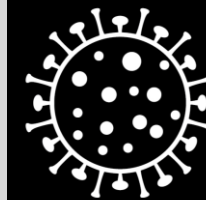


IEMAG briefing

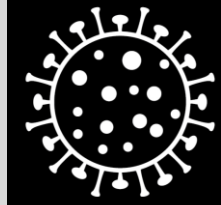
28 January 2021



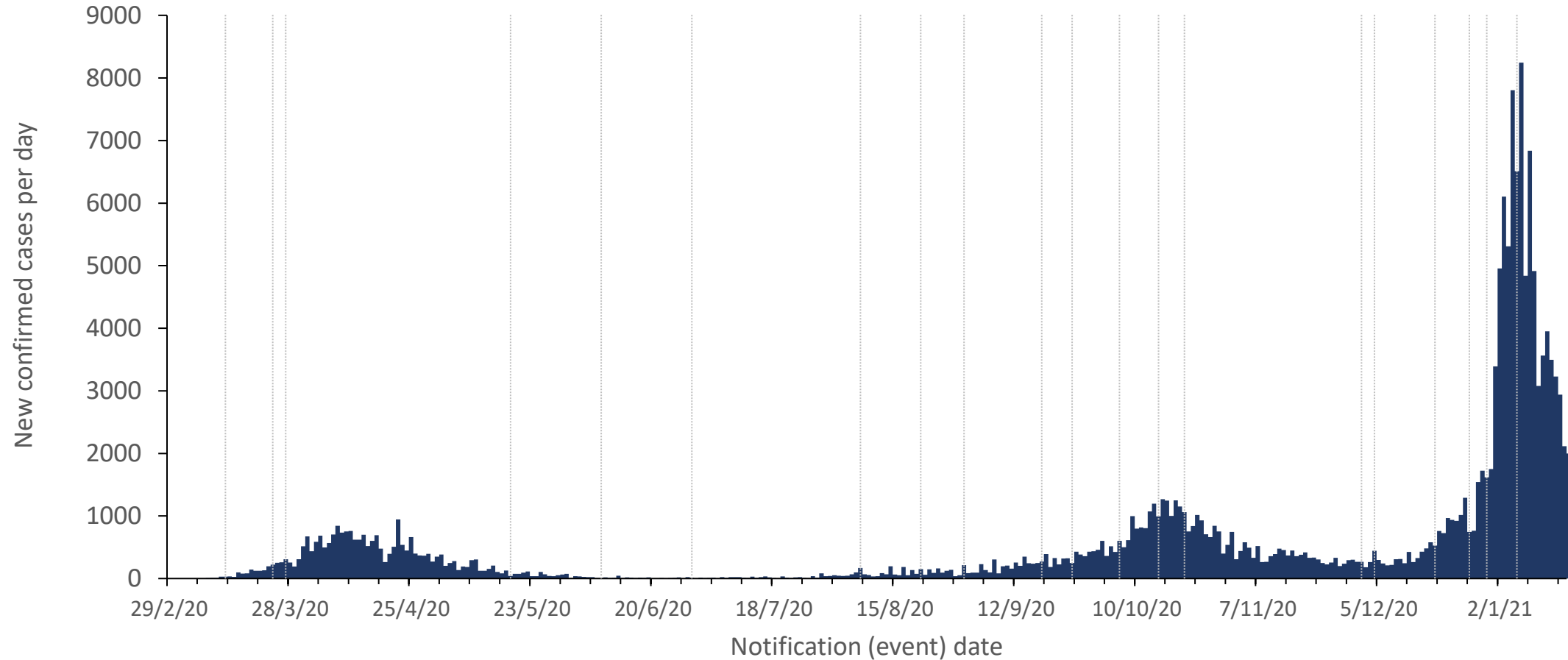
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Confirmed cases each day

Daily case count since the beginning of the epidemic



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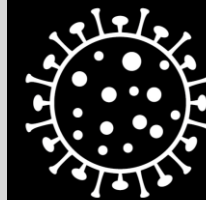
Daily count of the number of laboratory confirmed new cases by date on which they were notified to HPSC. Tests outsourced to German laboratory in April backdated, using the specimen collection date, to the date they would have been confirmed if tested in a timely manner. The vertical dashed lines indicate the dates of escalation and de-escalation of public health restrictions



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Cases, numbers in hospital and intensive care

Case numbers remain very high. The number of people in hospital and ICU, and the number of admissions per day, increased very quickly to unprecedented levels. The numbers in hospital are decreasing, and the numbers in ICU have plateaued. The number of deaths per day remains high.



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	16 Apr	29 Jul	21 Oct	16 Dec	23 Dec	31 Dec	6 Jan	13 Jan	20 Jan	27 Jan	Daily count 28 Jan
Cases confirmed per day	547	18	1160	330	711	1243	4420	5436	2891	1699	1466
14-day incidence <i>per 100,000 population</i>	157	5.6	288	88	153	297	818	1449	1223	674	622
Hospital in-patients	858	11	279	198	222	365	676	1414	1901	1889	1620
<i>Hospital admissions per day</i>	56	2	23	14	22	43	94	146	132	89	89
ICU confirmed cases	147	5	32	33	29	31	63	133	194	217	216
<i>ICU admissions per day</i>	8	< 1	3	1	2	5	11	20	19	15	16
Deaths confirmed per day	32	< 1	5	5	6	7	11	23	44	50	47

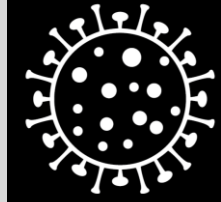
Data are 7-day averages (the indicated day and the preceding 6 days, rounded to the nearest whole number) with the exception of 14 day cumulative incidence, which is the total number of cases in the preceding 14 days per 100,000 population. NPHE monitors 5-day moving average and 14-day cumulative incidence on a day-by-day basis, as indicators of rate of change of incidence and overall burden of infection. 7-day averages are used here to limit day-of-week effects. The historic incidence data may change due to denotification of cases.



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Testing

The demand for tests remains very high; positivity rate has fallen significantly



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7-day average	15 Apr	23 Jun	28 Jul	20 Oct	15 Dec	22 Dec	29 Dec	5 Jan	12 Jan	19 Jan	26 Jan
Tests done per day	5579	2607	6494	16030	11870	14483	14814	24562	23858	21787	20290
% tests positive	18%	0.5%	0.4%	7.1%	2.8%	5.1%	10.9%	21.9%	17.5%	11.7%	8.4%

Data are 7-day averages (the indicated day and the preceding 6 days). The aggregate positivity rate should be interpreted with caution, as it includes community referrals, close contacts, mass and serial testing, and hospital testing, and changes in numbers of tests done in these different settings will alter the overall positivity rate.



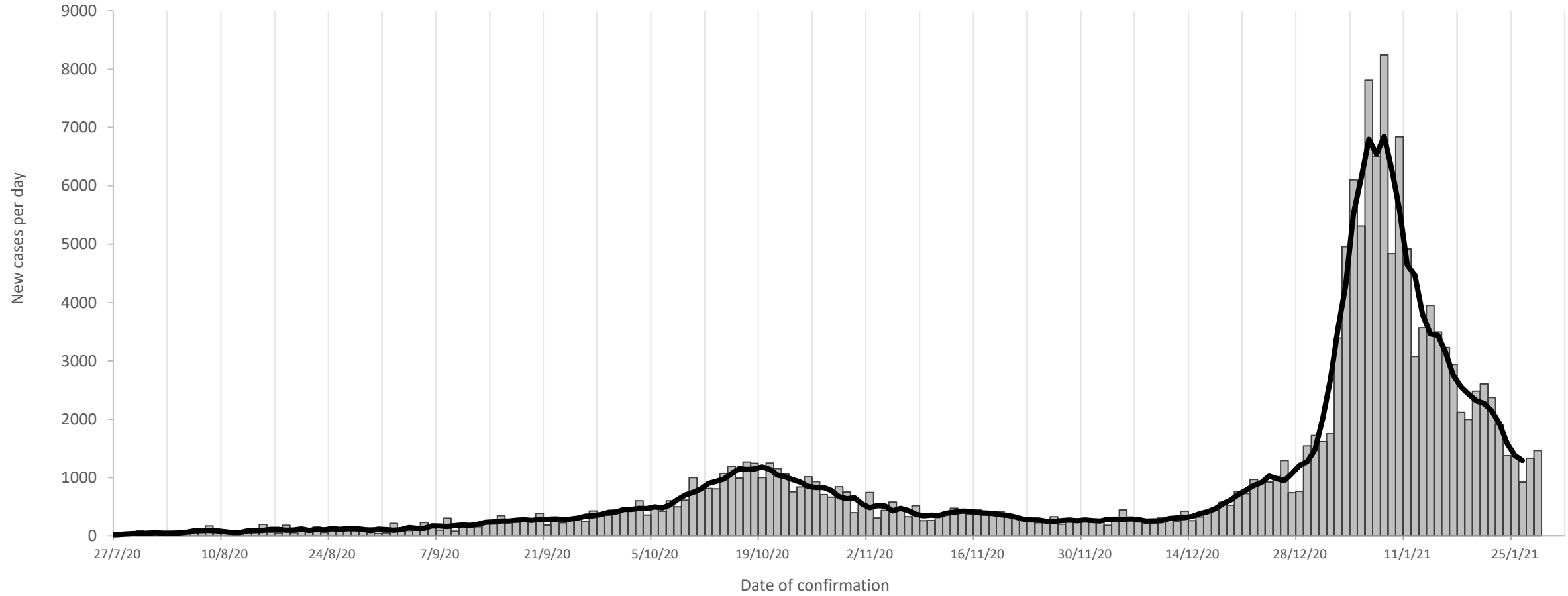
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Confirmed cases each day

Daily and weekly count and 5-day rolling average. The 5-day average peaked at 1186 on 21 October, reached a low of 251 on 28 November, peaked again at 6847 on 8 January and is now **1294**



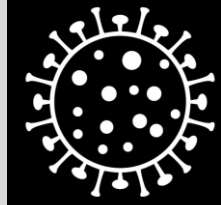
Cases per week	119	284	540	546	711	796	912	1303	1947	2060	3031	4457	7398	7073	4838	3424	2583	2580	1798	2028	1965	3369	6608	15748	45648	25176	14855
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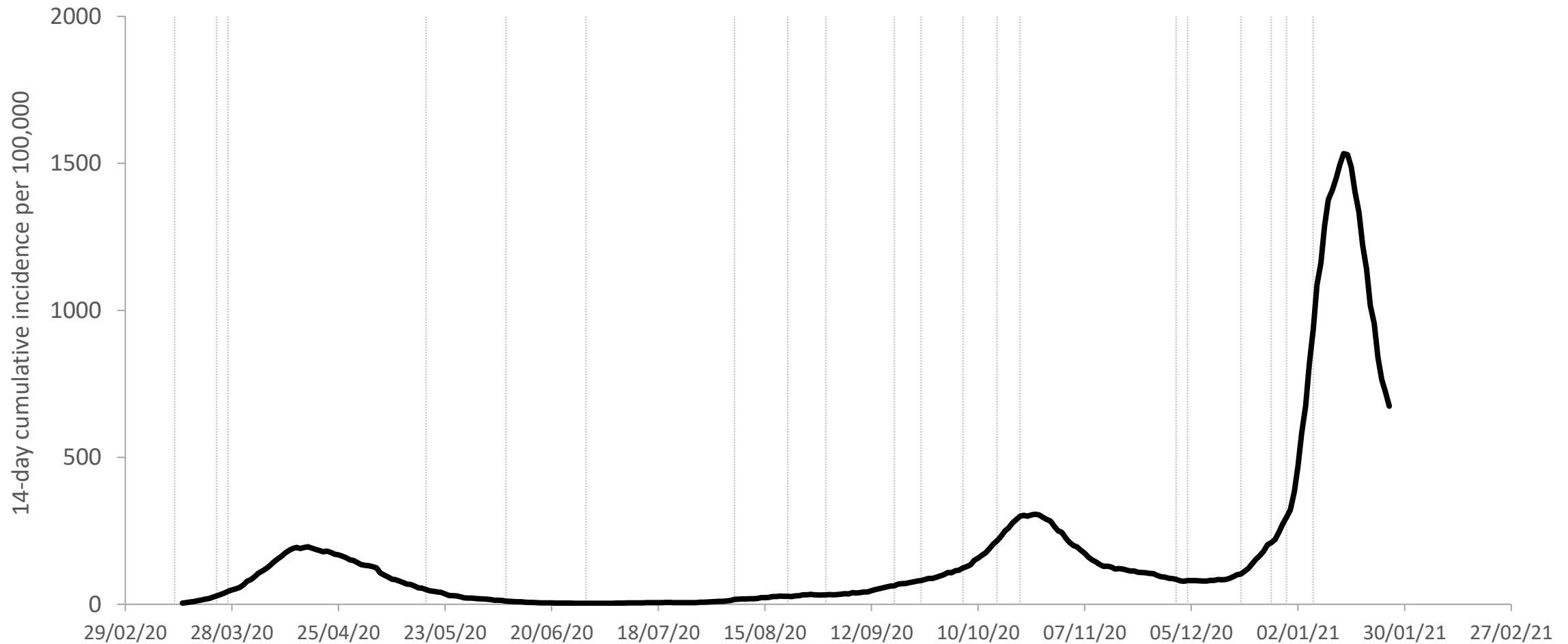
Daily count (bars) 5-day average (line) and weekly counts of the number of laboratory confirmed new cases by date on which they were confirmed by HPSC. Case counts may change due to denotification of cases. Weekly case counts are by notification (event date) and standard epidemiological week.

14-day cumulative incidence

14-day cumulative incidence peaked at 170 per 100,000 in late April 2020, declined to 3 per 100,000 in late June, peaked again on 26 October 2020 at 307 per 100,000, reached a low of 78 per 100,000 on 4 December 2020, peaked again at 1530 per 100,000 on 15 January 2021 and is now **622 per 100,000**



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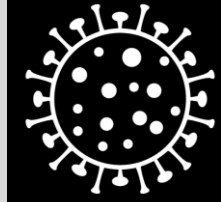
14-day cumulative incidence by date of confirmation. Tests outsourced to German laboratory in April backdated, using the specimen collection date, to the date they would have been confirmed if tested in a timely manner. The vertical dashed lines indicate the dates of escalation and de-escalation of public health restrictions



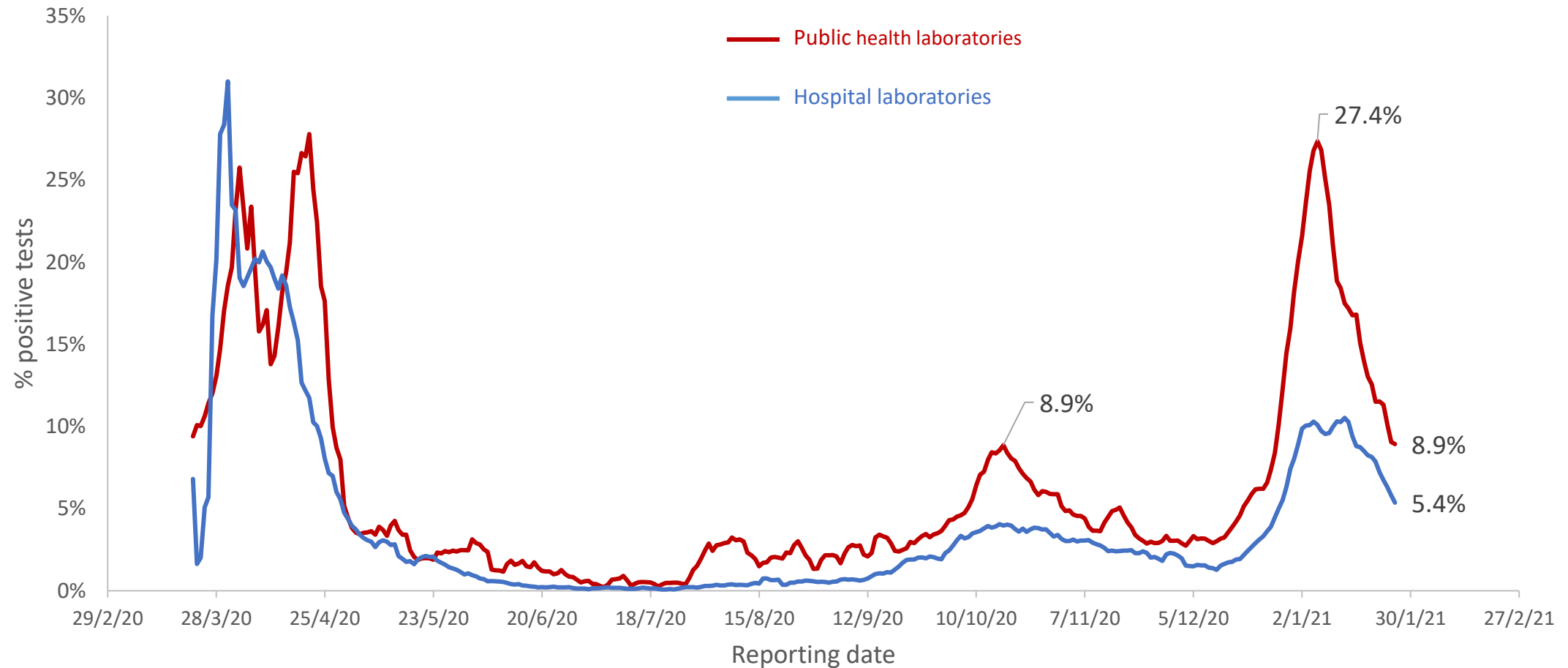
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Test positivity: public health laboratories

The positivity rate is higher for tests conducted in public health laboratories (NVRL, associated laboratories and Cherry Orchard) compared with tests conducted in hospitals. Positivity rates in public health laboratories have decreased from a peak 5-day average positivity of 27.4% on 6 January to 8.9% now.



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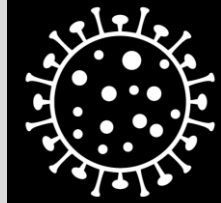
Data 5-day rolling averages of percentage of tests reported positive per day. NVRL+ is NVRL and associated laboratories, plus Cherry Orchard
Backlog tests outsourced to German laboratory in April are not backdated and are assigned to date reported



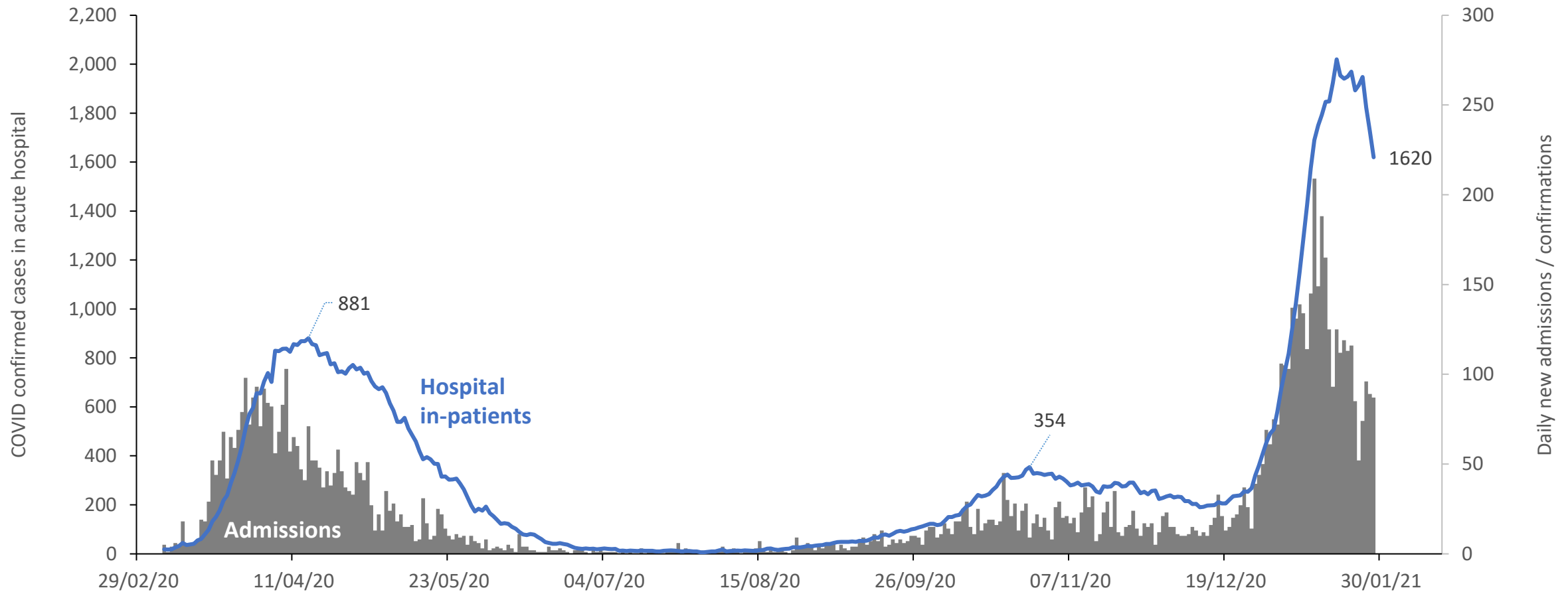
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Confirmed cases in acute hospitals

The number of people in hospital with confirmed SARS-CoV-2 infection. The number of admissions per day has decreased significantly, and the number in hospital is starting to decline.



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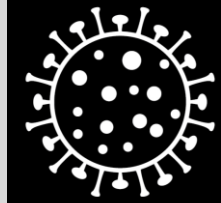
Hospital in-patients: Daily count of number of COVID-19 confirmed cases in acute hospitals. Daily admissions: New COVID-19 confirmed admissions and new laboratory confirmations of suspected cases in preceding 24 hours. Data from HSE PMIU-SDU, 8am census.



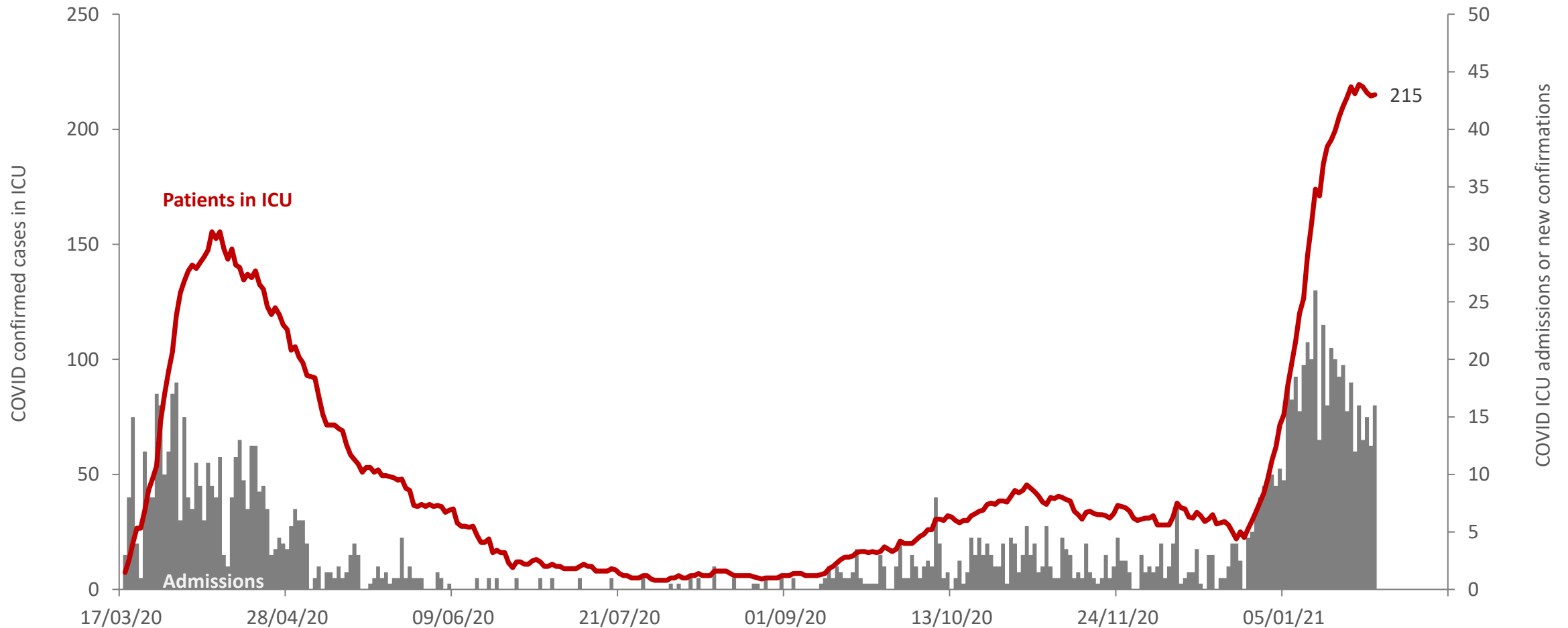
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Confirmed cases in intensive care

The number of people in ICU with confirmed SARS-CoV-2 infection has significantly exceeded the levels seen in April; it is now starting to plateau at this high level, and the number of new admissions is decreasing.



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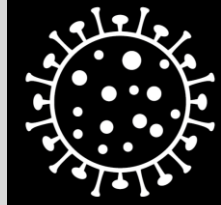


Patients in ICU: Daily count of number of COVID-19 confirmed cases in ICU. Daily admissions: new COVID-19 confirmed admissions to ICU and new laboratory confirmations of suspected cases in ICU. Average of morning and evening census from NOCA

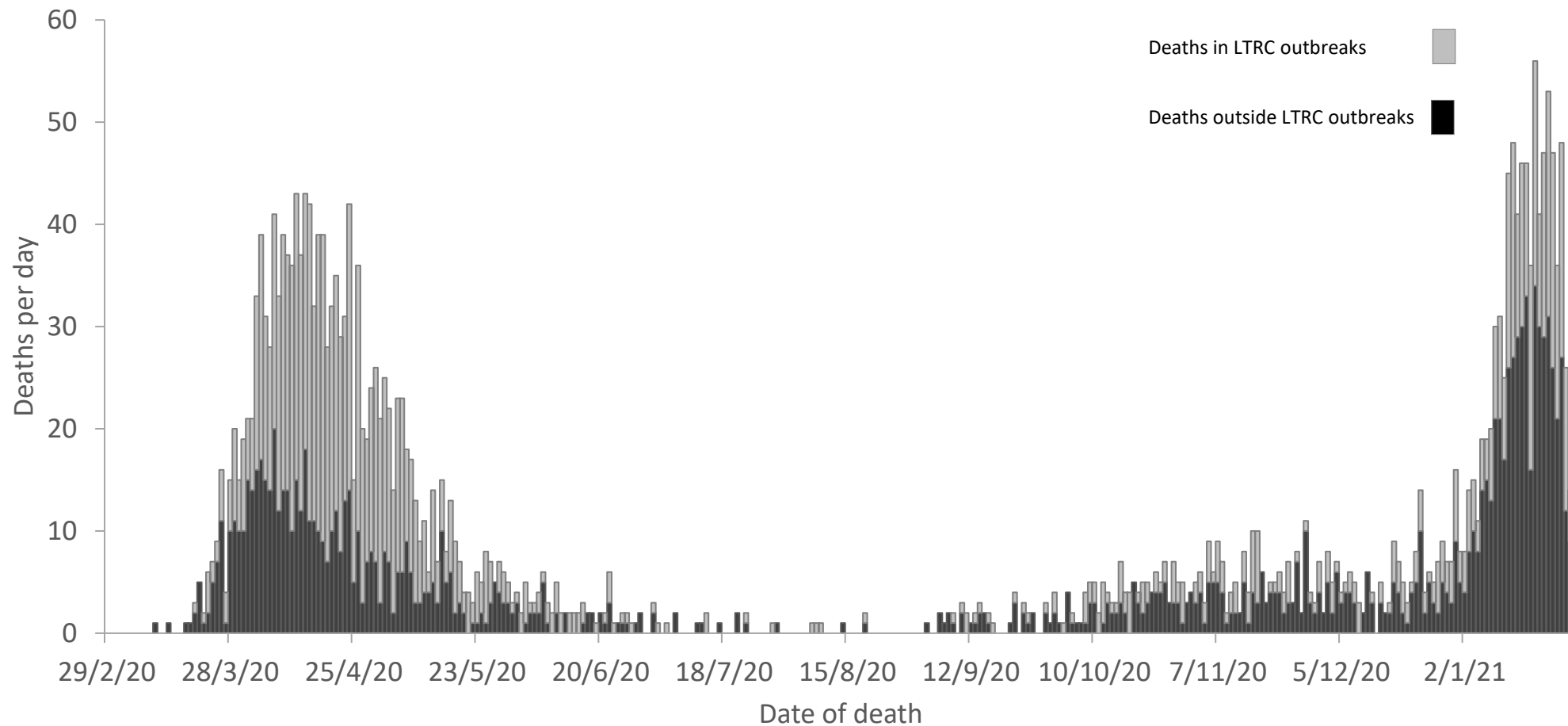


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Deaths per day



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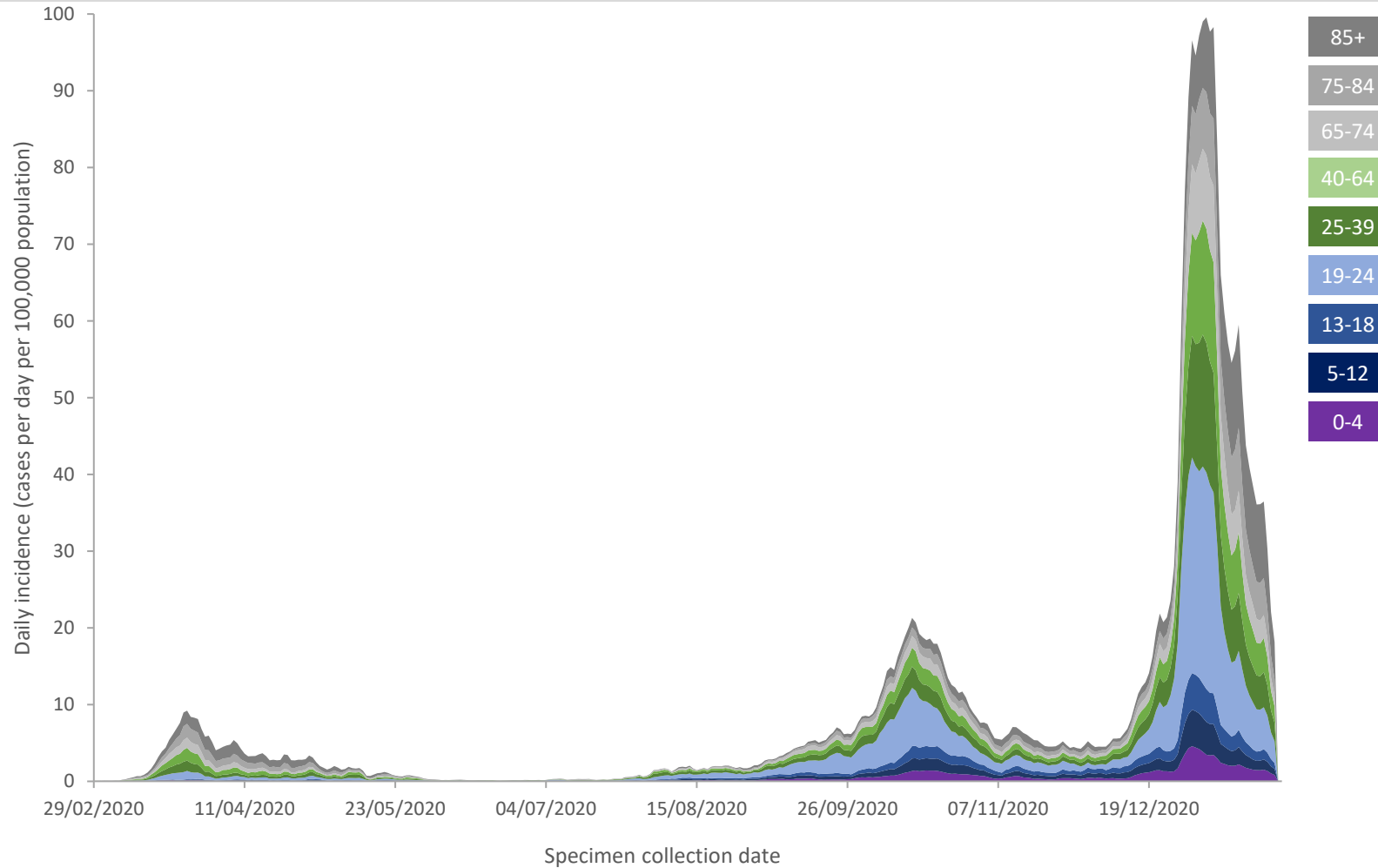
Deaths per day, separated into those associated with outbreaks in long-term residential care and those not associated with such outbreaks. Deaths with laboratory confirmed SARS-CoV-2 only



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Incidence across different age groups (excluding HCW and LTRC)

The chart shows the contribution of each age group to the overall incidence – the prominent grey bands show a very significant level of infection in recent weeks in those aged 65 and older, even when cases associated with outbreaks in long-term residential care are excluded.

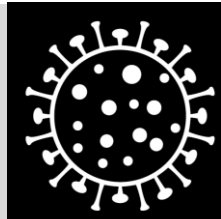


Week	Age band								
	0-4	5-12	13-18	19-24	25-39	40-64	65-74	75-84	85+
9	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.0
10	0.0	0.2	0.3	0.0	0.2	0.7	0.5	1.0	0.0
11	0.6	0.2	0.5	5.4	5.0	4.4	4.6	6.6	7.4
12	4.5	2.4	7.5	23.2	27.8	31.1	25.2	24.9	37.0
13	6.9	4.2	14.5	58.3	73.3	86.5	72.6	88.5	94.7
14	4.5	4.4	6.7	28.1	40.1	50.9	50.9	92.1	125.8
15	5.7	5.6	9.1	31.4	29.2	47.6	46.9	71.8	118.4
16	3.0	5.3	10.8	19.3	20.8	32.1	29.2	50.9	75.5
17	3.3	4.2	7.8	21.1	23.7	26.5	21.2	50.4	78.5
18	4.5	6.4	9.4	20.2	25.9	21.0	18.7	37.7	51.8
19	2.1	2.7	4.8	13.3	15.3	14.4	10.4	18.8	37.0
20	3.6	1.6	4.8	12.1	16.4	12.1	6.7	9.2	13.3
21	3.3	2.7	4.6	8.5	6.3	8.2	7.5	15.3	22.2
22	2.1	2.4	2.2	4.2	5.1	6.9	4.0	4.6	5.9
23	1.2	0.5	1.3	3.0	0.8	1.9	1.6	5.6	3.0
24	2.7	0.7	1.3	1.5	1.3	1.4	1.6	2.0	1.5
25	0.0	0.4	0.5	1.8	1.4	1.0	0.8	0.5	1.5
26	0.6	0.2	0.3	1.8	1.5	0.7	0.8	1.5	3.0
27	1.5	0.4	0.3	1.8	1.9	0.9	0.0	1.0	0.0
28	0.9	1.1	1.1	10.6	2.0	1.0	1.3	1.0	3.0
29	1.2	0.4	0.8	3.3	3.3	2.0	2.9	1.5	3.0
30	1.8	0.5	1.6	3.6	4.3	0.9	1.9	0.0	1.5
31	4.8	2.6	7.3	11.2	8.6	4.6	2.1	2.5	3.0
32	4.5	3.6	6.7	18.4	16.2	10.5	4.6	2.5	3.0
33	6.0	10.0	12.1	27.5	19.6	12.1	8.0	2.5	7.4
34	7.2	7.5	17.5	37.1	16.6	11.3	6.2	5.1	4.4
35	6.3	9.7	13.5	37.1	18.5	11.1	4.8	9.2	5.9
36	13.0	13.5	17.2	47.7	21.8	13.3	11.0	11.2	14.8
37	17.5	17.3	29.6	64.3	28.1	24.3	22.2	9.2	10.4
38	21.4	26.4	44.7	90.3	44.7	35.0	33.2	19.8	19.2
39	12.4	22.6	42.8	147.3	49.8	41.9	32.9	31.0	20.7
40	29.9	28.8	63.2	168.2	68.1	58.0	34.5	26.0	20.7
41	42.8	46.7	132.9	317.0	115.2	89.7	61.6	51.9	62.2
42	78.1	90.6	197.3	434.5	154.6	142.8	90.8	67.2	68.1
43	81.7	93.9	174.7	302.2	123.4	121.9	85.4	82.4	84.4
44	55.5	67.4	95.8	155.8	75.6	77.7	55.2	55.5	57.7
45	35.0	39.9	58.1	84.2	58.2	46.2	42.8	44.3	48.8
46	41.9	37.2	65.4	89.4	45.4	45.3	32.1	42.7	69.6
47	22.0	34.1	60.0	79.7	34.9	33.2	29.2	39.7	62.2
48	23.2	31.3	45.5	66.4	33.8	29.7	22.2	36.1	40.0
49	28.4	37.0	37.7	40.5	33.3	30.1	25.4	29.5	42.9
50	21.4	39.7	44.1	57.4	39.9	35.1	22.2	31.0	23.7
51	51.9	58.5	74.5	128.3	88.4	81.8	55.2	54.5	51.8
52	77.2	76.9	120.0	325.5	178.2	136.9	96.9	97.7	121.4
53	217.5	235.7	510.2	1404.9	763.4	641.4	426.0	353.7	411.5
1	182.8	208.9	571.1	1339.3	802.1	735.5	505.2	459.5	617.3
2	130.9	127.0	305.7	593.9	433.2	439.9	311.6	441.2	676.5
3	94.1	80.4	167.1	337.3	269.5	258.8	181.8	287.0	546.2

Chart shows 5-day rolling average of total incidence (cases per day per 100,000 population) with coloured bands showing the contribution of each age cohort to the total incidence, having adjusted for the number of people in that age cohort (CSO 2016 census data). Healthcare workers and cases associated with outbreaks in long-term residential care are excluded, so that the analysis reflects the pattern of cases in the community. Cases dated by date of specimen collection. A number of cases in those aged 65 and older will be linked in the coming days to outbreaks in LTRC.

Incidence across different age groups (excluding HCW and LTRC)

Incidence has decreased significantly in younger adults, but remains very high, and is decreasing slowly, in those aged 75 and older, even when cases associated with outbreaks in long-term residential care are excluded



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Week	Age band								
	0-4	5-12	13-18	19-24	25-39	40-64	65-74	75-84	85+
49	28.4	37.0	37.7	40.5	33.3	30.1	25.4	29.5	42.9
50	21.4	39.7	44.1	57.4	39.9	35.1	22.2	31.0	23.7
51	51.9	58.5	74.5	128.3	88.4	81.8	55.2	54.5	51.8
52	77.2	76.9	120.0	325.5	178.2	136.9	96.9	97.7	121.4
53	217.5	235.7	510.2	1404.9	763.4	641.4	426.0	353.7	411.5
1	182.8	208.9	571.1	1339.3	802.1	735.5	505.2	459.5	617.3
2	130.9	127.0	305.7	593.9	433.2	439.9	311.6	441.2	676.5
3	94.1	80.4	167.1	337.3	269.5	258.8	181.8	287.0	546.2

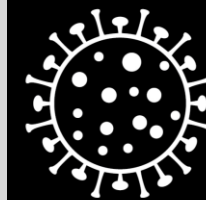
Heat map shows age-specific incidence (cases per week per 100,000 population) Healthcare workers and cases associated with outbreaks in long-term residential care are excluded, so that the analysis reflects the pattern of cases in the community. Cases dated by specimen collection date.



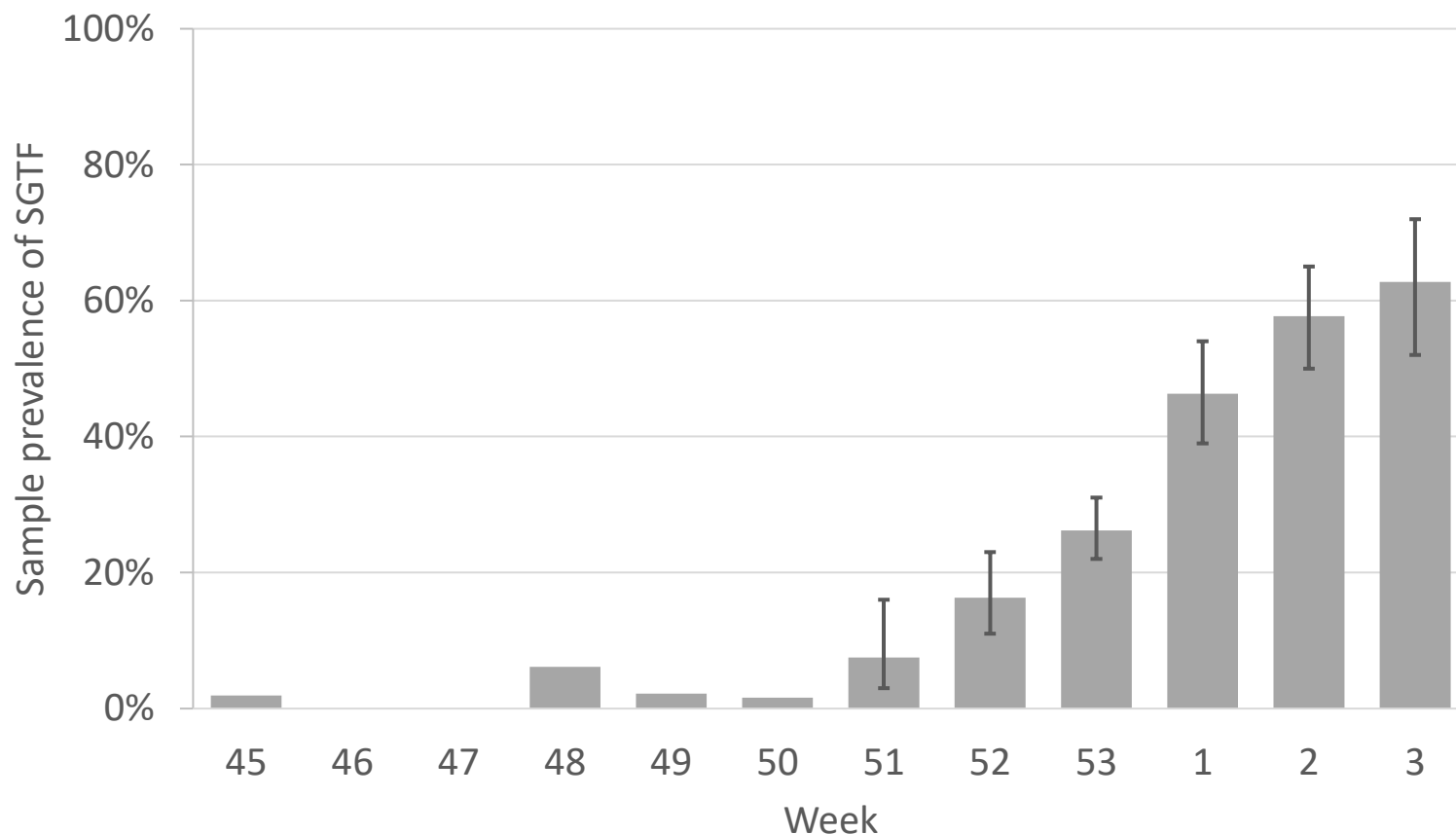
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New (B.1.1.7) variant – S gene target failure

S gene target failure (SGTF) is a marker for the new B.1.1.7 variant. The data are compatible with this variant being introduced, with a number of separate introductions in November and December, and spreading rapidly in late December, at which point it is likely to have begun to contribute to increased transmission. The current suppression may have slowed the path to dominance of the variant.



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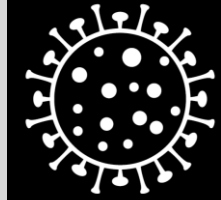
WEEK	Number of SGTF variants	Sample size	Sample prevalence
45	1	52	2%
46	0	35	0%
47	0	32	0%
48	3	49	6%
49	1	46	2%
50	2	128	2%
51	6	80	8%
52	29	178	16%
53	111	424	26%
1	87	188	46%
2	90	156	58%
3	59	94	63%



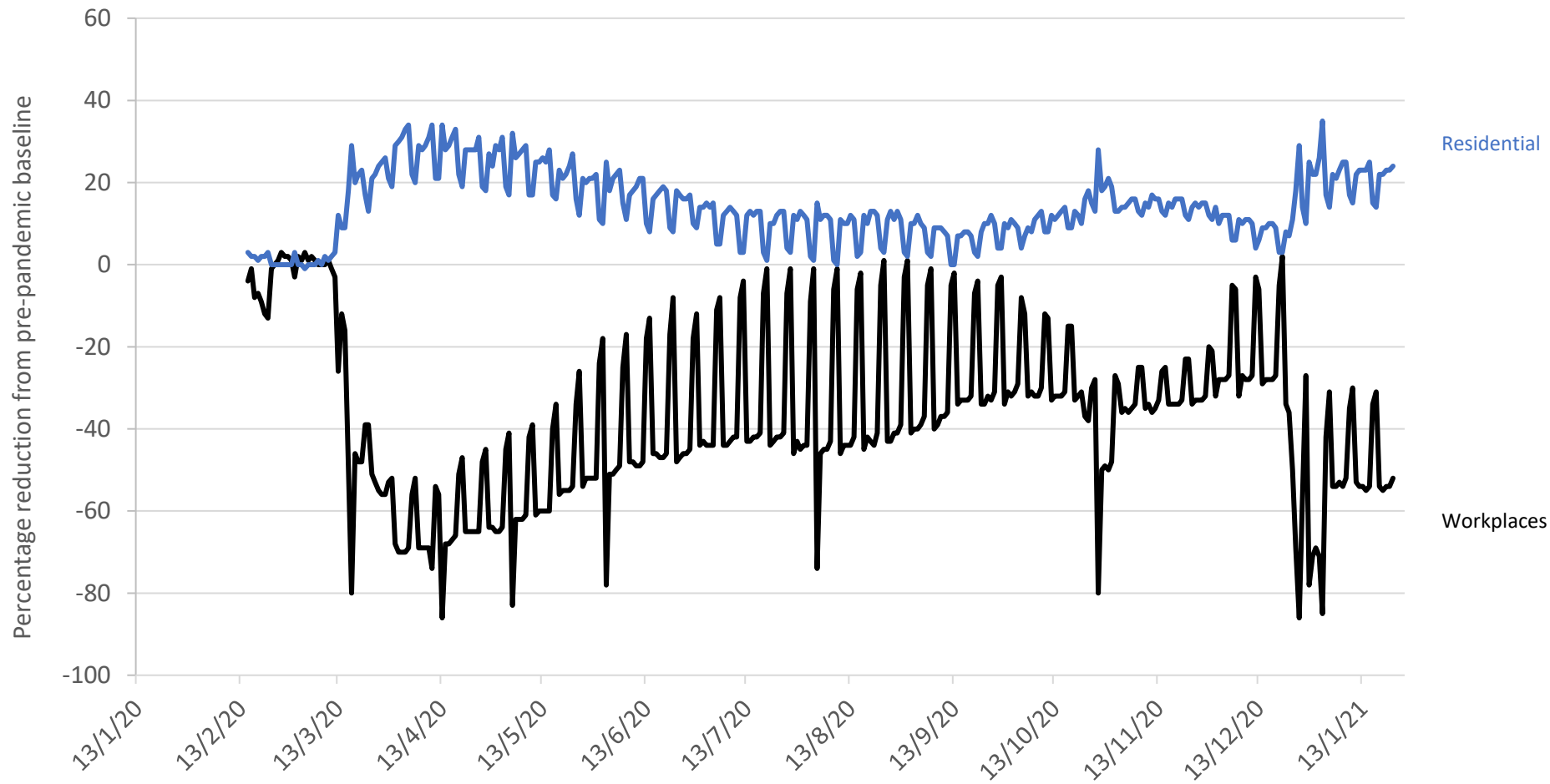
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Google community mobility

These data show time spent in residential areas and attendance at workplaces for those who enable location sharing on their Google account; each day of the week is compared with the average for that day of the week over January and February 2020. While attendance at workplaces is very much reduced (to ~50% of baseline) it is higher than in April (~25% of baseline)



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Close contacts of adult confirmed cases

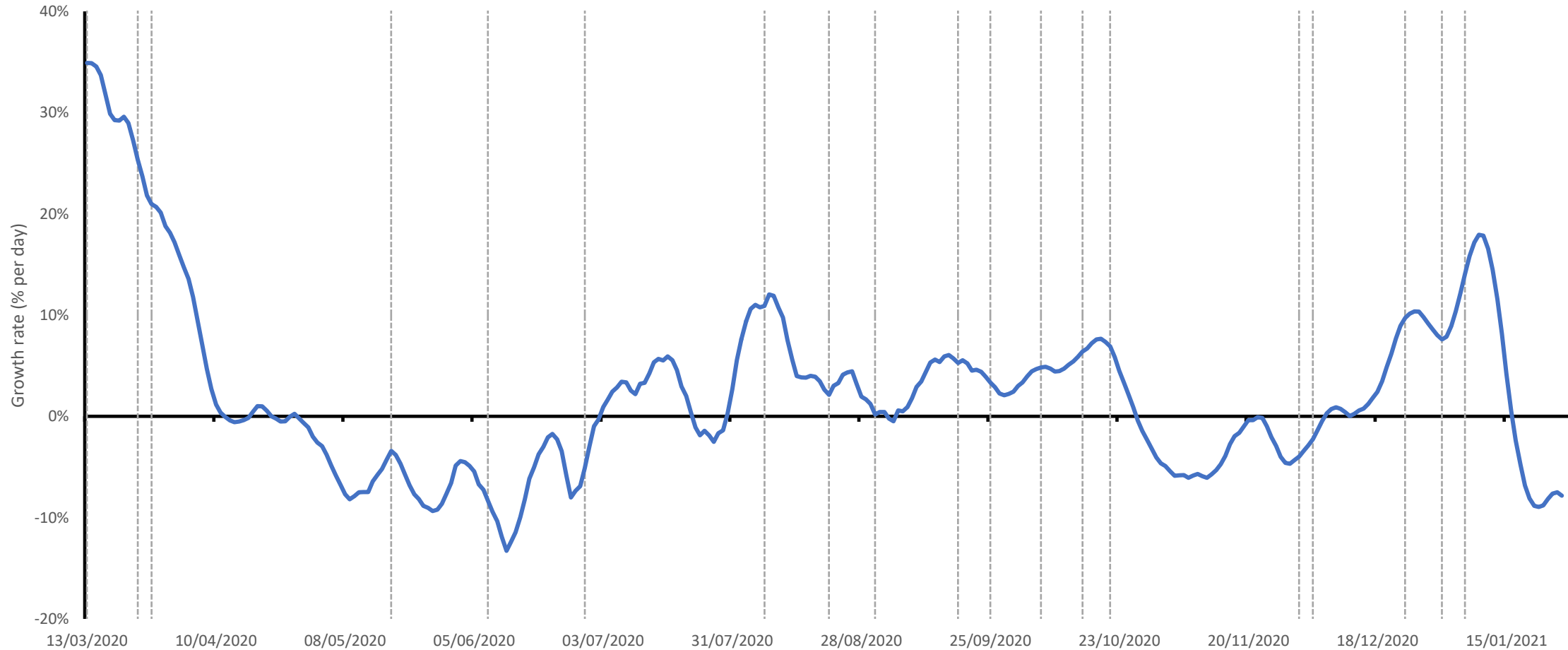
The mean number of close contacts per confirmed case. The number of contacts was very low (2 or less) during April, but increased to 5-6 per case during the summer. The progressive escalation of public health measures during October was associated with a progressive reduction in close contacts, to below 3. The number of close contacts remained below 3.3 on average until early December, rose to almost 5 on average by 28 December, and is now at a very low level (2.1 contacts)



The average number of close contacts per confirmed case. Data from COVID-19 Care Tracker (CCT). Cases dated by case creation date. Cases (but not contacts) aged 18 and younger are excluded. Data are 7-day trailing averages except for the months of June – August where a 21-day trailing average is used due to very low case counts.

Growth rate for case numbers

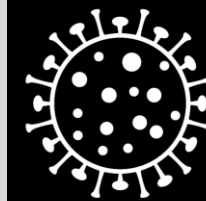
Growth rate peaked at almost 18% per day over the 14-day period up to 10 January 2021; case numbers are now decreasing at -7% to -9% per day



Growth rate calculated as the average growth rate over a 14-day trailing window; cases dated by notification (event) date.

Estimates of effective reproduction number (R)

Reproduction number is below 1.0, estimated at 0.4 – 0.7



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Method	Estimate	95% confidence interval
SEIR model-inferred	0.26	0.07 – 0.46
Bayesian model	0.43	0.23 – 0.93
Time-dependent R	0.68	0.63 – 0.73
GAM estimate 12 Jan 2021	0.77	0.64 – 0.91
GAM estimate 19 Jan 2021	0.54	0.41 – 0.68

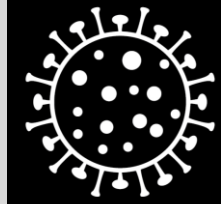
Estimates generated 27 January 2021, refer to IEMAG technical notes for methodology. Estimates are unreliable when case numbers are low or variable. SEIR-inferred estimate is slow to respond to changes in R. The time-dependent R estimate lags behind other estimates. These R estimates relate to viral transmissions and infections that occurred approximately 7-14 days ago. The estimate of R is influenced by different patterns of transmission in large outbreaks, smaller clusters, and individual transmission.



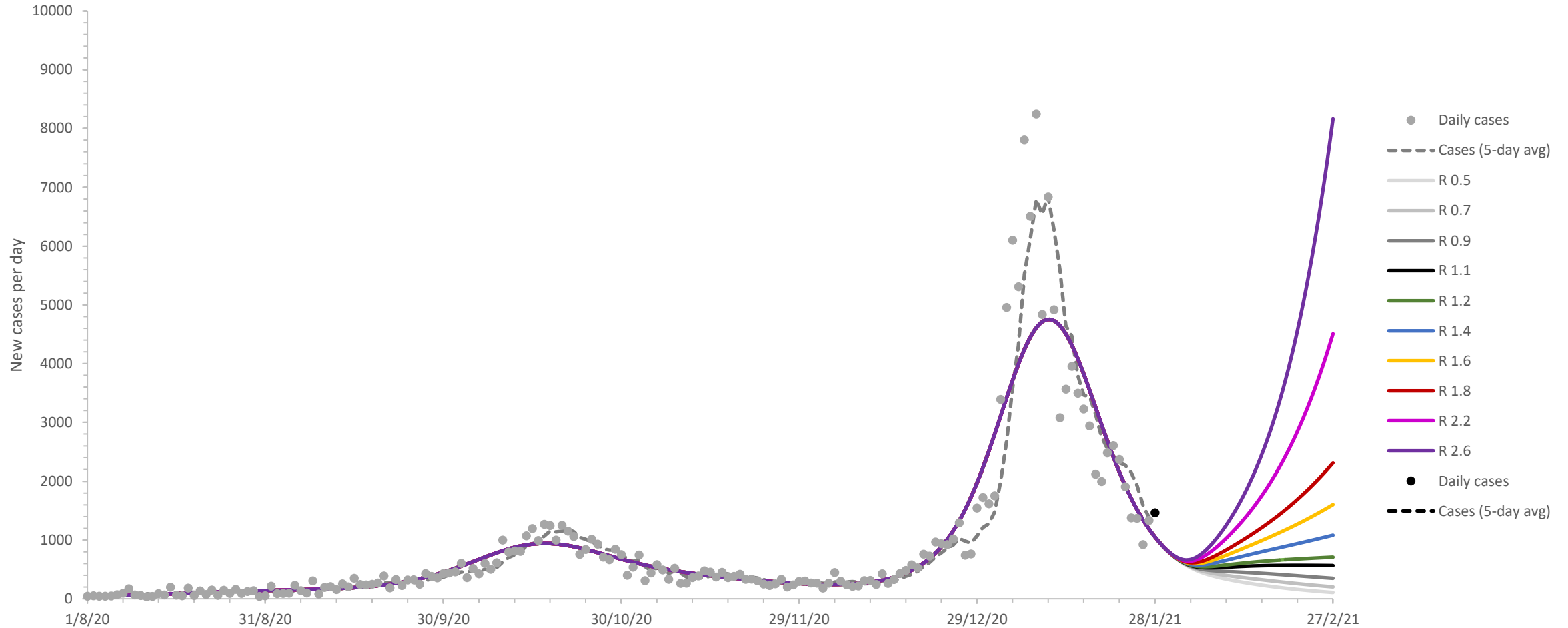
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What do our models tell us?

Model calibrated to case data until *27 January 2021*, R varies over a wide range thereafter



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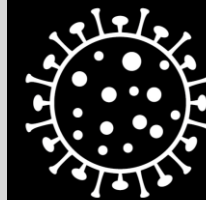
Model projections of the number of new cases per day. The model is calibrated with daily case counts to 27 January 2021 (grey); R varies between 0.5 and 2.6 thereafter. Case counts from 21 January onwards are shown in black. This is a scenario model only. It is not a forecast, nor does it imply or anticipate any future policy decision.



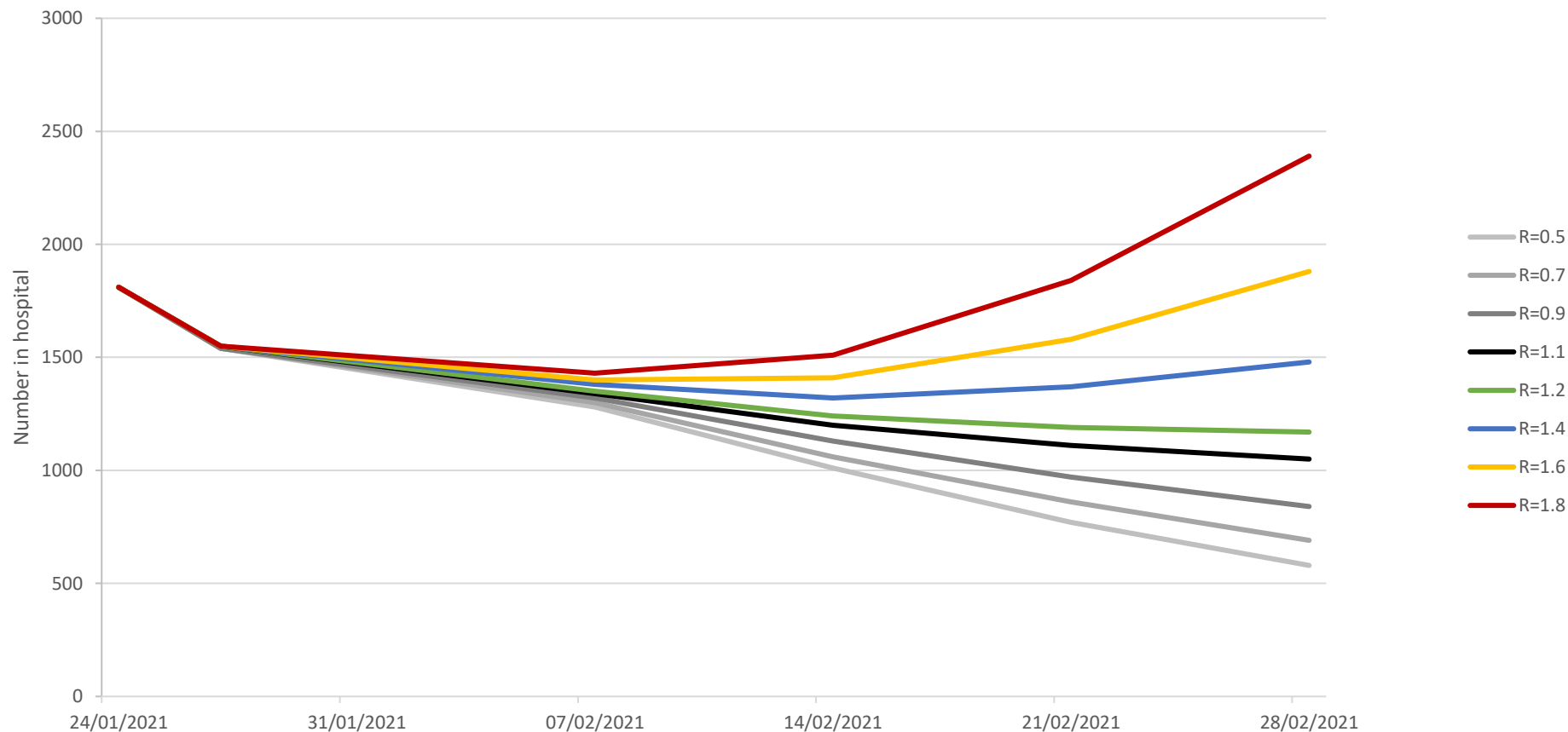
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Model projections of numbers in general hospital beds

Model outputs for numbers of people in general hospital (non-critical care beds) with COVID-19. Model calibrated to 27 January 2021, and R then varies between 0.5 and 1.8.



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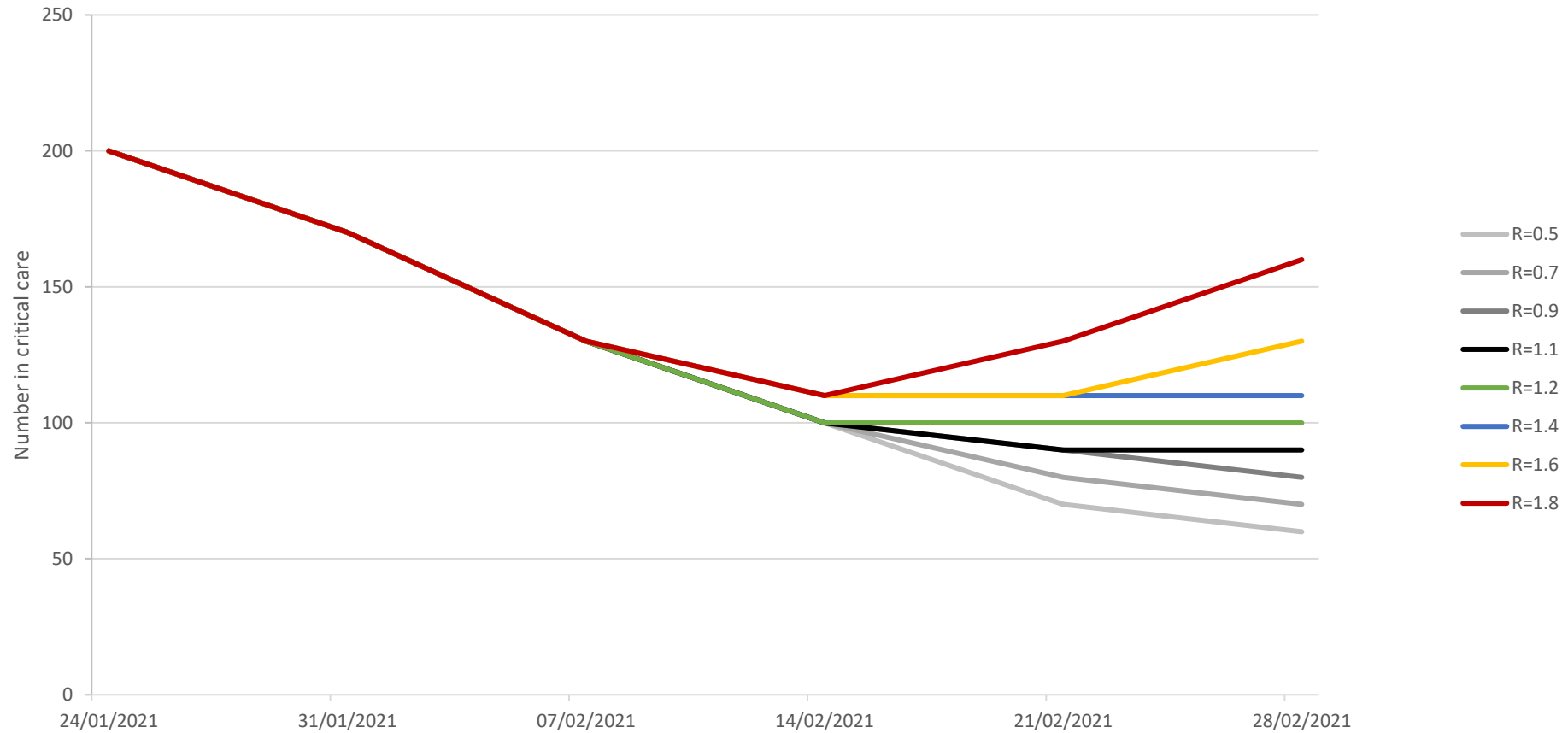
Model outputs and actual numbers in hospital with COVID-19. The model is calibrated using the CHUP model developed by ESRI; see IEMAG technical notes for details. The model is calibrated to 27 January 2021, and R varies from 0.5 to 1.8 thereafter.



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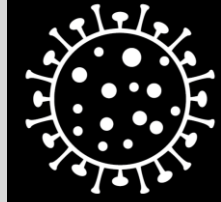
Model projections of numbers in critical care

Model outputs for numbers of people in critical care with COVID-19. Model calibrated to 20 January 2021, and R then varies between 0.5 and 1.8. Given that R has been greater than 1.8 for a period, R=1.2-1.8 gives a transient reduction in numbers in hospital.



Model outputs and actual numbers in critical care with COVID-19. The model is calibrated using the CHUP model developed by ESRI; see IEMAG technical notes for details. The model is calibrated to 28 January 2021, and R varies from 0.5 to 1.8 thereafter.

Situation analysis 28 January 2021



Coronavirus
COVID-19
Public Health
Advice

- **Incidence** is falling but remains **high**
- Cases (5-day average) **1294 cases per day**; 14-day incidence **622 per 100,000**
 - Very high incidence in those **aged 75 and older**
- We, collectively, have achieved suppression of transmission
 - Rate of decline continues at -7 to -9%, halving time 8-10 days
 - **R estimated at 0.4 – 0.7**
- **Numbers in hospital decreasing, numbers in ICU plateaued**
 - New admissions decreasing
- **Very high incidence in long-term care settings and vulnerable groups**
- **High mortality**
- We are maintaining an extraordinary effort but still we have a long way to go: we need to **maintain full suppression for several weeks** to protect each other from serious illness, to protect our health services and healthcare workers, and to give ourselves strategic options for the future.