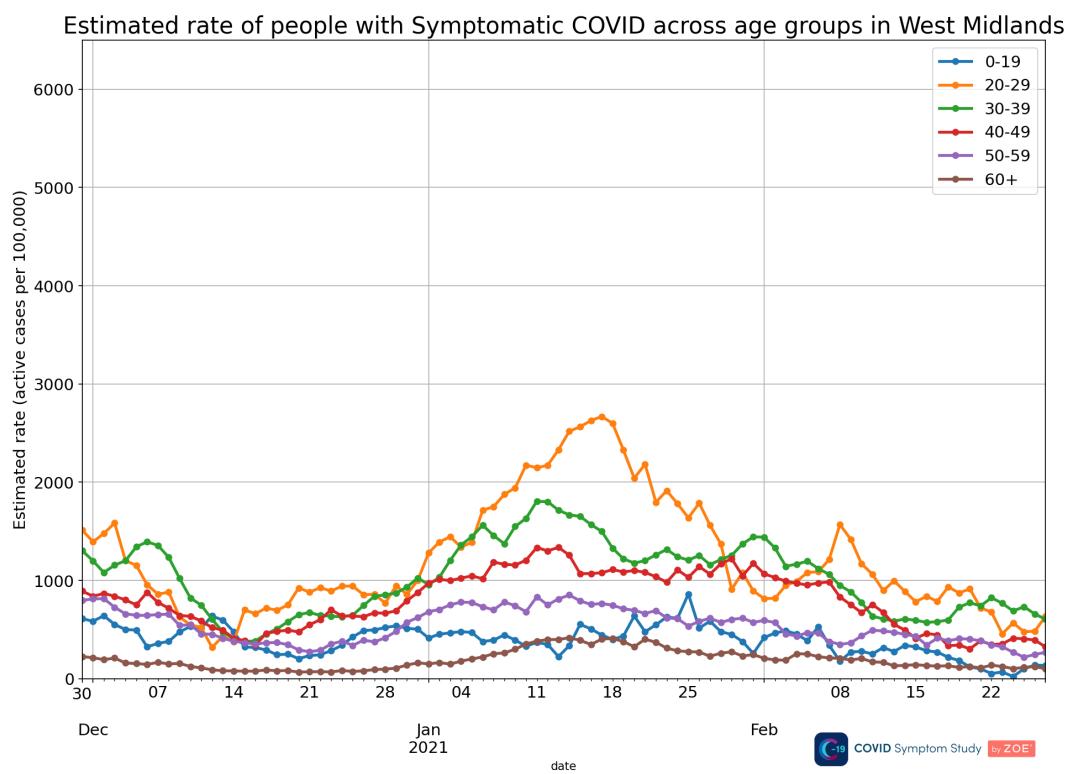
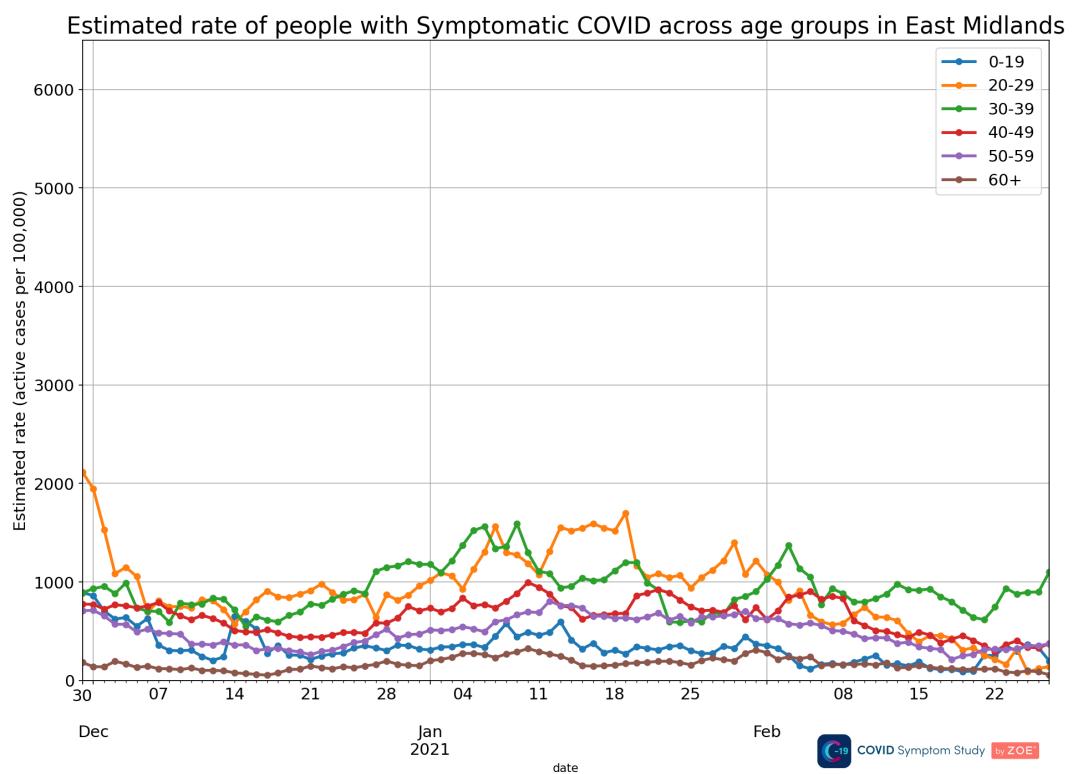


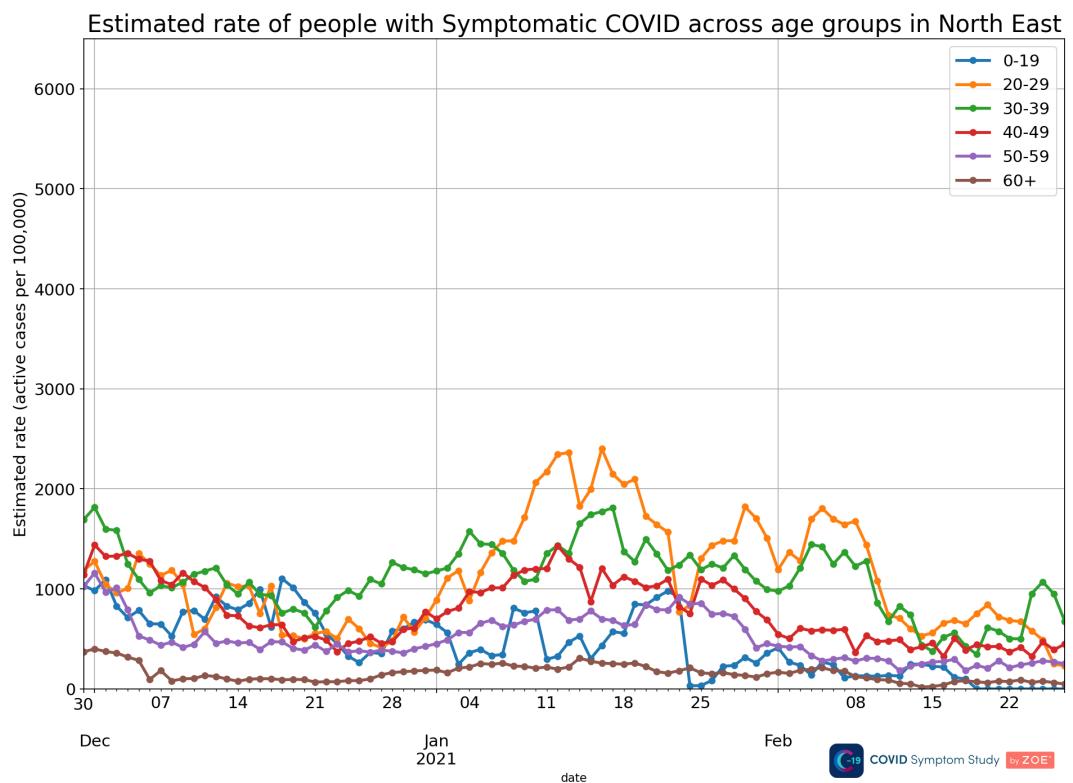
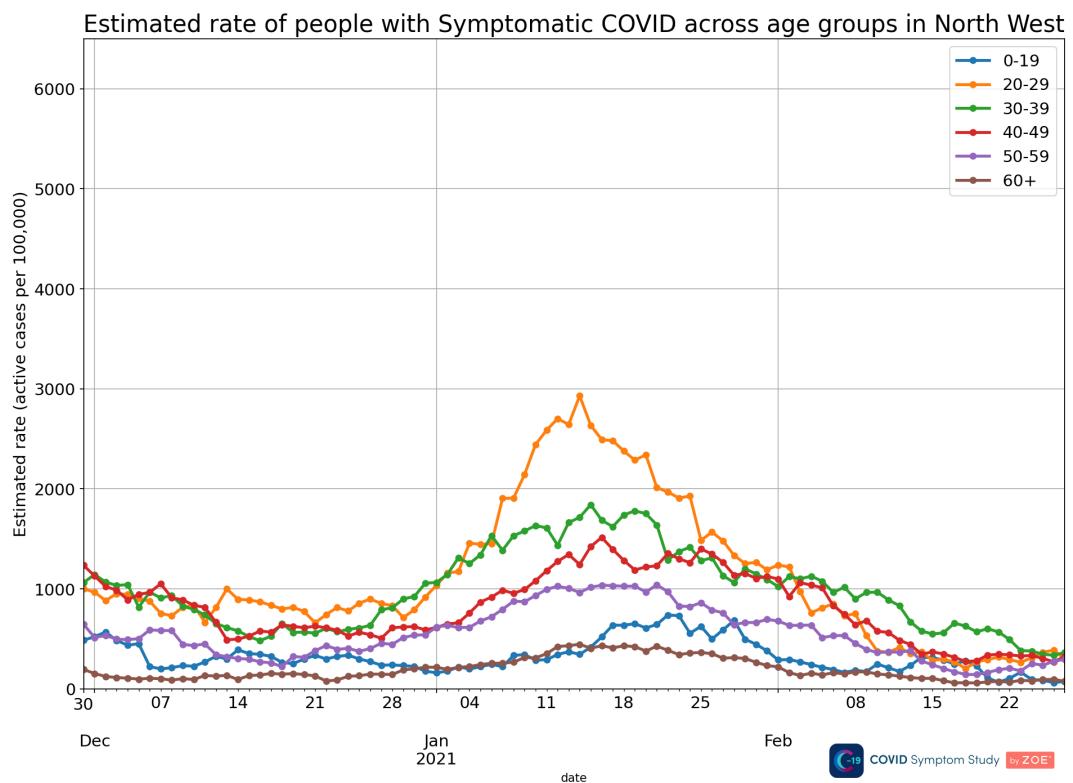
Estimated rate of people with Symptomatic COVID across age groups in different regions



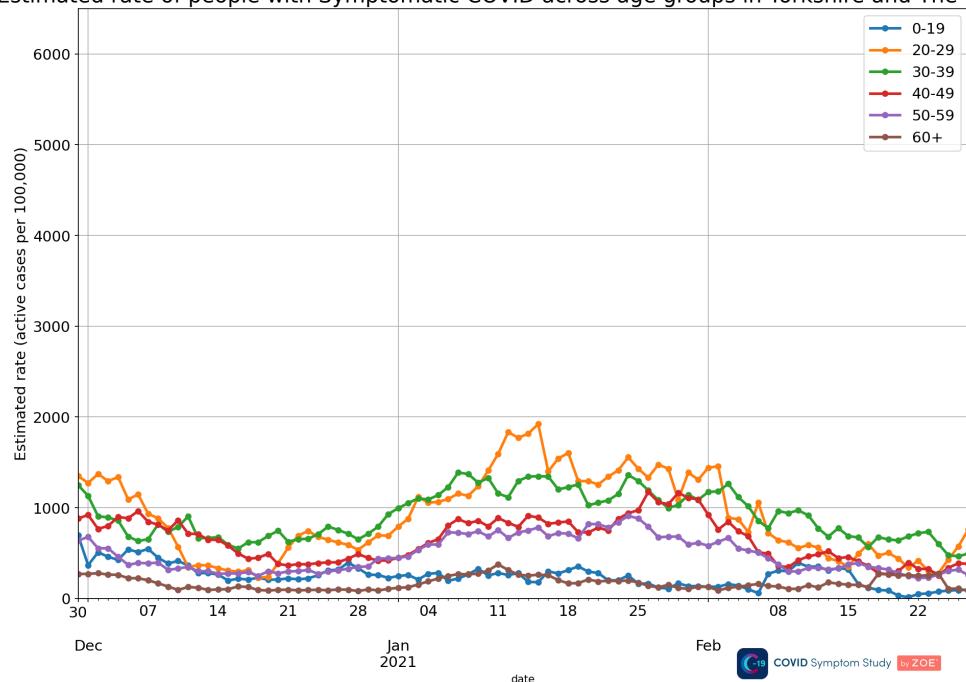








Estimated rate of people with Symptomatic COVID across age groups in Yorkshire and The Humber



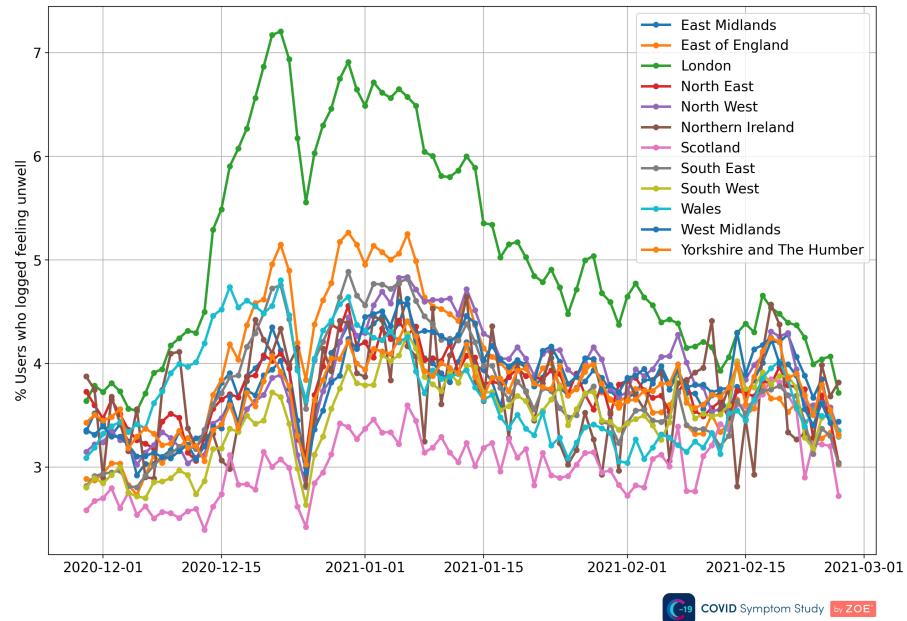
Raw Data (up to 26 February 2021)

This section reports raw data by day, with no temporal averaging or rebalancing/extrapolation to the UK population.

Users who logged feeling unwell in the last 24 hours

	# users who logged feeling well	# users who logged feeling unwell	% users who logged feeling unwell
East Midlands	41515	1416	3.30 %
East of England	77851	2429	3.03 %
London	80440	3107	3.72 %
North East	17899	562	3.04 %
North West	51602	1789	3.35 %
Northern Ireland	3287	124	3.64 %
Scotland	33533	1008	2.92 %
South East	142799	4465	3.03 %
South West	76934	2629	3.30 %
Wales	30475	1058	3.36 %
West Midlands	41917	1494	3.44 %
Yorkshire and The Humber	41862	1437	3.32 %
TOTAL	640114	21518	3.25 %

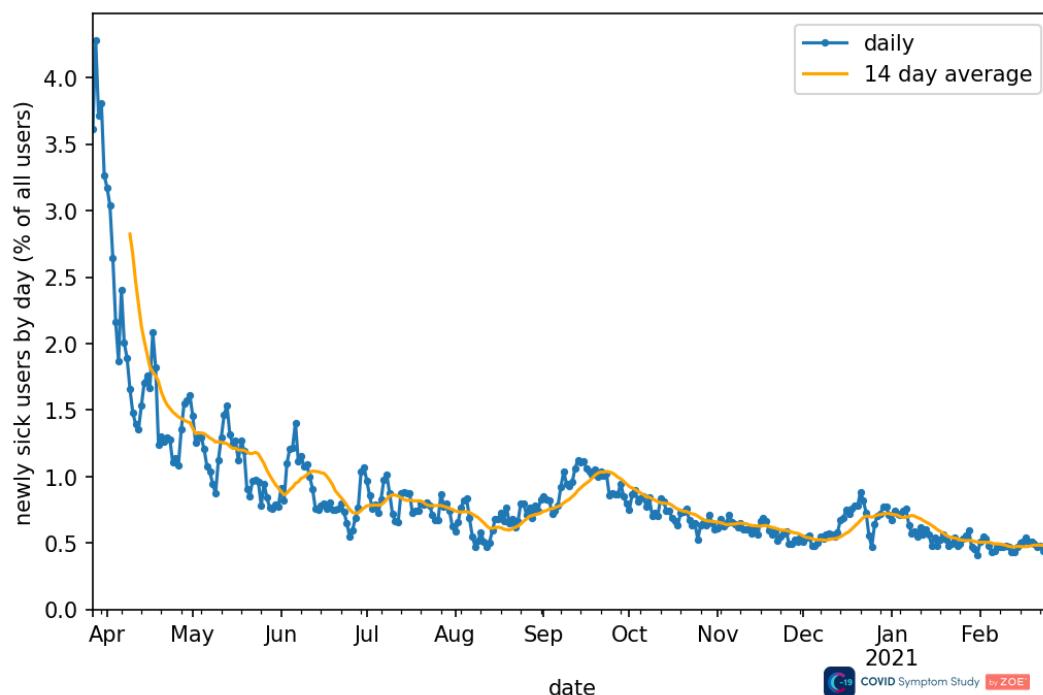
Users who logged feeling unwell by day



Newly Sick Users by Day (% of Active Users)

Active users are those who have been logging regularly in the past 10 days. Newly sick users are active users who haven't reported any symptoms for at least 9 days before reporting one of the following symptoms:

Persistent cough, Shortness of breath, Fever, Fatigue, Skipped meals, Hoarse voice, Sore throat, Delirium, Chest pain, Abdominal pain, Diarrhoea, Headache, Unusual muscle pains, Loss of smell, Chills or shivers, Eye soreness, Nausea, Dizzy light headed, Red welts on face or lips, Blisters on feet or any other symptom that makes them feel unwell



Positive Test Results by Day (% of Invited Test Takers)

