Lineages report for England

This report gives summaries of lineages sampled in England for week 2020-07-03. There are time lags due to batching, curation and analysis, the most recently sampled sequence is 2020-06-27. The analysis (eg time since last sample) is therefore undertaken from this date. 18644 sequences from England have been included in this analysis. 950 lineages have been recorded, 463 of which only contain one sequence.

A few notes: the size of a lineage may be due to a low amount of transmission of this lineage, but it is likely also that it just hasn't been sampled as frequently, especially for newer lineages. It's also important to realise that these lineages are *estimates* of how we think the virus is spreading in the UK after being introduced from abroad, as the low evolutionary rate of the virus makes it difficult to separate lineages with certainty.

The minimum number of introductions is 751 and the maximum is 8279

Sequences which were replicates or too error-prone were removed from this analysis.

891 are lineages which were sampled less than five times in England, and so have been left out of visualisation in the interests of clarity

Furthermore, those sequences which haven't been sampled in the last month are not shown.

Of the 59 that remain: 37 are pending extinction, ie last seen three weeks ago. 15 lineages have gone quiet, ie haven't been seen this week. 3 lineages have reactivated. 4 lineages have been continuously circulating.

The following table contains information about the ten largest lineages lineages and the number of sequences the dataset. Information about other lineages is found in the appendix, along with the raw data for all of the other figures.

Each entry is the count of sequences from each lineage in each country, with the percentage of the total sequences from that lineage that this count represents.

"Activity score" is calculated by taking the average gap between sampling for each lineage, and dividing it by the number of days since the lineage was last sampled. Therefore the higher the number, the more active the lineage is. If the score is above 1, then it has been sampled *more* recently than expected given its average gap size. We might interpret this as an increase in activity. If the score is below 1, it has been sampled *less* recently than expect given its average gap size, so we might interpret this as a decrease in activity.

The global lineages are correct as of the data release on 2020-05-19

It is written to "summary_files" as "lineage_summary.tsv" for further use, and the full list of lineages is available in the same directory as "all_lineages.csv"

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK5	Feb-16, Jun-27	6696	B.1.1.1, B.1.1.4, B.1.1.13, B.1.1.5, B.1.1, B.1.1.3, B.1.1.10, B.1.1.p11, B.1.1.p15, B.1.1.2	0	active today
UK107	Feb-09, Jun-02	1293	B.2.5, B.2, B.2.1, B	25	0.0032
UK42	Feb-24, Jun-21	794	B.1.72, B.1.5, B.1.35, B.1	6	0.0144
UK2913	Mar-07, Jun-16	387	B.1.p11, B.1	11	0.0173
UK5676	Feb-26, May-27	362	B.2	31	0.0051
UK2916	Feb-03, Jun-10	301	B.1	17	0.02
UK2464	Mar-09, Jun-18	298	B.1.p11, B.1	9	0.0202
UK72	Feb-05, Jun-02	265	B.2.2, B	25	0.0139
UK199	Feb-26, Jun-22	260	B.1.5, B.1.5.5, B.1	5	0.0429
UK167	Mar-06, Jun-07	240	B.1.66, B.1	20	0.0146

These data is represented in the figure one. Note that the number of sequences is likely to be due more to differing sampling efforts in different regions, rather than genuine differences in numbers of cases.

The raw data for this bar chart are in the table above.

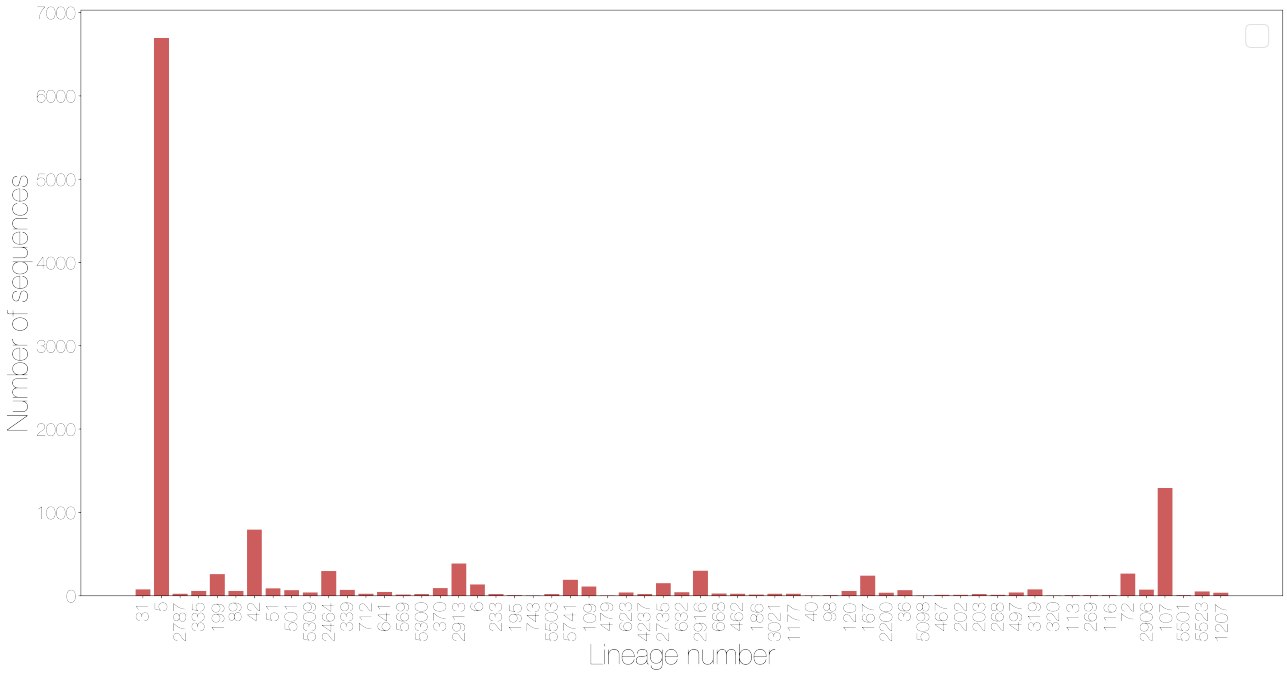

Figure 1: Number of sequences sampled in a lineage by country

Different sequencing centres have different delays in turn around from receipt of samples to submission of sequence data. This will affect all of the figures shown after this if lineages have geographical variation, as some regions have less up to date data.

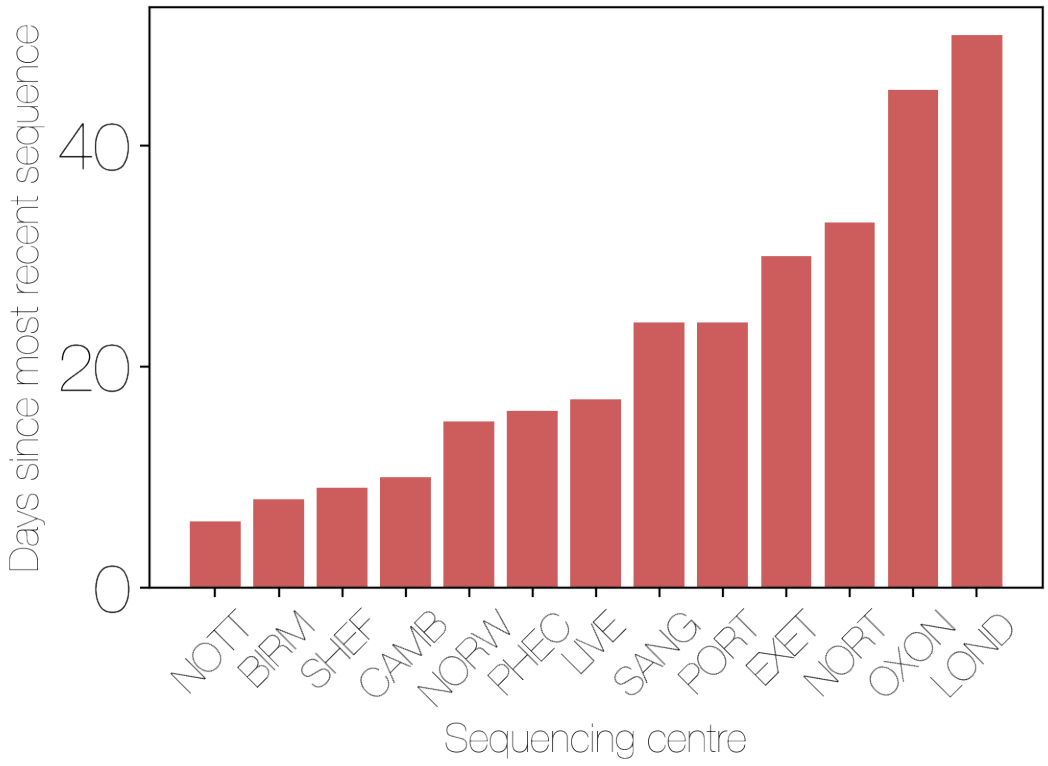

Figure 2: Lag since the most recent sequence from each sequencing centre to most current date

The relative growth and decline of the ten most sampled lineages in terms of number of counties they are present in is shown in figure three.

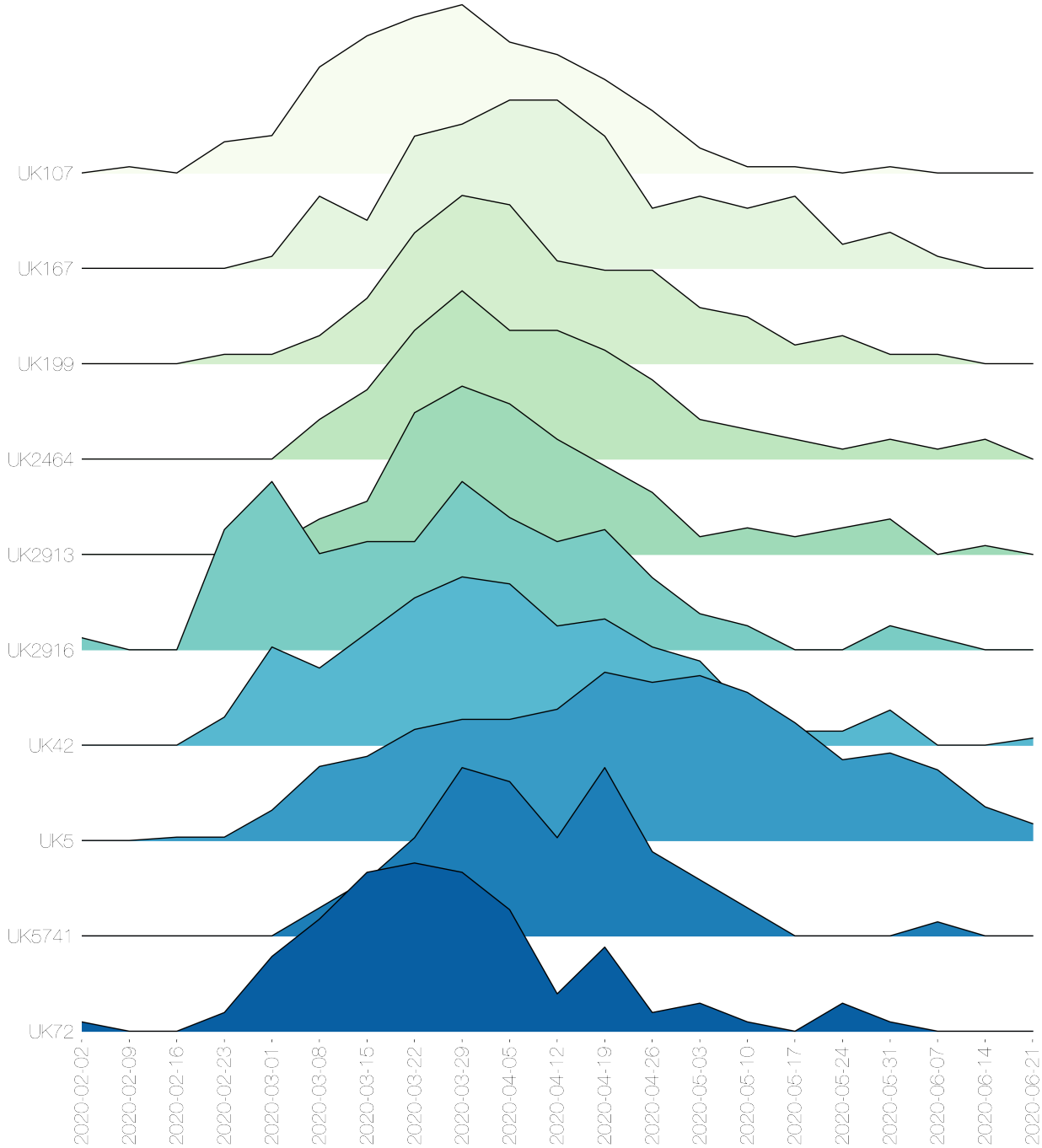

Figure 3: Lineages by number of adm2 regions present by epiweek

These lineages are shown on the timeline. Each line represents the length of the cluster, from oldest to most recent sampling date. The dots are sized by the number of sequences taken on that date, and again are colour coded by country. The raw data has been written to a summary file.

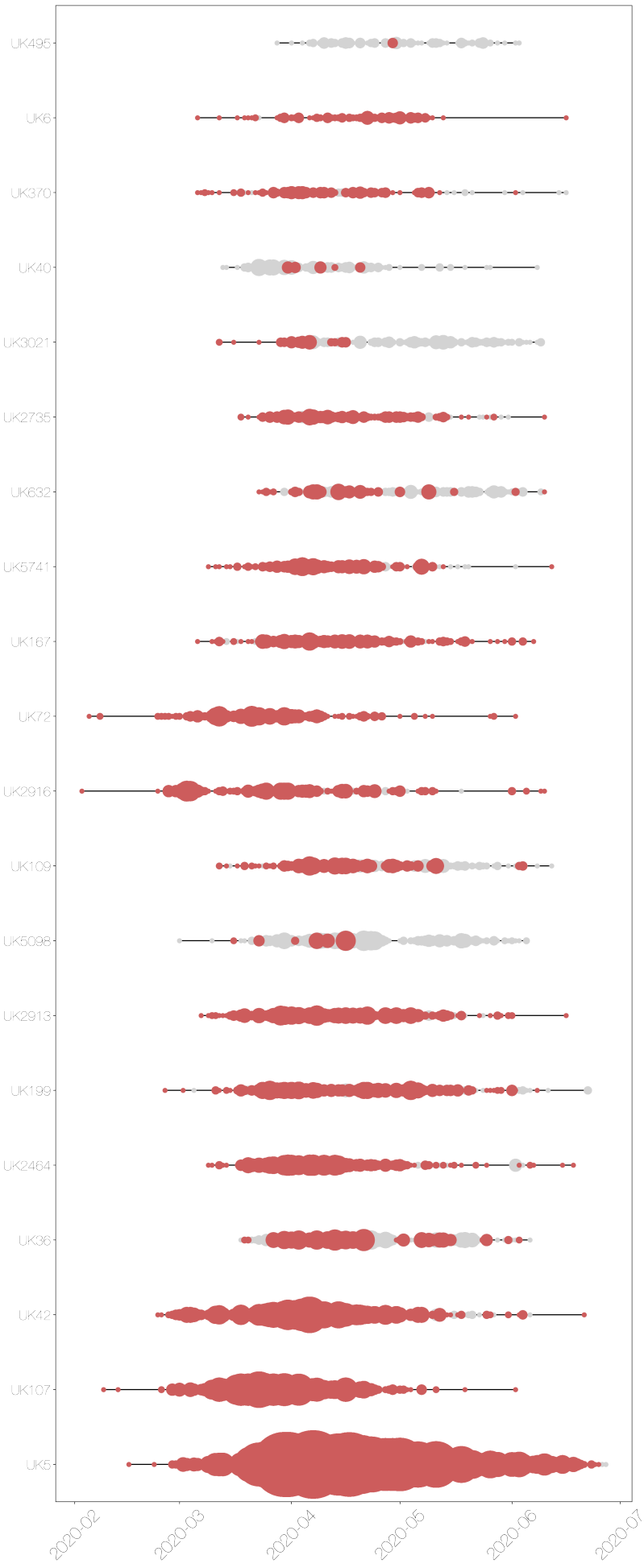

Figure 4: Timeline of lineages, sized by number of sequences from each country.

The date of first sequence in the cluster is shown in figure five for every cluster with date information.

NB the lineage may have started anywhere in the UK, but has been recorded at least once in England

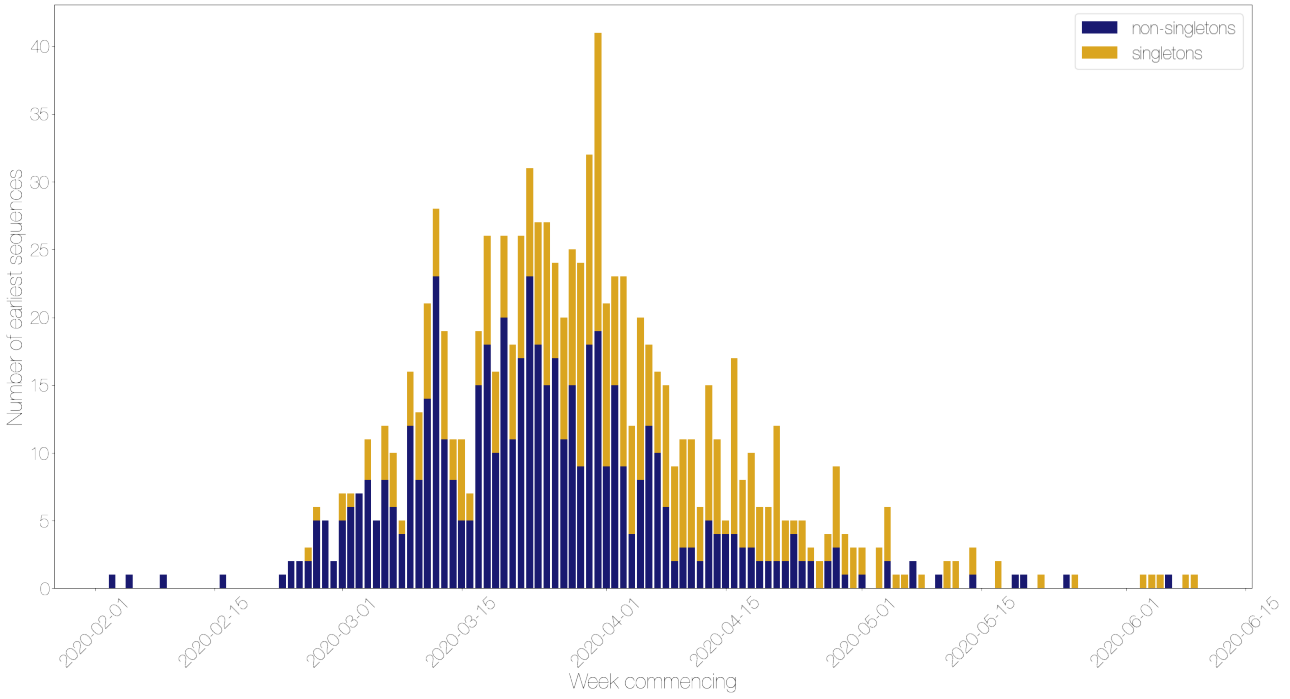

Figure 5: Lineage starts per week, split by singletons and non-singletons

For comparison, here is a plot of the day that every sequence was taken, coloured by country. Note that sequences without dates were not included.

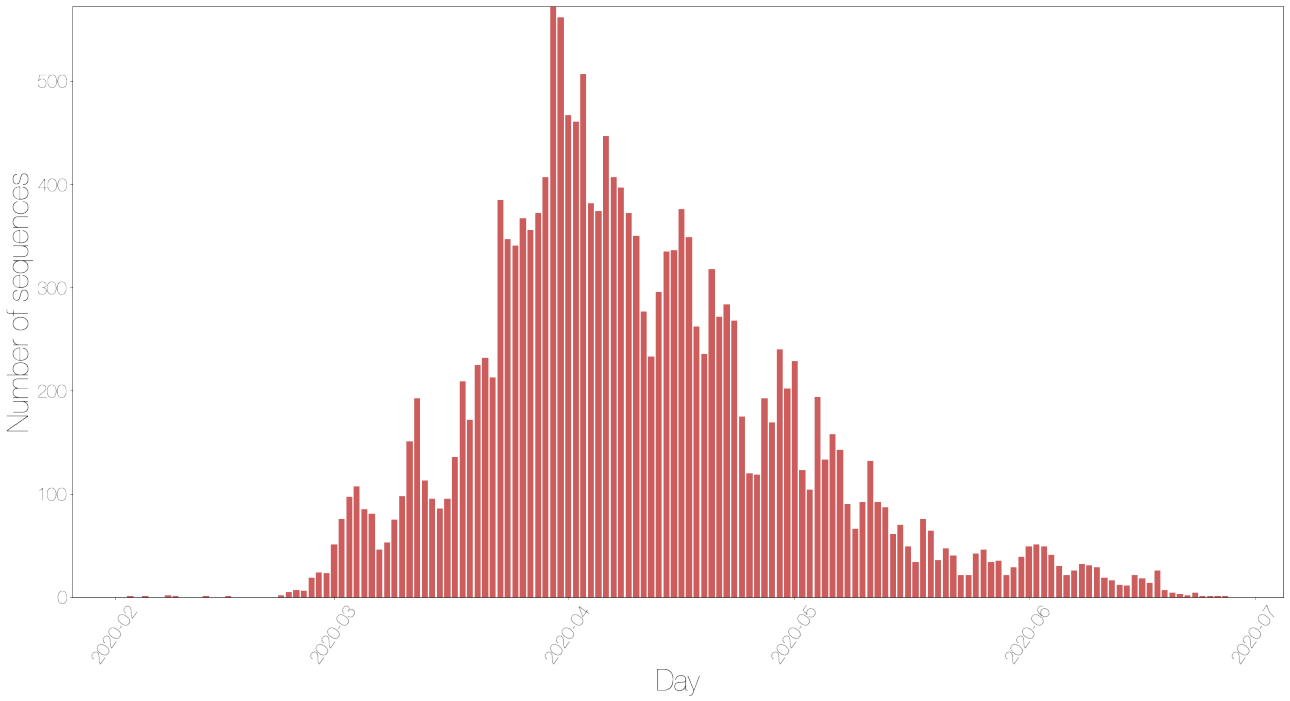

Figure 6: Sequences taken on each day by country

The map shows the number of sequences sampled in each admin2 region in the UK. The colour scale is the same for all four countries, but with different underlying base colours.

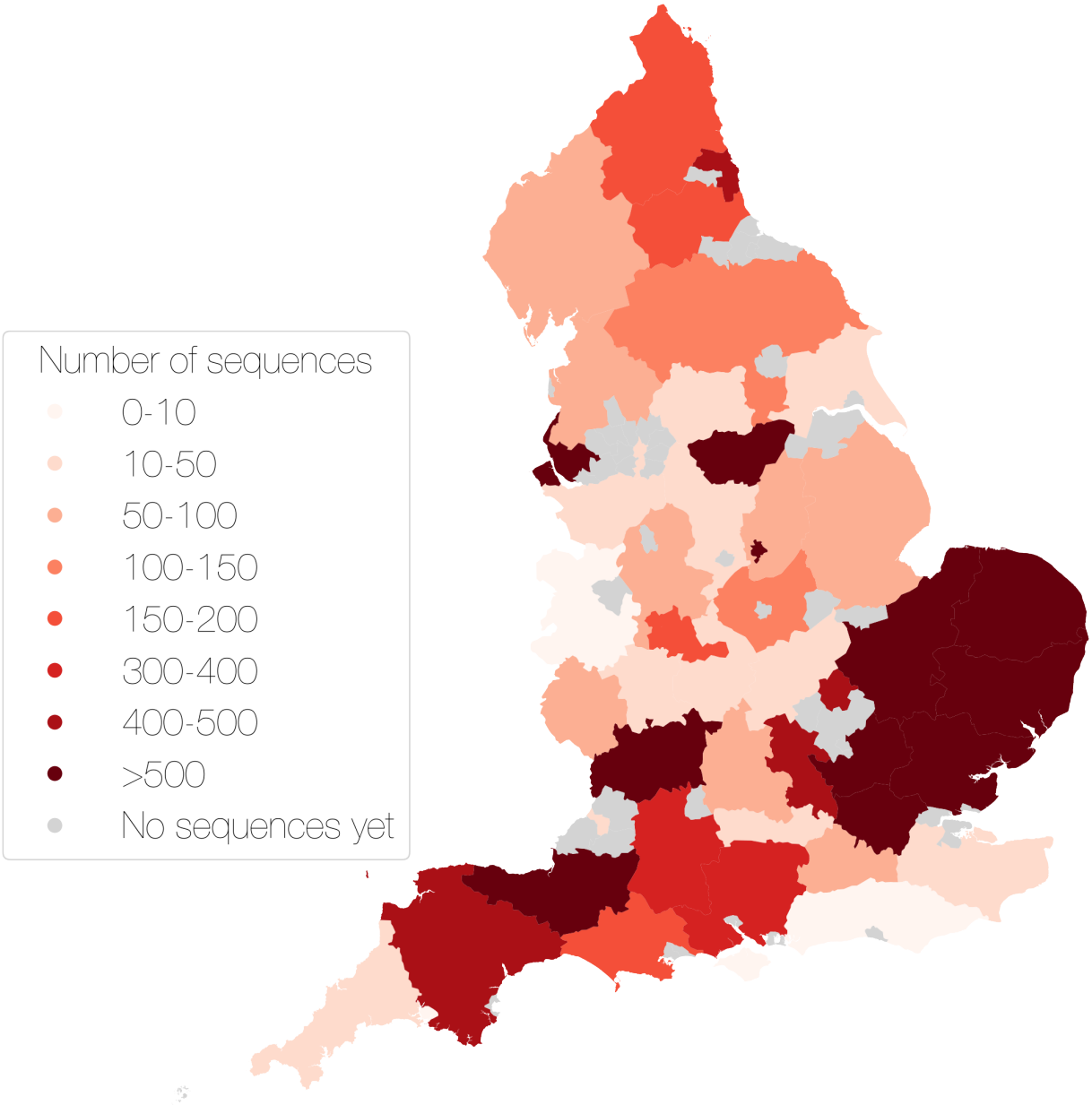

Figure 7: Map showing the number of sequences sampled by adm2 region

There are some sequences with locations that are not matched to real Admin2 regions, some manual curation required.

Other results modules for UK lineage analysis can be added in here if required.

Appendix

Below are the raw data tables for each of the figures in the report.

Table S1 Description of all lineages that have been circulating in the last month, and have more than 5 sequences.

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK5	Feb-16, Jun-27	6696	B.1.1.1, B.1.1.4, B.1.1.13, B.1.1.5, B.1.1, B.1.1.3, B.1.1.10, B.1.1.p11, B.1.1.p15, B.1.1.2	0	active today
UK107	Feb-09, Jun-02	1293	B.2.5, B.2, B.2.1, B	25	0.0032
UK42	Feb-24, Jun-21	794	B.1.72, B.1.5, B.1.35, B.1	6	0.0144
UK2913	Mar-07, Jun-16	387	B.1.p11, B.1	11	0.0173
UK5676	Feb-26, May-27	362	B.2	31	0.0051
UK2916	Feb-03, Jun-10	301	B.1	17	0.02
UK2464	Mar-09, Jun-18	298	B.1.p11, B.1	9	0.0202
UK72	Feb-05, Jun-02	265	B.2.2, B	25	0.0139
UK199	Feb-26, Jun-22	260	B.1.5, B.1.5.5, B.1	5	0.0429
UK167	Mar-06, Jun-07	240	B.1.66, B.1	20	0.0146
UK9	Mar-09, May-15	226	B.1.13	43	0.0069
UK5741	Mar-09, Jun-12	191	B.1	15	0.0215
UK240	Feb-25, May-27	169	B, B.2, B.2.1, B.2.5	31	0.0162
UK5561	Feb-25, May-24	169	B.2, B.2.2	34	0.0132
UK2735	Mar-18, Jun-10	150	B.1.1	17	0.0182
UK15	Feb-27, May-06	141	B.1.1	52	0.007
UK6	Mar-06, Jun-16	135	B.1	11	0.0667
UK63	Mar-18, May-10	128	B.1.1	48	0.0083
UK494	Mar-19, May-05	125	B.1.p11, B.1	53	0.007
UK4	Feb-28, Apr-29	124	B	59	0.008
UK109	Mar-12, Jun-12	111	B.1.5	15	0.0154
UK61	Feb-23, May-27	107	B.3	31	0.0057
UK66	Mar-18, May-20	105	B.1.1.8	38	0.0136
UK28	Mar-13, May-08	99	B.1.1.10	50	0.0114
UK5180	Mar-07, May-09	93	B.1.1.7	49	0.0129

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK370	Mar-06, Jun-16	93	B.1.1.10	11	0.0488
UK51	Mar-25, Jun-20	88	B.1.36	7	0.1368
UK77	Mar-11, May-20	88	B.2	38	0.0202
UK829	Mar-03, Apr-29	84	B.2.5	59	0.0115
UK31	Mar-12, Jun-27	78	B.3	0	active today
UK319	Mar-28, Jun-03	77	B.1	24	0.0367
UK5498	Mar-06, May-28	72	B.2, B	30	0.0307
UK2906	Mar-03, Jun-02	72	B.1	25	0.0473
UK384	Feb-28, Apr-23	70	B.2, B.2.1	65	0.0118
UK339	Mar-09, Jun-18	70	B.3	9	0.1496
UK36	Mar-19, Jun-06	68	B.1	21	0.0063
UK37	Mar-17, May-04	67	B.1.30, B.1	54	0.0131
UK501	Mar-11, Jun-18	66	B.1	9	0.1279
UK13	Mar-13, May-21	64	B.1.1	37	0.0296
UK274	Mar-06, May-19	63	B, B.3	39	0.0292
UK509	Apr-07, May-29	63	B.1.1	29	0.0289
UK607	Mar-02, May-18	58	B	40	0.0279
UK120	Feb-27, Jun-07	58	B.14, B	20	0.0701
UK89	Mar-21, Jun-22	58	B.1.1.9, B.1.1	5	0.2696
UK335	Mar-07, Jun-22	58	B.1.1	5	0.3057
UK476	Mar-14, May-06	56	B.1.1	52	0.0185
UK376	Mar-11, May-03	55	B.1.1.9	55	0.0178
UK371	Mar-12, May-06	54	B.1.1	52	0.0196
UK5523	Apr-16, Jun-01	51	B.1	26	0.0354
UK448	Apr-04, May-26	50	B.1.1	32	0.0325
UK641	Mar-25, Jun-17	47	B.1.1	10	0.1826
UK517	Mar-02, Apr-30	47	B.1.1	58	0.0208
UK276	Mar-15, May-13	46	B.1.1	45	0.0285
UK478	Mar-20, May-19	46	B.1.1	39	0.0342

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK275	Mar-09, Apr-27	44	B.1.13	61	0.0154
UK632	Mar-23, Jun-10	42	B.1.1	17	0.017
UK3126	Apr-06, May-19	41	B.1.1	39	0.0276
UK623	May-10, Jun-11	40	B.1.1	16	0.0513
UK497	Mar-13, Jun-03	39	A.2	24	0.0795
UK12	Mar-12, May-07	39	B.1.p11, B.1	51	0.0282
UK5309	Mar-20, Jun-18	38	B.1.1.10, B.1.1	9	0.25
UK1207	Mar-23, Jun-01	37	B.1.1	26	0.0748
UK2200	Feb-28, Jun-06	37	B.1.5, B.1.5.6	21	0.0441
UK79	Mar-24, May-05	35	B.1	53	0.0233
UK636	Mar-16, May-25	34	B.1.1	33	0.0643
UK131	Mar-11, Apr-14	34	B.15	74	0.0124
UK404	Mar-01, Apr-19	32	B.1	69	0.0229
UK5549	Mar-04, May-18	31	B.2.2	40	0.0536
UK27	Mar-05, May-21	31	B.1.1	37	0.0595
UK18	Mar-11, Apr-14	31	B.1.1.7	74	0.0153
UK64	Mar-12, May-05	31	B.1	53	0.0243
UK241	Mar-22, Apr-16	31	B.1.5.3	72	0.0116
UK23	Mar-18, May-09	30	B.9	49	0.0366
UK119	Mar-11, Apr-24	29	B.2.5	64	0.0191
UK158	Mar-23, Apr-24	29	B.1.1	64	0.0179
UK5649	Mar-15, May-04	29	B.2.6	54	0.0299
UK668	Mar-21, Jun-10	28	B.1	17	0.0419
UK1721	Mar-19, May-08	27	B.1	50	0.037
UK101	Mar-21, Apr-25	26	B.1.5	63	0.0214
UK94	Mar-12, Apr-19	26	B.2, B.2.1	69	0.022
UK173	Mar-14, Apr-20	26	B	68	0.0218
UK615	Mar-15, May-15	26	B.1.1	43	0.0567

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK462	May-01, Jun-09	25	B.1	18	0.1237
UK46	Mar-02, May-08	25	B.2.1	50	0.0515
UK1177	Apr-22, Jun-09	25	B.1.1	18	0.1111
UK617	Mar-29, Apr-28	25	B.1.1	60	0.0208
UK326	Mar-22, May-22	24	B.1.1.10	36	0.0706
UK712	Apr-08, Jun-18	24	B.1.5, B.1	9	0.343
UK684	Apr-11, May-21	24	B.1	37	0.0484
UK605	Mar-20, May-24	24	B.1.1	34	0.0187
UK2045	Mar-17, May-09	23	B.1	49	0.0492
UK3021	Mar-12, Jun-09	23	B.1	18	0.02
UK601	Mar-13, May-11	23	B.10	47	0.0134
UK2787	Apr-07, Jun-26	23	B.1.1	1	3.6364
UK4237	Mar-28, Jun-10	22	B.1.1	17	0.2073
UK5300	Apr-17, Jun-16	22	B.1.1	11	0.2479
UK5503	Mar-20, Jun-12	21	B.1	15	0.28
UK24	Mar-14, Apr-10	21	B.2.1	78	0.0173
UK329	Mar-17, Apr-26	21	B.1.34, B.1	62	0.0323
UK174	Mar-19, May-22	21	B.1.5	36	0.0889
UK161	Mar-10, May-25	21	B.1.1	33	0.096
UK233	May-25, Jun-15	21	B.1	12	0.0875
UK47	Mar-17, May-18	20	B.1.1	40	0.0646
UK203	Mar-22, Jun-03	20	B.1.1	24	0.1521
UK1703	Mar-16, May-01	20	B.1	57	0.0425
UK125	Apr-03, May-29	19	B.1.1	29	0.1089
UK146	Mar-24, May-07	18	B.1.1	51	0.0479
UK179	Mar-26, May-07	17	B.1.1, B.1.1.p11	51	0.0278
UK71	Mar-08, May-06	16	B	52	0.0709
UK5660	Apr-25, May-08	16	B.1.1	50	0.0173

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK70	Mar-06, Apr-22	16	B.2	66	0.0396
UK134	Mar-04, Apr-07	16	B.1	81	0.0221
UK569	Mar-23, Jun-16	16	B.1.1	11	0.5152
UK186	Apr-08, Jun-09	15	B	18	0.2741
UK153	Mar-13, Apr-14	15	B.2, B.3	74	0.0309
UK3692	Mar-27, May-19	15	B.1.1	39	0.0969
UK604	Mar-09, Mar-17	15	B.1.1	102	0.0057
UK38	Mar-04, Apr-20	14	B.2.1	68	0.0494
UK565	Apr-14, May-14	14	B.1.1	44	0.0524
UK32	Mar-29, May-03	14	B.1.1	55	0.049
UK832	Mar-09, May-10	14	A.5	48	0.0923
UK328	Apr-13, Apr-23	13	B.1	65	0.0128
UK268	Mar-23, Jun-03	13	B.1.1	24	0.1875
UK5663	Mar-23, May-02	13	B.2	56	0.0595
UK141	Mar-22, Apr-24	13	B.1.1	64	0.043
UK83	Feb-29, Apr-13	13	B.1.1	75	0.0391
UK5715	Feb-29, Apr-22	13	B.2	66	0.0618
UK602	Mar-20, Apr-02	13	B.1.1	86	0.0126
UK34	Feb-27, Apr-02	13	B.4	86	0.0339
UK165	Apr-13, May-19	13	B	39	0.0769
UK49	Mar-12, May-01	12	B.9	57	0.0675
UK132	Mar-27, Apr-30	12	B.1	58	0.0489
UK291	Mar-29, May-14	12	B.1.5	44	0.095
UK507	Mar-18, Apr-30	12	B.1.1.10	58	0.0674
UK22	Mar-02, Apr-21	11	B	67	0.0746
UK566	Apr-02, Apr-21	11	B.1.1.10, B.1.1	67	0.0258
UK2888	Apr-09, May-14	11	B.1.1	44	0.0795
UK653	Apr-07, May-19	11	B.1.1	39	0.1077
UK193	Mar-30, May-01	11	B.1.1	57	0.051

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK287	Mar-28, Apr-24	11	B.1	64	0.0384
UK266	Apr-06, Apr-30	11	B.1	58	0.0414
UK215	Mar-16, Apr-11	11	B.2	77	0.0338
UK467	Mar-23, Jun-05	11	B.1.1	22	0.3364
UK759	Mar-28, Apr-04	11	B.1.1	84	0.0083
UK178	Mar-14, Apr-13	11	B.1.1	75	0.04
UK317	Mar-13, Apr-20	11	B.3	68	0.0224
UK415	Apr-19, May-06	11	B.1	52	0.0327
UK527	Mar-22, Apr-18	10	B.1	70	0.0297
UK5307	Mar-10, May-12	10	B.1.1	46	0.1178
UK5525	Mar-31, Apr-29	10	B.1	59	0.0546
UK340	Mar-17, May-17	10	B.1.1	41	0.1488
UK202	Mar-10, Jun-04	10	B.1.1	23	0.1558
UK5084	Mar-28, Apr-16	10	B.1	72	0.024
UK788	Feb-28, Mar-05	10	B.4	114	0.0058
UK819	Apr-01, May-15	9	B.1	43	0.1279
UK575	Mar-14, Apr-16	9	B.2.1	72	0.0573
UK284	Apr-02, Apr-25	9	B.1.1	63	0.0456
UK454	Mar-22, Apr-29	9	B.1.1	59	0.0805
UK491	Mar-03, Apr-03	9	B.2, B	85	0.0456
UK86	Mar-05, May-30	9	B.1	28	0.0439
UK5501	Apr-16, Jun-01	9	B.1.12	26	0.2212
UK756	Feb-27, Mar-05	9	B.1.1	114	0.0077
UK563	Mar-11, May-01	9	B.1.1	57	0.1118
UK5653	Mar-10, Apr-01	9	B.2.6	87	0.0281
UK263	Mar-20, Apr-13	9	B.1.p11	75	0.04
UK116	Mar-24, Jun-02	9	B.1	25	0.1167
UK113	Mar-22, Jun-02	9	B.1.1	25	0.36
UK629	Mar-23, May-05	9	B.1	53	0.1014

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK584	Mar-21, Apr-02	9	B.2, B.2.1	86	0.0207
UK3509	Mar-23, Apr-21	9	B.1.1.10	67	0.0333
UK121	Apr-21, May-27	9	B.1.1.7	31	0.1452
UK1810	Mar-21, Apr-20	8	B.1.5, B.1	68	0.0551
UK5308	Apr-29, May-01	8	B.1.1	57	0.005
UK698	Mar-23, Apr-12	8	B.1	76	0.0329
UK739	Mar-01, Mar-08	8	B.4	111	0.009
UK342	Apr-02, Apr-22	8	B.1.1	66	0.0433
UK65	Mar-07, Apr-21	8	B.1.1	67	0.084
UK4658	Mar-13, Apr-10	8	B.2.1	78	0.0513
UK570	Mar-24, Apr-29	8	B.1.1	59	0.0872
UK91	Mar-01, Apr-01	8	B.1	87	0.0445
UK244	Mar-10, Apr-06	8	B.1.1	82	0.0412
UK755	Mar-06, May-21	8	B.1.1	37	0.2934
UK767	Apr-05, Apr-19	7	B.1	69	0.0338
UK490	Apr-03, May-02	7	B.1.1	56	0.0863
UK195	May-19, Jun-15	7	B.1	12	0.3214
UK390	Mar-27, May-01	7	B.1.5	57	0.1023
UK799	Mar-01, Mar-07	7	B.1	112	0.0089
UK232	Mar-04, Mar-30	7	B.1.1	89	0.0487
UK54	Mar-11, Apr-02	7	B.2.4	86	0.0426
UK520	Mar-14, Apr-08	7	B.2.1	80	0.0521
UK269	Mar-25, Jun-02	7	B.1.1	25	0.46
UK1003	Apr-02, Apr-22	7	B.1.1	66	0.0505
UK728	Mar-19, Apr-01	7	B.2, B.2.1	87	0.0249
UK369	Mar-22, Apr-11	7	B.1.1	77	0.0371
UK98	Mar-24, Jun-08	7	B.6	19	0.6667
UK598	Mar-22, Apr-14	7	B.1.1	74	0.0444

Lineage name	Date range	Number of sequences	Global lineage	Time since last sample (days)	Activity score
UK60	Mar-21, Mar-30	6	B	89	0.0202
UK55	Mar-13, May-06	6	B.1.1	52	0.1154
UK654	Feb-27, Mar-08	6	B.2.5	111	0.018
UK293	Mar-13, Apr-16	6	B.3	72	0.0944
UK40	Mar-31, Jun-08	6	B.16	19	0.0206
UK75	Mar-28, Apr-12	6	B	76	0.0329
UK403	Mar-23, Apr-14	6	B.1.1	74	0.0595
UK270	Mar-04, Apr-03	6	B	85	0.0588
UK456	Apr-03, Apr-23	6	B.1.1	65	0.0615
UK479	Apr-05, Jun-12	6	B.1.1	15	0.1374
UK5098	Mar-16, Jun-05	6	B.1.p73, B.1.8, B.1	22	0.0099
UK5648	Mar-08, Apr-02	6	B.2	86	0.0581
UK777	Apr-01, Apr-14	6	B.1	74	0.0351
UK521	Mar-31, May-01	6	B.1.1	57	0.1088
UK1867	Mar-18, Apr-30	6	B.1.1	58	0.1483
UK957	Mar-24, May-26	6	B.1.1	32	0.3281
UK320	Apr-11, Jun-02	6	B.1	25	0.24
UK196	Mar-15, Mar-31	6	B.2.1	88	0.0364
UK58	Mar-13, Apr-24	6	B.1	64	0.0305
UK743	Feb-24, Jun-14	6	B.1.5.1	13	1.7077

Table S2 Raw data for figure two showing lags between the most recent sequence and current date for each sequencing centre

	Centre	Lag in days
0	NOTT	6
1	BIRM	8
2	SHEF	9
3	CAMB	10
4	NORW	15
5	PHEC	16
6	LIVE	17
7	SANG	24
8	PORT	24
9	EXET	30
10	NORT	33
11	OXON	45
12	LOND	50

Table S3 Raw data for figure three showing the number of admin2 regions a lineage is present in over time

Week commencing	UK5	UK107	UK42	UK2913	UK2916	UK2464	UK72	UK199	UK167	UK5741
2020-02-02	0	0	0	0	1	0	1	0	0	0
2020-02-09	0	1	0	0	0	0	0	0	0	0
2020-02-16	1	0	0	0	0	0	0	0	0	0
2020-02-23	1	5	4	0	10	0	2	1	0	0
2020-03-01	9	6	14	1	14	0	8	1	1	0
2020-03-08	22	17	11	4	8	4	12	3	6	2
2020-03-15	25	22	16	6	9	7	17	7	4	4
2020-03-22	33	25	21	16	9	13	18	14	11	7
2020-03-29	36	27	24	19	14	17	17	18	12	12
2020-04-05	36	21	23	17	11	13	13	17	14	11
2020-04-12	39	19	17	13	9	13	4	11	14	7
2020-04-19	50	15	18	10	10	11	9	10	11	12
2020-04-26	47	10	14	7	6	8	2	10	5	6
2020-05-03	49	4	12	2	3	4	3	6	6	4
2020-05-10	44	1	5	3	2	3	1	5	5	2
2020-05-17	35	1	2	2	0	2	0	2	6	0
2020-05-24	24	0	2	3	0	1	3	3	2	0
2020-05-31	26	1	5	4	2	2	1	1	3	0
2020-06-07	21	0	0	0	1	1	0	1	1	1
2020-06-14	10	0	0	1	0	2	0	0	0	0
2020-06-21	5	0	1	0	0	0	0	0	0	0

Table S4 is not appropriate for this report and so has been omitted.

Table S5 Raw data for figure five showing when lineages started per day, divided by singletons and non-singletons

Day	Number of singleton starts	Number of non-singleton starts	Total
2020-02-03	0	1	1
2020-02-05	0	1	1
2020-02-09	0	1	1
2020-02-16	0	1	1
2020-02-23	0	1	1
2020-02-24	0	2	2
2020-02-25	0	2	2
2020-02-26	1	2	3
2020-02-27	1	5	6
2020-02-28	0	5	5
2020-02-29	0	2	2
2020-03-01	2	5	7
2020-03-02	1	6	7
2020-03-03	0	7	7
2020-03-04	3	8	11
2020-03-05	0	5	5
2020-03-06	4	8	12
2020-03-07	4	6	10
2020-03-08	1	4	5
2020-03-09	4	12	16
2020-03-10	5	8	13
2020-03-11	7	14	21
2020-03-12	5	23	28
2020-03-13	8	11	19
2020-03-14	3	8	11
2020-03-15	6	5	11
2020-03-16	2	5	7
2020-03-17	4	15	19
2020-03-18	8	18	26
2020-03-19	6	10	16
2020-03-20	6	20	26
2020-03-21	7	11	18
2020-03-22	9	17	26
2020-03-23	8	23	31
2020-03-24	9	18	27
2020-03-25	12	15	27
2020-03-26	7	17	24
2020-03-27	9	11	20
2020-03-28	10	15	25
2020-03-29	15	9	24
2020-03-30	14	18	32
2020-03-31	22	19	41
2020-04-01	12	9	21
2020-04-02	8	15	23
2020-04-03	14	9	23
2020-04-04	8	4	12
2020-04-05	12	8	20
2020-04-06	6	12	18
2020-04-07	6	10	16
2020-04-08	9	6	15
2020-04-09	7	2	9
2020-04-10	8	3	11
2020-04-11	8	3	11
2020-04-12	4	2	6
2020-04-13	10	5	15
2020-04-14	7	4	11
2020-04-15	1	4	5

Day	Number of singleton starts	Number of non-singleton starts	Total
2020-04-16	13	4	17
2020-04-17	5	3	8
2020-04-18	7	3	10
2020-04-19	4	2	6
2020-04-20	4	2	6
2020-04-21	10	2	12
2020-04-22	3	2	5
2020-04-23	1	4	5
2020-04-24	3	2	5
2020-04-25	1	2	3
2020-04-26	2	0	2
2020-04-27	2	2	4
2020-04-28	6	3	9
2020-04-29	3	1	4
2020-04-30	3	0	3
2020-05-01	2	1	3
2020-05-03	3	0	3
2020-05-04	4	2	6
2020-05-05	1	0	1
2020-05-06	1	0	1
2020-05-07	0	2	2
2020-05-08	1	0	1
2020-05-10	0	1	1
2020-05-11	2	0	2
2020-05-12	2	0	2
2020-05-14	2	1	3
2020-05-17	2	0	2
2020-05-19	0	1	1
2020-05-20	0	1	1
2020-05-22	1	0	1
2020-05-25	0	1	1
2020-05-26	1	0	1
2020-06-03	1	0	1
2020-06-04	1	0	1
2020-06-05	1	0	1
2020-06-06	0	1	1
2020-06-08	1	0	1
2020-06-09	1	0	1

Table S6 Raw data for figure six showing the number of sequences taken over time.

Day	England
2020-02-03	1
2020-02-05	1
2020-02-08	2
2020-02-09	1
2020-02-13	1
2020-02-16	1
2020-02-23	2
2020-02-24	5
2020-02-25	7
2020-02-26	6
2020-02-27	19
2020-02-28	24
2020-02-29	23
2020-03-01	51
2020-03-02	76
2020-03-03	97
2020-03-04	107
2020-03-05	85
2020-03-06	81
2020-03-07	46
2020-03-08	53
2020-03-09	75
2020-03-10	98
2020-03-11	151
2020-03-12	193
2020-03-13	113
2020-03-14	95
2020-03-15	86
2020-03-16	95
2020-03-17	136
2020-03-18	209
2020-03-19	172
2020-03-20	225
2020-03-21	232
2020-03-22	213
2020-03-23	385
2020-03-24	347
2020-03-25	341
2020-03-26	367
2020-03-27	356
2020-03-28	372
2020-03-29	407
2020-03-30	573
2020-03-31	562
2020-04-01	467
2020-04-02	461
2020-04-03	507
2020-04-04	382
2020-04-05	374
2020-04-06	447
2020-04-07	407
2020-04-08	397
2020-04-09	372
2020-04-10	350
2020-04-11	277
2020-04-12	233
2020-04-13	296

Day	England
2020-04-14	335
2020-04-15	336
2020-04-16	376
2020-04-17	349
2020-04-18	262
2020-04-19	236
2020-04-20	318
2020-04-21	272
2020-04-22	284
2020-04-23	268
2020-04-24	175
2020-04-25	120
2020-04-26	119
2020-04-27	193
2020-04-28	169
2020-04-29	240
2020-04-30	202
2020-05-01	229
2020-05-02	123
2020-05-03	104
2020-05-04	194
2020-05-05	133
2020-05-06	158
2020-05-07	143
2020-05-08	90
2020-05-09	66
2020-05-10	92
2020-05-11	132
2020-05-12	92
2020-05-13	87
2020-05-14	61
2020-05-15	70
2020-05-16	49
2020-05-17	34
2020-05-18	76
2020-05-19	64
2020-05-20	36
2020-05-21	47
2020-05-22	40
2020-05-23	21
2020-05-24	21
2020-05-25	42
2020-05-26	46
2020-05-27	34
2020-05-28	35
2020-05-29	21
2020-05-30	29
2020-05-31	39
2020-06-01	49
2020-06-02	51
2020-06-03	49
2020-06-04	41
2020-06-05	30
2020-06-06	21
2020-06-07	26
2020-06-08	32
2020-06-09	31
2020-06-10	29
2020-06-11	19

Day	England
2020-06-12	16
2020-06-13	12
2020-06-14	11
2020-06-15	21
2020-06-16	18
2020-06-17	14
2020-06-18	26
2020-06-19	7
2020-06-20	4
2020-06-21	3
2020-06-22	2
2020-06-23	4
2020-06-24	1
2020-06-25	1
2020-06-26	1
2020-06-27	1

Table S7 Raw data for the figure seven with the number of sequences assigned to each admin2 region.

Admin2	Country	Number of sequences	Sequence group
BATH AND NORTH EAST SOMERSET	England	0	0
BEDFORDSHIRE	England	452	400-500
BERKSHIRE	England	21	10-50
BLACKBURN WITH DARWEN	England	0	0
BLACKPOOL	England	0	0
BOLTON	England	0	0
BOURNEMOUTH	England	0	0
BRIGHTON AND HOVE	England	0	0
BRISTOL	England	18	10-50
BUCKINGHAMSHIRE	England	413	400-500
BURY	England	0	0
CAMBRIDGESHIRE	England	727	>500
CENTRAL BEDFORDSHIRE	England	0	0
CHESHIRE	England	44	10-50
CORNWALL	England	27	10-50
CUMBRIA	England	78	50-100
DARLINGTON	England	0	0
DERBY	England	0	0
DERBYSHIRE	England	30	10-50
DEVON	England	421	400-500
DORSET	England	192	150-200
DURHAM	England	161	150-200
EAST RIDING OF YORKSHIRE	England	35	10-50
ESSEX	England	1432	>500
GATESHEAD	England	0	0
GLOUCESTERSHIRE	England	708	>500
GREATER LONDON	England	2654	>500
HALTON	England	0	0
HAMPSHIRE	England	347	300-400
HARTLEPOOL	England	0	0
HEREFORDSHIRE	England	59	50-100
HERTFORDSHIRE	England	1031	>500
ISLE OF WIGHT	England	1	1-10
ISLES OF SCILLY	England	0	0
KENT	England	38	10-50
KINGSTON UPON HULL	England	0	0
LANCASHIRE	England	53	50-100
LEICESTER	England	0	0
LEICESTERSHIRE	England	109	100-150
LINCOLNSHIRE	England	73	50-100
LUTON	England	0	0
MANCHESTER	England	30	10-50
MEDWAY	England	0	0
MERSEYSIDE	England	549	>500
MIDDLESBROUGH	England	0	0
MILTON KEYNES	England	0	0
NORFOLK	England	626	>500
NORTH LINCOLNSHIRE	England	0	0
NORTH SOMERSET	England	0	0
NORTH YORKSHIRE	England	123	100-150
NORTHAMPTONSHIRE	England	28	10-50
NORTHUMBERLAND	England	172	150-200
NOTTINGHAM	England	685	>500
NOTTINGHAMSHIRE	England	59	50-100
OLDHAM	England	0	0
OXFORDSHIRE	England	98	50-100
PETERBOROUGH	England	0	0

Admin2	Country	Number of sequences	Sequence group
PLYMOUTH	England	1	1-10
POOLE	England	0	0
PORTSMOUTH	England	0	0
REDCAR AND CLEVELAND	England	0	0
ROCHDALE	England	0	0
RUTLAND	England	0	0
SALFORD	England	0	0
SHROPSHIRE	England	6	1-10
SOMERSET	England	652	>500
SOUTH GLOUCESTERSHIRE	England	0	0
SOUTH YORKSHIRE	England	1594	>500
SOUTHAMPTON	England	0	0
SOUTHEND-ON-SEA	England	0	0
STAFFORDSHIRE	England	62	50-100
STOCKPORT	England	0	0
STOCKTON-ON-TEES	England	0	0
STOKE-ON-TRENT	England	0	0
SUFFOLK	England	596	>500
SURREY	England	73	50-100
SUSSEX	England	1	1-10
SWINDON	England	0	0
TAMESIDE	England	0	0
TELFORD AND WREKIN	England	0	0
THURROCK	England	0	0
TORBAY	England	0	0
TRAFFORD	England	0	0
TYNE AND WEAR	England	496	400-500
WARRINGTON	England	0	0
WARWICKSHIRE	England	11	10-50
WEST MIDLANDS	England	167	150-200
WEST YORKSHIRE	England	22	10-50
WIGAN	England	0	0
WILTSHIRE	England	386	300-400
WORCESTERSHIRE	England	13	10-50
YORK	England	0	0