IEMAG briefing

28 April 2021

Coronavirus
COVID-19
Public Health
Advice

Cases, numbers in hospital and intensive care

Daily case numbers have increased but the numbers of people in hospital and ICU continue to decrease slowly. Notably, admissions to hospital have averaged 13-15 per day for 4 weeks, an decrease on preceding weeks.

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	Apr 2020	Summer 2020	Oct 2020	Dec 2020	Jan 2021	31 Mar	7 Apr	14 Apr	21 Apr	29 Apr	Daily count 30 Apr
Cases confirmed per day	859 18-04	8.7 25-06	1158 21-10	262 12-12	6520 10-01	533	499	400	372	448	545
14-day incidence *per 100,000 population*	212 19-04	3.0 04-07	306 26-10	79 09-12	1532 15-01	161	152	132	113	125	127
Hospital in-patients	862 17-04	9 02-08	333 01-11	198 16-12	1949 24-01	313	254	212	183	164	139
Hospital admissions per day	*85* *04-04*	*<1* *10-07*	*27* *26-10*	*11* *13-12*	*158* *15-01*	*22*	*13*	*13*	*13*	*14*	*8*
ICU confirmed cases	150 14-04	4 04-08	43 04-11	26 27-12	217 28-01	68	50	51	50	46	44
ICU admissions per day	*14* *31-03*	*<1* *03-06*	*4* *03-11*	*1* *16-12*	*20* *17-01*	*3*	*2*	*2*	*2*	*2*	*1*
Deaths confirmed per day	46 22-04	<1 30-07	7 01-12	4 17-12	57 03-02	9	6	12	7	5	4

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. The highest and lowest values of each indicator are given for each wave of the pandemic, along with the date on which that value was recorded, as well as the data for recent weeks. The historic incidence data may change due to denotification of cases.

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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 **450.** 3121 cases were notified last week, compared with 2591 the week before, an increase of 21%

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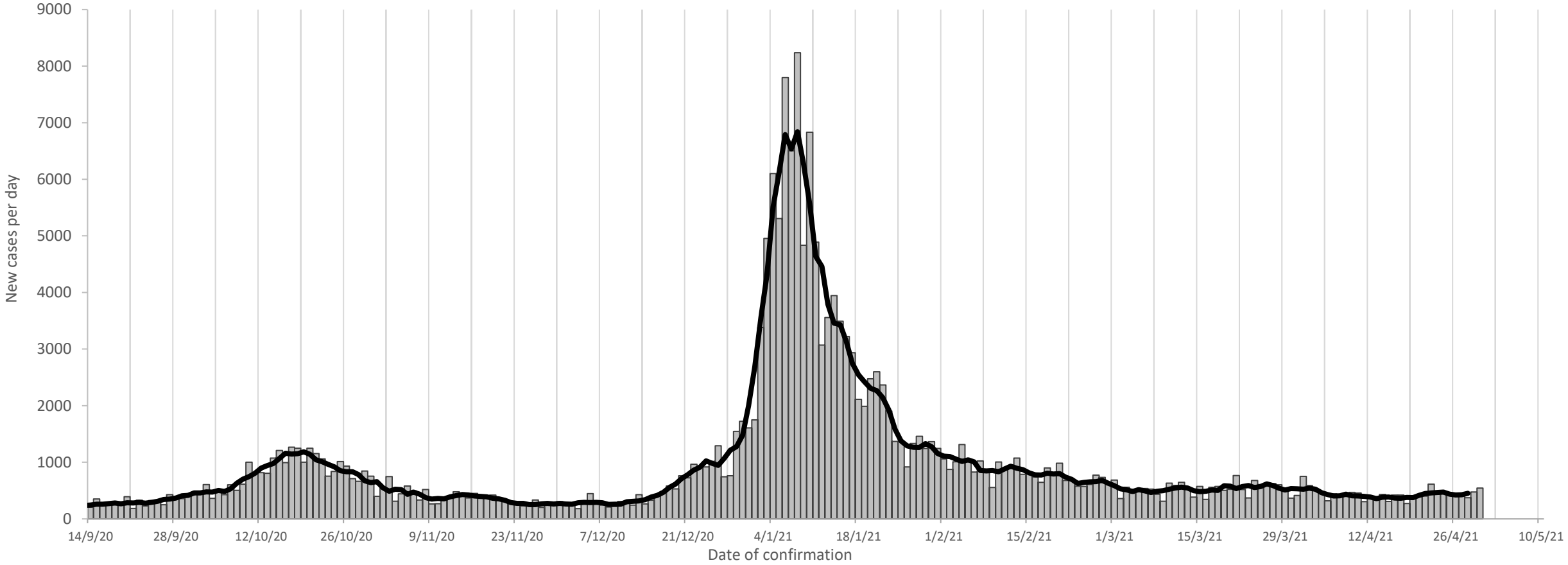
Cases per week																															
	1947	2059	3031	4457	7398	7073	4838	3424	2583	2580	1798	2028	1964	3368	6597	15722	45616	25113	14806	8921	7143	6027	5525	4547	3629	3535	3838	3981	3615	2798	2591	3121



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.

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Cases per day

Daily cases detected since the beginning of the pandemic, by specimen collection date; a larger number of cases were detected in the week beginning 19 April 2021 than in preceding weeks.

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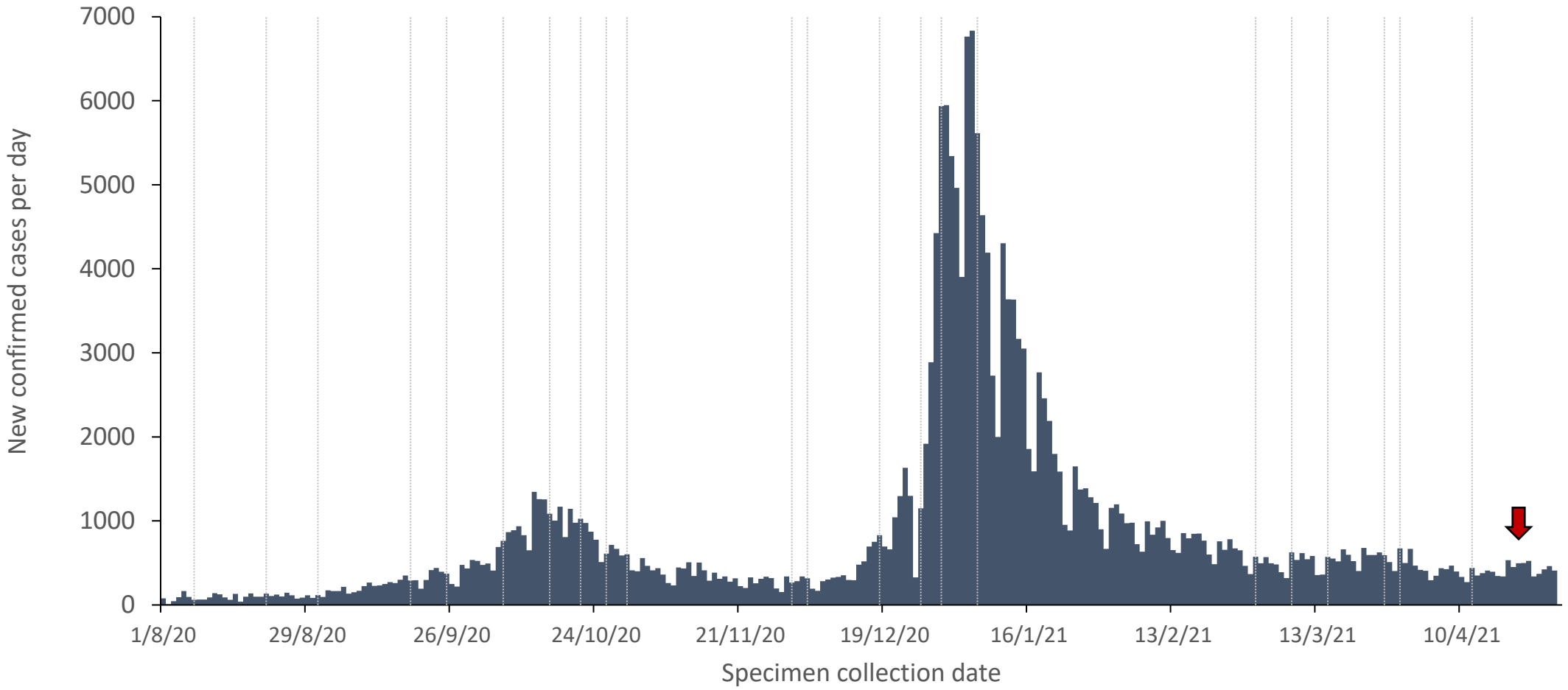

Daily count of the number of laboratory confirmed new cases by date on which the specimen was collected. The vertical dashed lines indicate the dates of escalation and de-escalation of public health restrictions

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Daily incidence

Daily incidence remains high and has increased over the last 10 days to 450-460 cases per day: incidence may be stabilising or increasing, and is approximately 50% higher than in early December, and approximately 40 times what it was in late June 2020.

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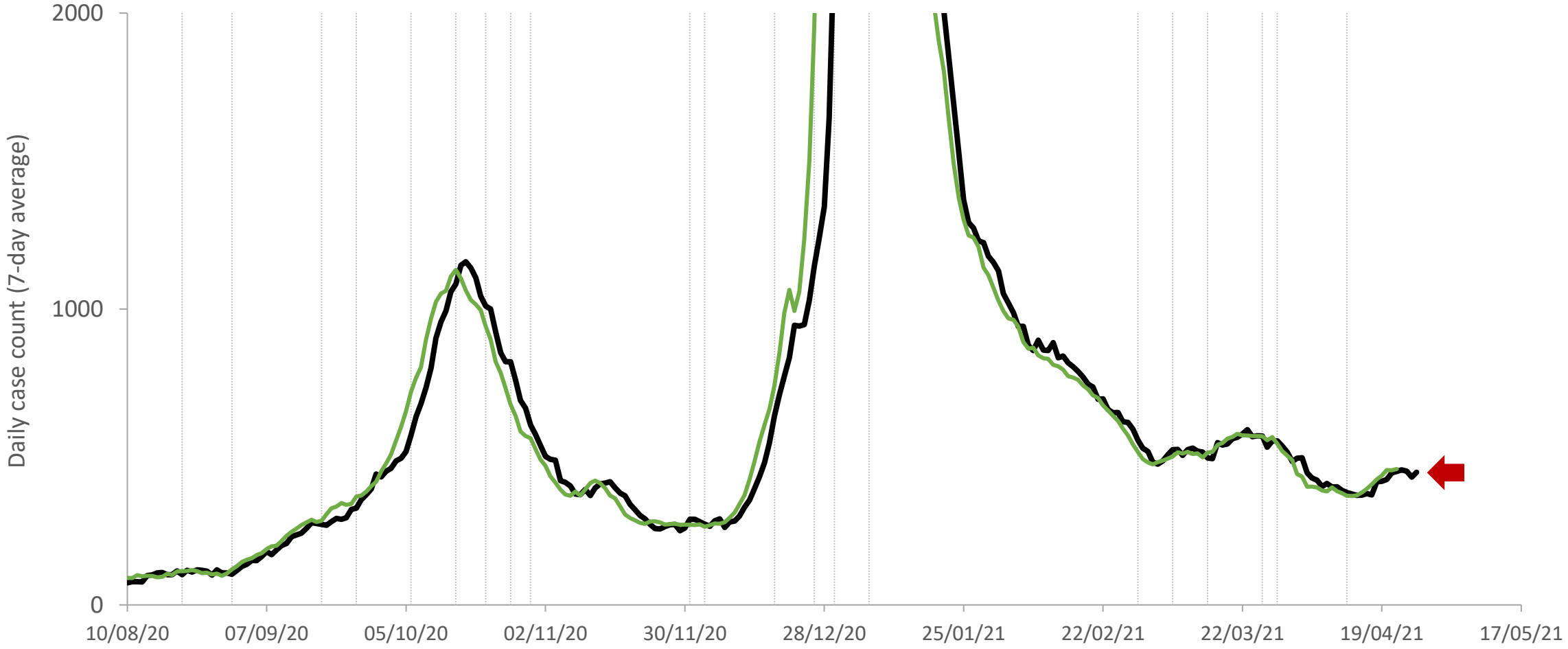

Daily cases by notification (event) date (black, the date the case was entered on the CIDR database) and specimen collection date (green). The vertical dashed lines indicate the dates of escalation and de-escalation of public health restrictions. Data are 7-day moving averages.

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Daily test positivity: public health laboratories

The daily number of tests done and positivity rates for public health laboratories show the recent increases in demand for testing with a reduction or no change in positivity rate.

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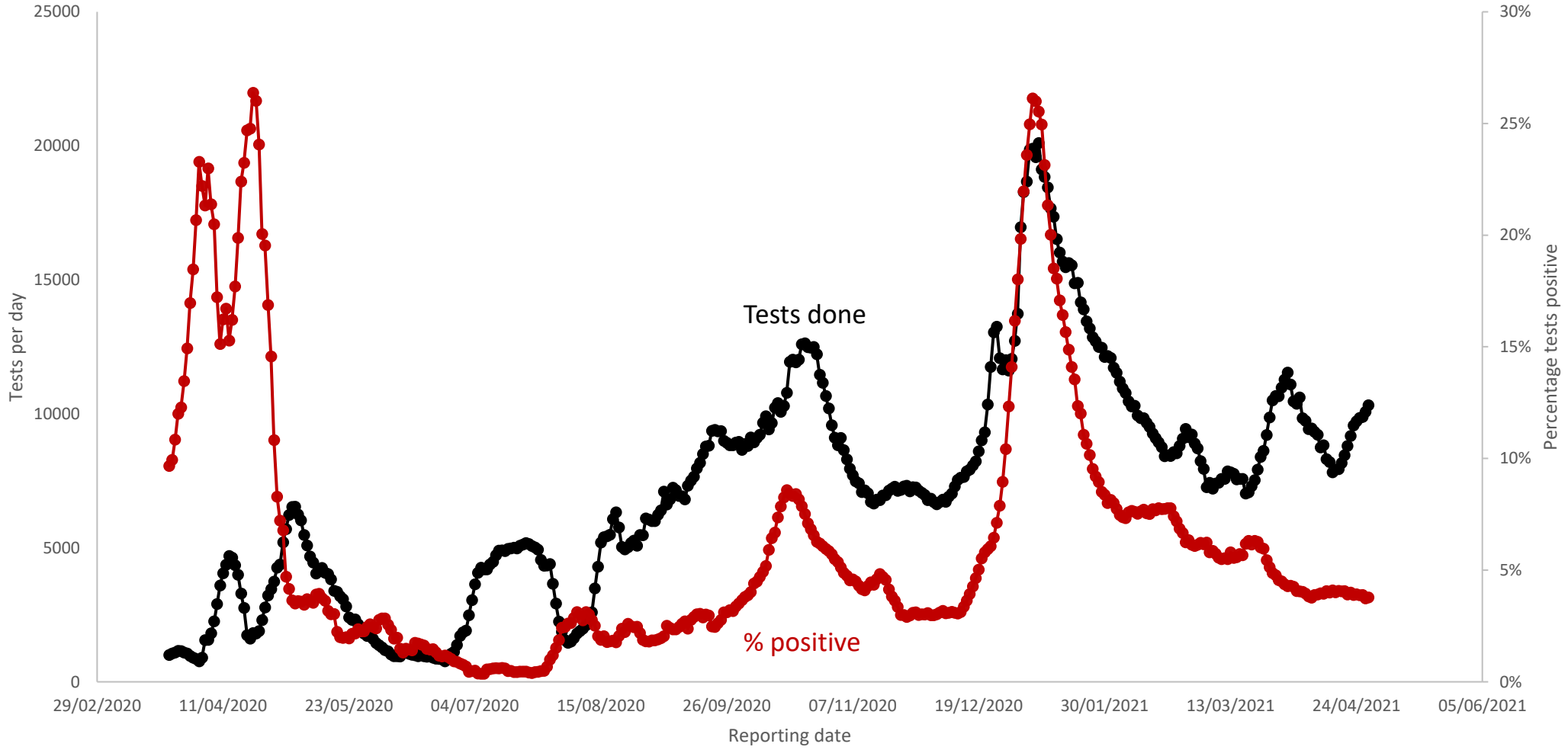

Daily tests done (black) and percentage of tests reported positive (red) per day from NVRL and associated laboratories, plus Cherry Orchard

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Confirmed cases in acute hospitals

The number of people in hospital with confirmed SARS-CoV-2 infection. The number of people in hospital is decreasing slowly and is now at 153, a level not seen since early October 2020. The number of admissions and newly confirmed cases in hospital per day was plateaued at 20-25 per day throughout March 2021, but is now lower at 10-15 per day.

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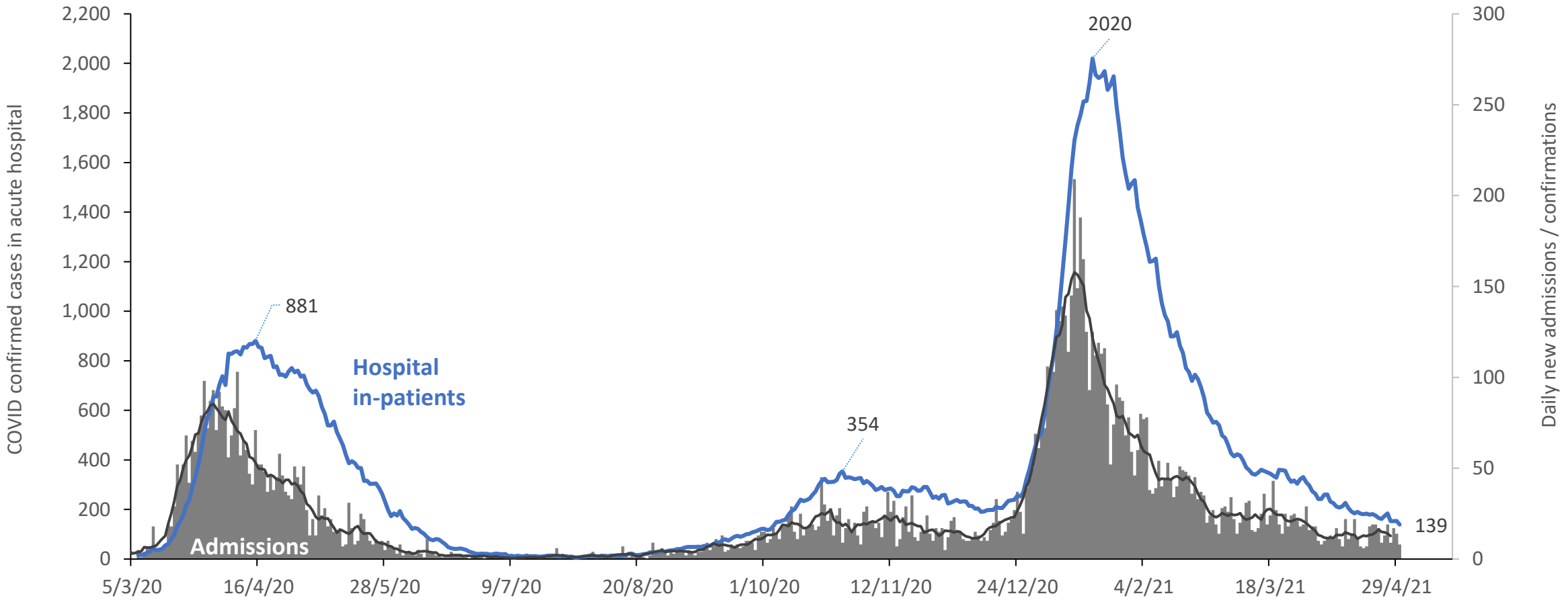

Hospital in-patients: Daily count of number of COVID-19 confirmed cases in acute hospitals. Admissions: New COVID-19 confirmed admissions and new laboratory confirmations of suspected cases in preceding 24 hours (7-day moving average also shown). Data from HSE PMIU-SDU, 8am census.

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Confirmed cases in intensive care

The number of people in ICU with confirmed SARS-CoV-2 infection is static.

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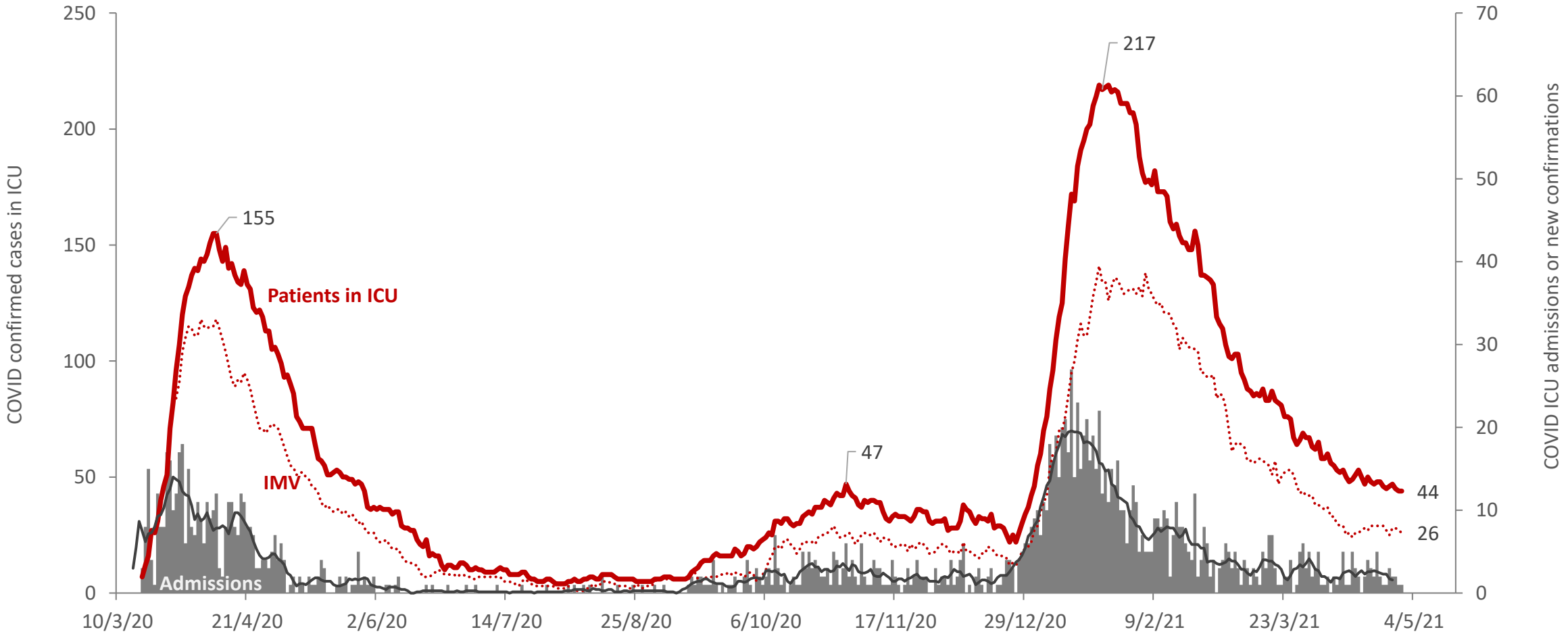

Patients in ICU: Daily count of number of COVID-19 confirmed cases in ICU. IMV: Daily count of number of COVID-19 patients requiring invasive mechanical ventilation. Admissions: daily new COVID-19 confirmed admissions to ICU and new laboratory confirmations of suspected cases in ICU (7-day average also shown). Data from morning census from NOCA

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Deaths by setting

The number of deaths per week is static or decreasing slowly. Deaths associated with outbreaks in LTRC have decreased earlier and more rapidly than in the wider community, due to the protective effect of vaccination.

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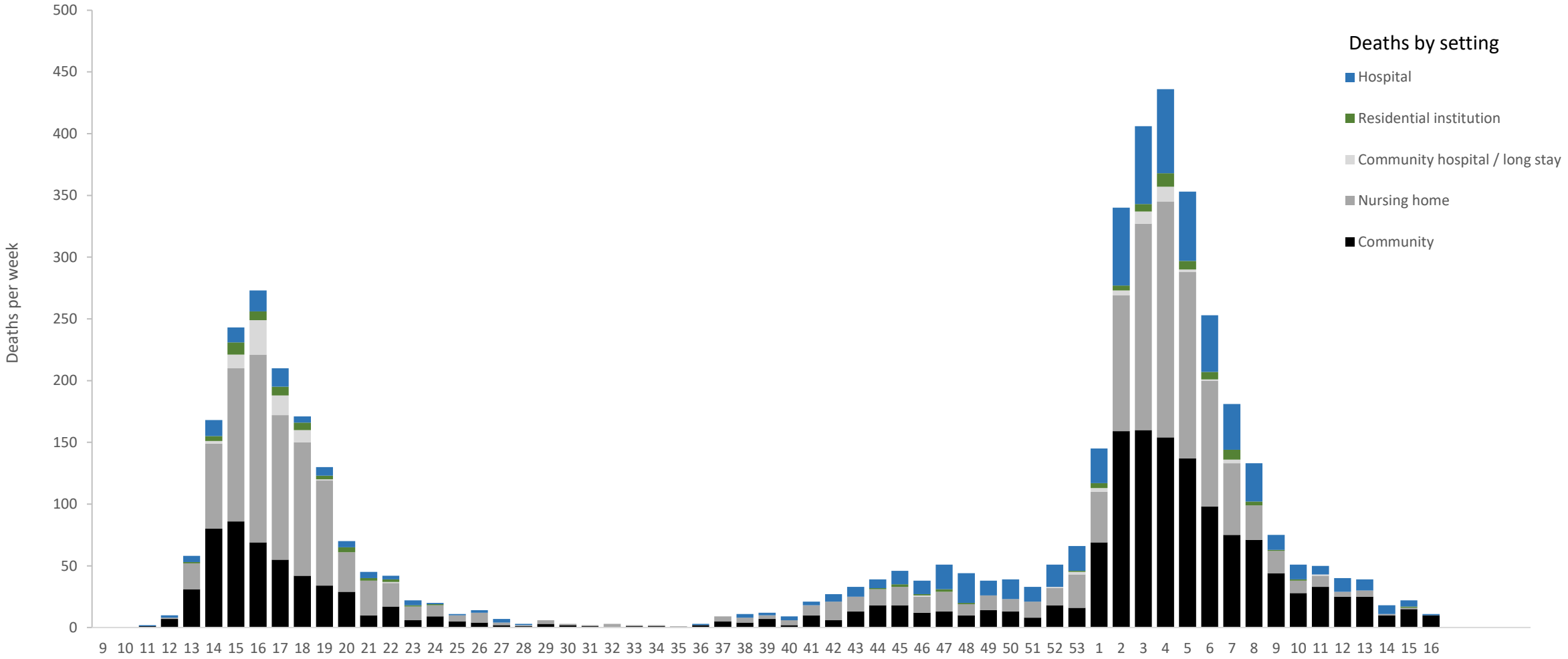

Deaths per week by week of death and the setting in which the death occurred. Deaths with laboratory confirmed SARS-CoV-2 only. Deaths in hospital outbreaks refers to deaths within a cluster of linked cases where the infectionhas been transmitted in the hospital setting, other deaths in hospitals are recorded as 'community' as the infection occurred in the community.

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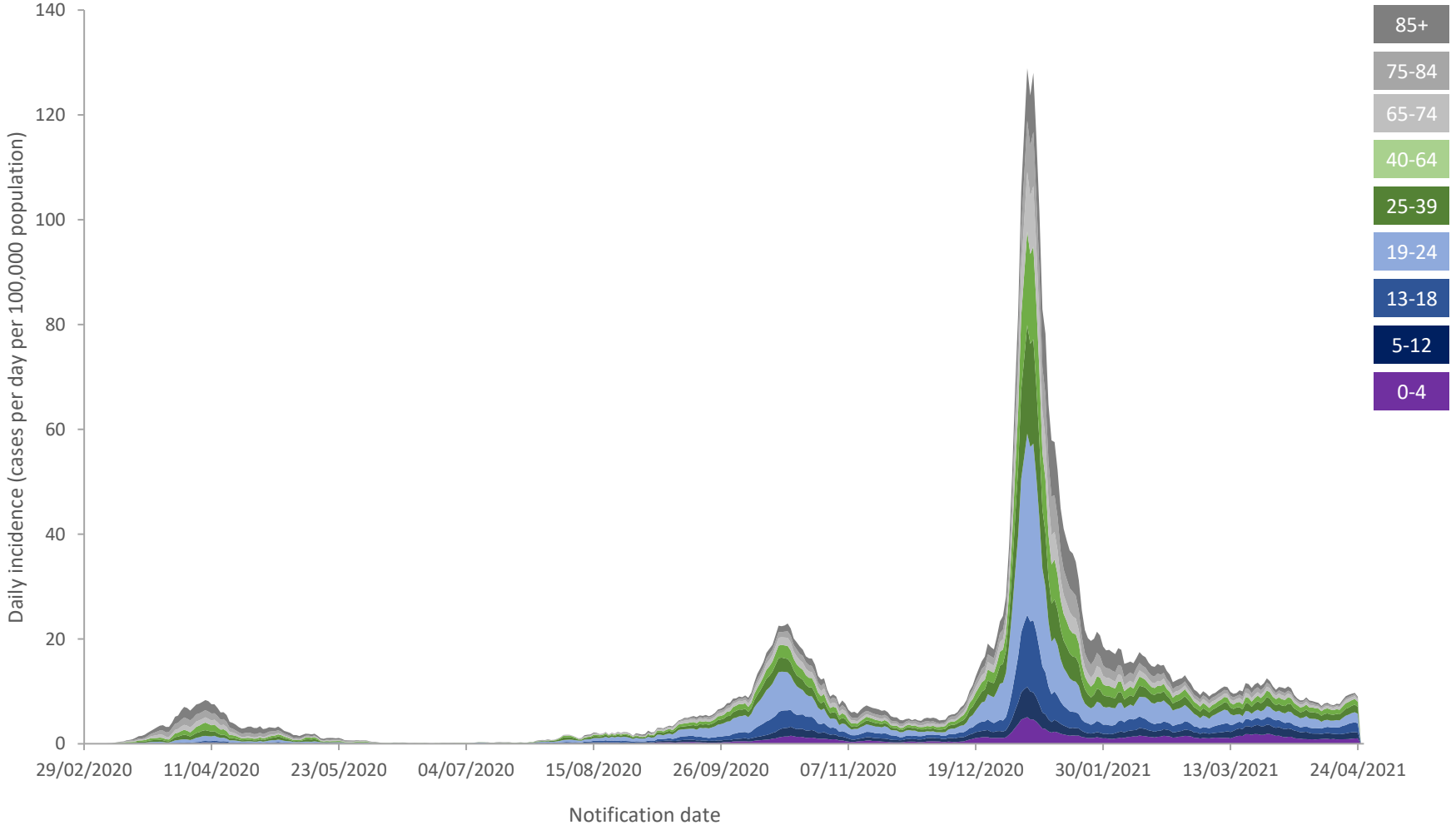
Incidence across different age groups (excluding HCW and LTRC)



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	22.9	27.6	31.0	25.2	24.9	37.0
13	6.9	4.2	14.5	58.3	73.1	86.3	72.6	88.5	94.7
14	4.5	4.4	6.7	28.1	40.1	50.9	51.1	91.1	125.8
15	5.7	5.6	9.1	31.4	29.3	47.4	47.7	72.8	119.9
16	3.0	5.3	10.8	19.3	20.8	32.2	29.5	50.9	79.9
17	3.3	4.2	7.8	21.7	23.6	26.7	21.4	56.5	97.7
18	4.5	6.4	9.4	20.2	26.0	21.0	18.7	37.7	53.3
19	2.1	2.7	4.8	13.3	15.2	14.4	10.4	19.3	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	6.8	4.0	4.6	5.9
23	1.2	0.5	1.3	3.0	0.7	1.9	1.6	5.6	3.0
24	2.7	0.7	1.3	1.5	1.4	1.4	1.6	2.0	1.5
25	0.0	0.4	0.5	1.8	1.4	1.0	1.1	1.0	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	1.9	1.0	1.3	1.5	3.0
29	1.2	0.4	0.8	3.3	3.4	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	8.5	4.6	2.1	2.0	3.0
32	4.5	3.6	6.7	18.4	16.4	10.5	4.6	2.5	3.0
33	6.0	10.0	12.1	27.2	19.5	12.1	8.6	2.5	7.4
34	7.2	7.5	17.5	37.4	16.5	11.4	5.9	5.1	4.4
35	6.3	9.7	13.5	37.1	18.4	11.1	4.8	9.2	5.9
36	13.0	13.1	17.2	47.7	21.6	13.2	11.0	11.7	14.8
37	17.2	17.9	30.1	63.4	28.7	24.4	22.2	8.7	10.4
38	21.7	26.2	43.9	90.6	44.0	34.9	33.2	19.8	19.2
39	12.1	22.6	42.8	146.7	49.9	41.8	32.9	31.0	20.7
40	29.6	28.8	63.2	167.6	68.0	57.8	34.5	26.0	20.7
41	42.8	46.8	132.9	316.7	115.3	89.7	61.6	51.9	60.7
42	78.1	90.6	198.3	434.2	154.4	142.8	90.5	67.2	71.1
43	81.7	93.9	174.7	302.2	123.4	121.7	85.1	82.4	84.4
44	55.8	67.6	95.8	155.2	75.3	77.4	55.2	55.5	59.2
45	34.4	39.7	58.1	84.2	57.7	46.0	42.6	44.3	47.4
46	42.2	37.2	65.7	89.7	45.2	44.6	32.4	42.7	71.1
47	22.0	34.1	59.7	79.1	34.6	33.0	28.9	39.7	62.2
48	23.2	31.3	45.5	66.7	33.8	29.6	22.2	36.1	40.0
49	28.4	36.8	37.7	40.5	33.2	30.1	25.4	28.5	41.4
50	21.4	39.9	44.1	57.4	39.5	35.0	22.5	31.0	22.2
51	51.9	58.5	74.5	128.3	88.0	80.9	54.3	55.0	51.8
52	77.5	76.9	120.0	326.1	175.6	134.5	95.8	94.7	119.9
53	218.1	236.6	513.7	1401.5	760.9	635.8	423.6	350.1	361.2
1	183.7	208.9	569.4	1328.2	790.2	720.6	497.7	446.8	556.6
2	130.6	127.0	303.0	581.2	413.9	418.8	300.7	409.7	574.3
3	93.5	80.9	168.2	327.3	253.3	243.4	170.0	251.9	413.0
4	74.2	60.9	128.4	228.6	155.2	146.3	119.1	161.3	266.4
5	78.1	72.9	126.5	208.0	126.4	123.1	85.4	115.5	213.2
6	92.0	85.7	126.2	226.1	118.4	101.4	68.0	89.1	122.9
7	87.2	76.4	96.1	253.0	106.1	87.8	59.4	78.4	108.1
8	87.5	70.7	89.6	186.6	94.6	76.7	43.4	52.9	85.9
9	67.0	57.0	65.4	124.7	75.2	57.8	44.7	44.3	40.0
10	68.5	68.2	89.6	144.6	79.1	58.6	39.1	39.7	40.0
11	107.7	90.8	78.3	86.4	85.5	61.8	46.0	55.0	56.3
12	107.1	102.1	85.3	104.2	92.5	69.2	41.2	42.2	44.4
13	70.3	86.4	65.1	114.1	80.3	66.0	39.1	35.1	40.0
14	49.5	65.2	57.9	92.7	65.8	48.2	23.8	22.9	20.7
15	50.1	55.8	64.9	74.6	61.2	49.7	25.4	15.3	14.8
16	54.0	65.2	99.6	97.2	78.8	58.6	30.3	20.4	17.8

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 notification date. A number of cases in those aged 65 and older will be linked in the coming days to outbreaks in LTRC.

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Incidence across different age groups (excluding HCW and LTRC)

The recent increase in incidence is most marked in those aged 13-18, 19-24 and 25-39 years.

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Week	Age band								
	0-4	5-12	13-18	19-24	25-39	40-64	65-74	75-84	85+
47	22.0	34.1	59.7	79.1	34.6	33.0	28.9	39.7	62.2
48	23.2	31.3	45.5	66.7	33.8	29.6	22.2	36.1	40.0
49	28.4	36.8	37.7	40.5	33.2	30.1	25.4	28.5	41.4
50	21.4	39.9	44.1	57.4	39.5	35.0	22.5	31.0	22.2
51	51.9	58.5	74.5	128.3	88.0	80.9	54.3	55.0	51.8
52	77.5	76.9	120.0	326.1	175.6	134.5	95.8	94.7	119.9
53	218.1	236.6	513.7	1401.5	760.9	635.8	423.6	350.1	361.2
1	183.7	208.9	569.4	1328.2	790.2	720.6	497.7	446.8	556.6
2	130.6	127.0	303.0	581.2	413.9	418.8	300.7	409.7	574.3
3	93.5	80.9	168.2	327.3	253.3	243.4	170.0	251.9	413.0
4	74.2	60.9	128.4	228.6	155.2	146.3	119.1	161.3	266.4
5	78.1	72.9	126.5	208.0	126.4	123.1	85.4	115.5	213.2
6	92.0	85.7	126.2	226.1	118.4	101.4	68.0	89.1	122.9
7	87.2	76.4	96.1	253.0	106.1	87.8	59.4	78.4	108.1
8	87.5	70.7	89.6	186.6	94.6	76.7	43.4	52.9	85.9
9	67.0	57.0	65.4	124.7	75.2	57.8	44.7	44.3	40.0
10	68.5	68.2	89.6	144.6	79.1	58.6	39.1	39.7	40.0
11	107.7	90.8	78.3	86.4	85.5	61.8	46.0	55.0	56.3
12	107.1	102.1	85.3	104.2	92.5	69.2	41.2	42.2	44.4
13	70.3	86.4	65.1	114.1	80.3	66.0	39.1	35.1	40.0
14	49.5	65.2	57.9	92.7	65.8	48.2	23.8	22.9	20.7
15	50.1	55.8	64.9	74.6	61.2	49.7	25.4	15.3	14.8
16	54.0	65.2	99.6	97.2	78.8	58.6	30.3	20.4	17.8

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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Age-specific incidence in recent weeks

While incidence has increased in those aged 13-18 years since schools reopened (associated with a much larger increase in referral for testing) this may now be stabilizing, and there has been very little change in incidence in those aged 0-12 years.

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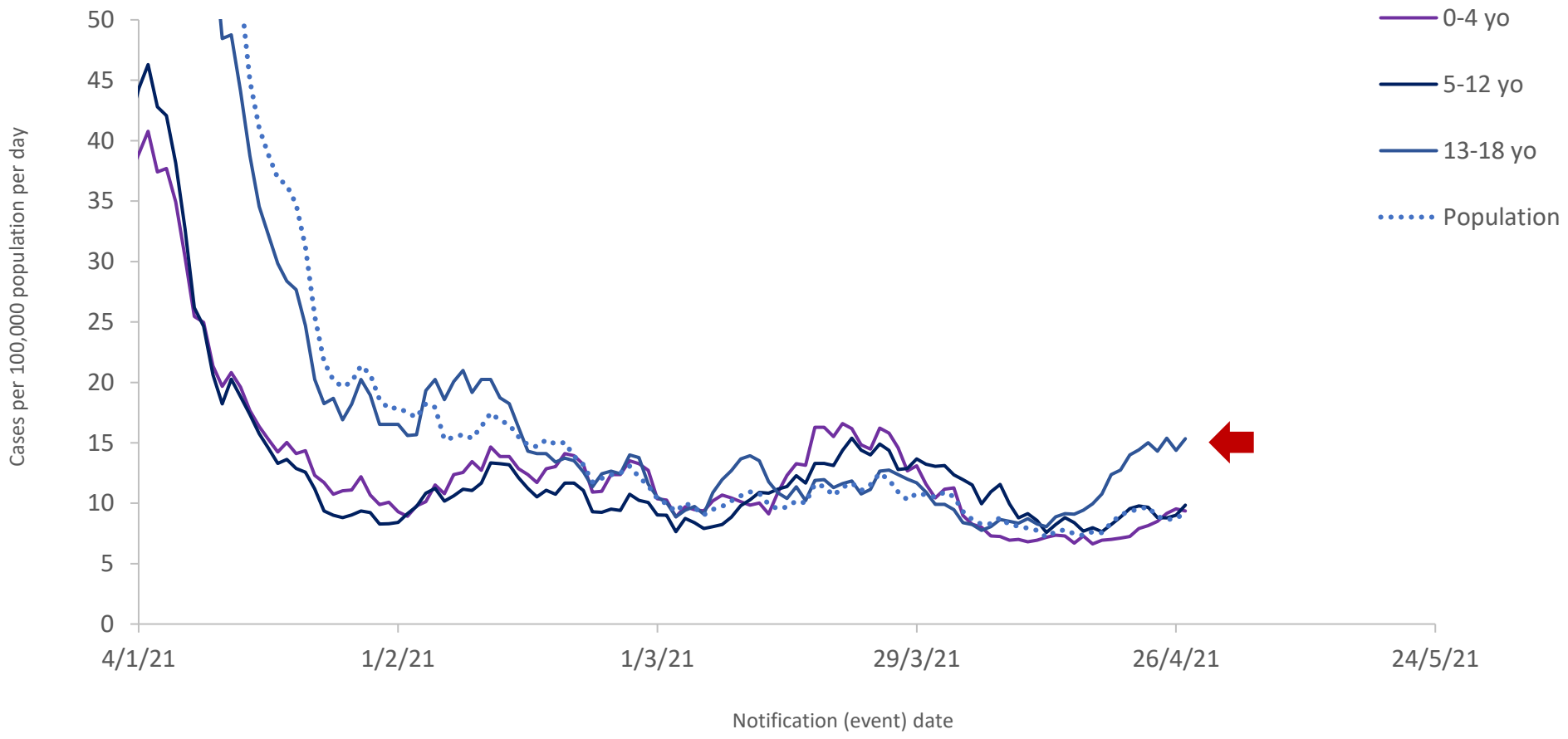

Age-specific incidence (cases per day per 100,000 population within each age cohort, population from CSO 2016 census data). Healthcare workers and cases associated with outbreaks in long-term residential care are excluded, so that the analysis reflects the pattern of cases in the community. Cases dated by notification (event) date.

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Cases in outbreaks in schools

The number of cases in school outbreaks is a small fraction of the total number of cases in children of school-going age. Note that detection of a case or declaration of an outbreak in a school does not imply that transmission has occurred in the school setting. School outbreaks are usually small, involving 2-10 cases.

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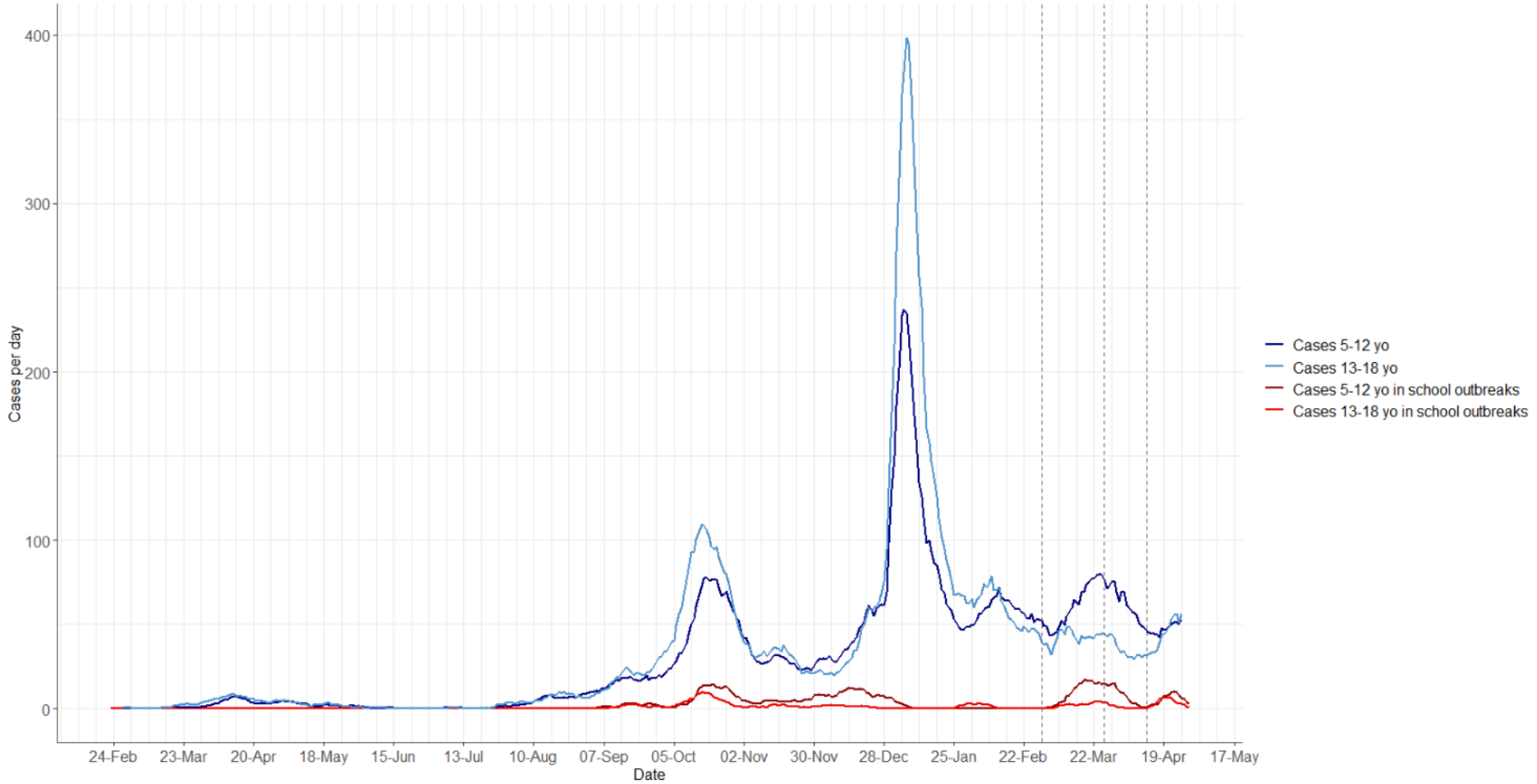

Total cases per day in those aged 5-12 years, and 13-18 years, and those cases in those age bands associated with outbreaks in schools. 7-day moving average. The vertical dashed lines indicate 1 March (when schools began to open) and 26 March (when schools closed for Easter) and 12 April (when schools reopened). The number of cases associated with outbreaks in schools in the last 10 days will be an underestimate; ongoing investigation will link some additional cases to these outbreaks.

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Vaccination and people aged 80 and older

The age-specific incidence in those aged 65 and older has fallen in recent weeks. This is largely a social phenomenon, with people in this age group having fewer close contacts. However, in the older age groups (aged75 and above) the number of cases has fallen more rapidly than in the wider population.

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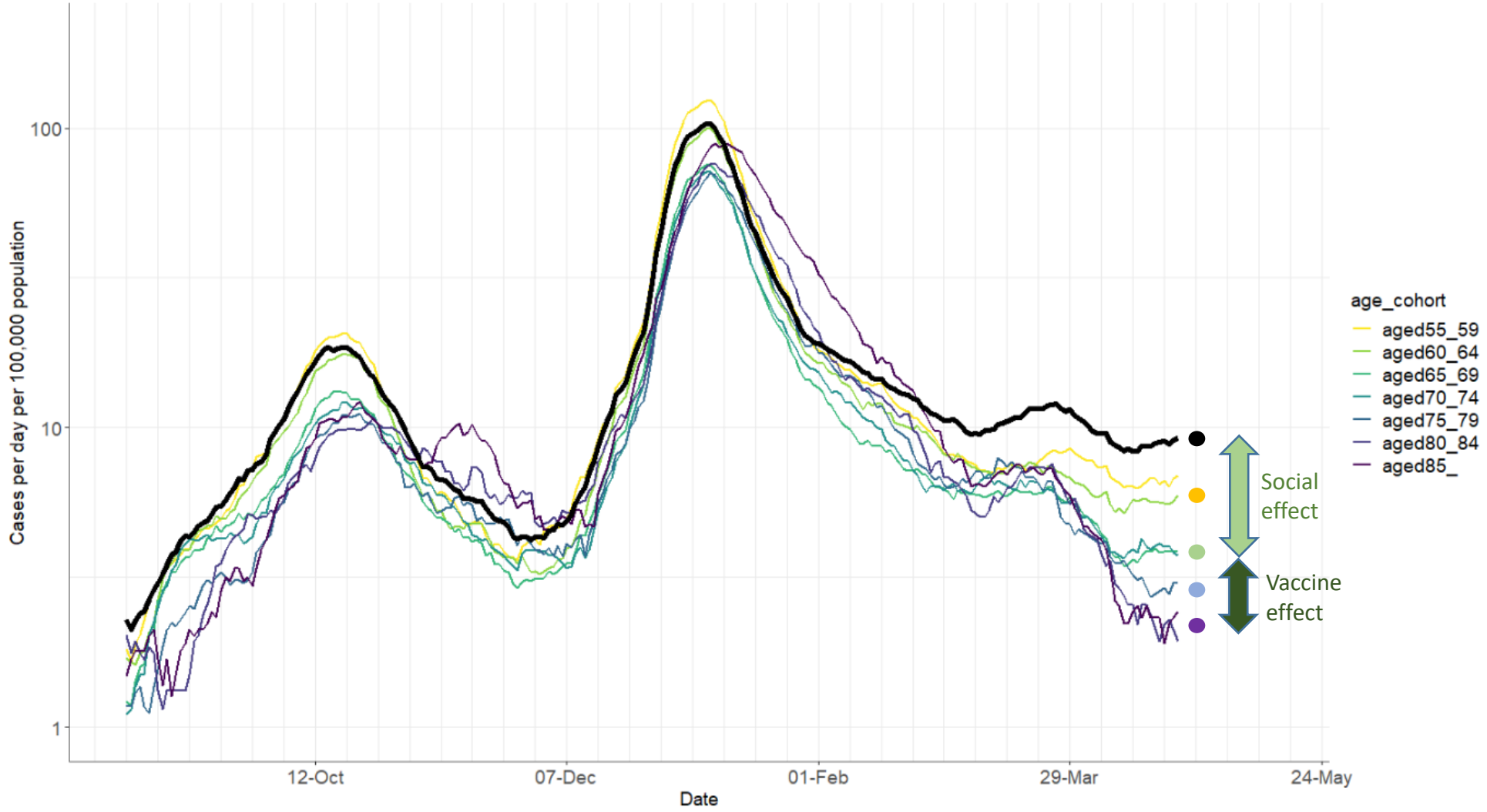

Age-specific incidence (new cases per day per 100,000 population, logarithmic scale) in those aged 55 and older, compared to a reference cohort (black, those aged 30-54 years). 21-day moving average.

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Google community mobility

There has been a significant increase in attendance at workplaces, and an associated decrease in time spent in the home, since 12 April 2021; these are now at similar levels to that seen in earlty September 2020. Attendance at workplaces increases when schools are open, and decreases when schools are closed.

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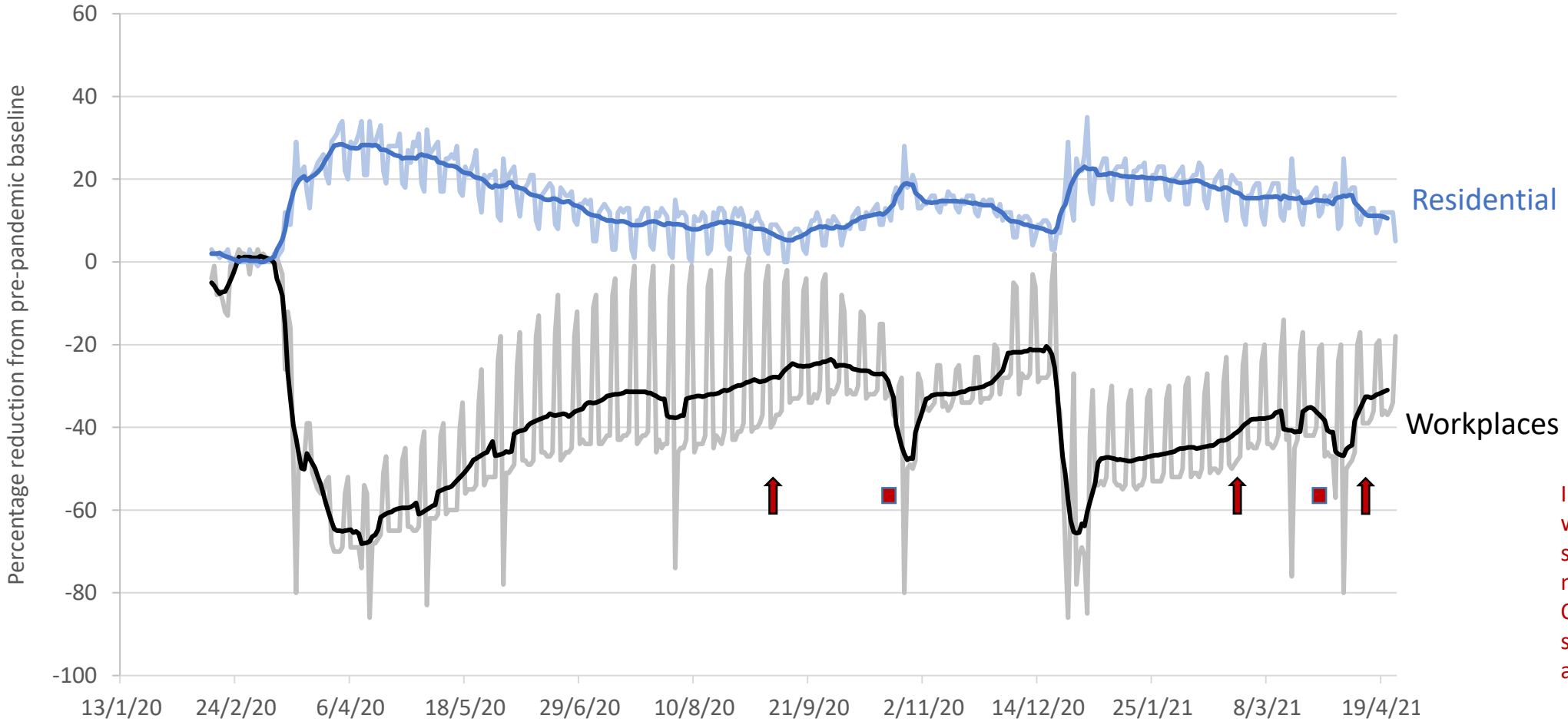

Increased attendance at workplaces coincident with school opening (arrows) note also and impact of October 2020 and April 2021 school breaks on workplace attendance (squares)

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. The attendance at workplaces compared to pre-pandemic baseline *increases* on weekends (people working on weekends less likely to be able to work from home, and decreases to very low levels on bank holidays. Daily data and 7-day moving averages.

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Google community mobility

There has been increased presence in parks in recent weeks

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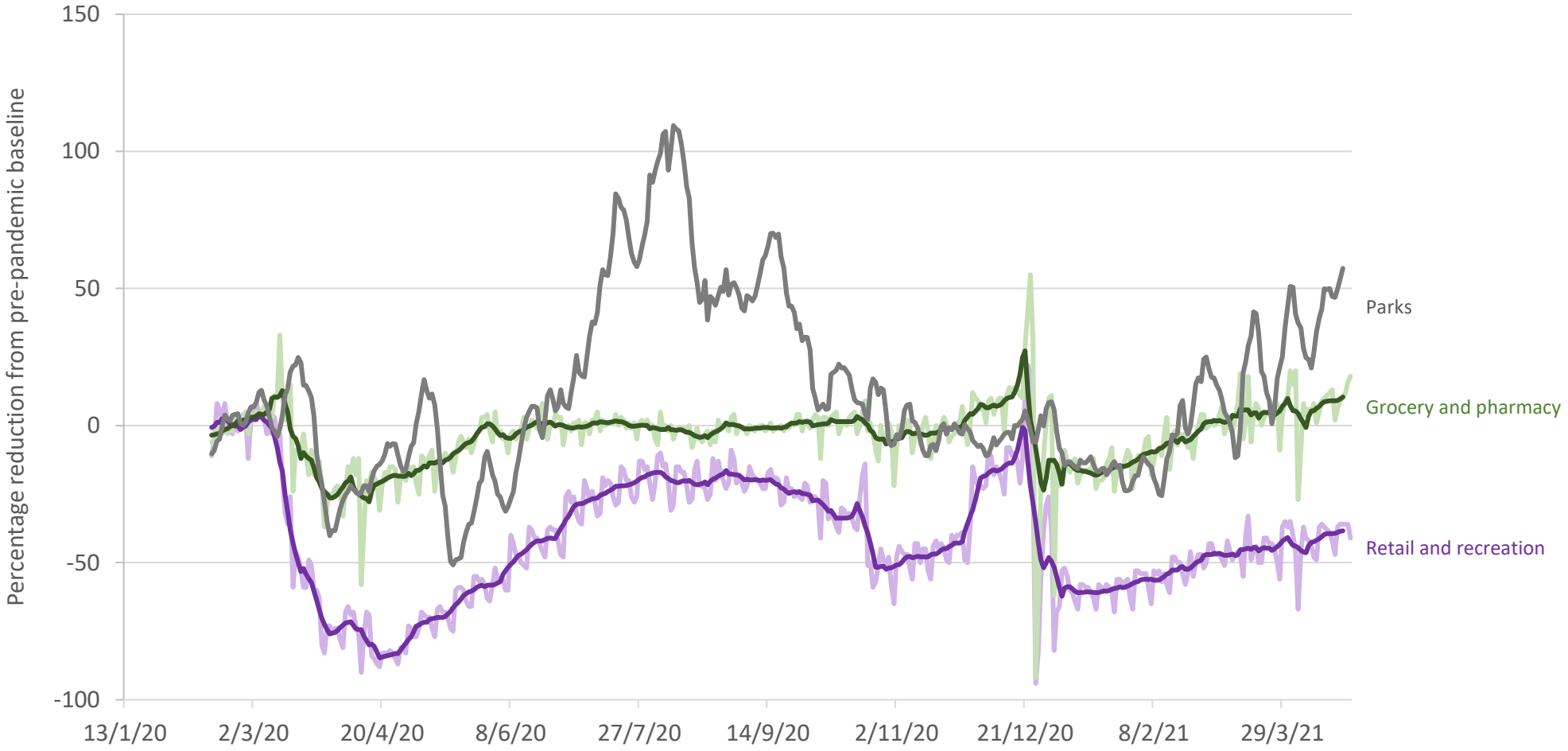

These data show numbers of people in grocery stores and pharmacies, and retail and indoor recreation settings, for those who enable location sharing on their Google account; each day of the week is compared with the average for that day of the week over January and February 2020. Daily data and 7-day moving averages are shown, 7-day average only for parks

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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 public health measures during October were 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 fell to 2.1 in January. It has increased to ≈ 2.6 in the latter half of February 2021, and remains stable at that level

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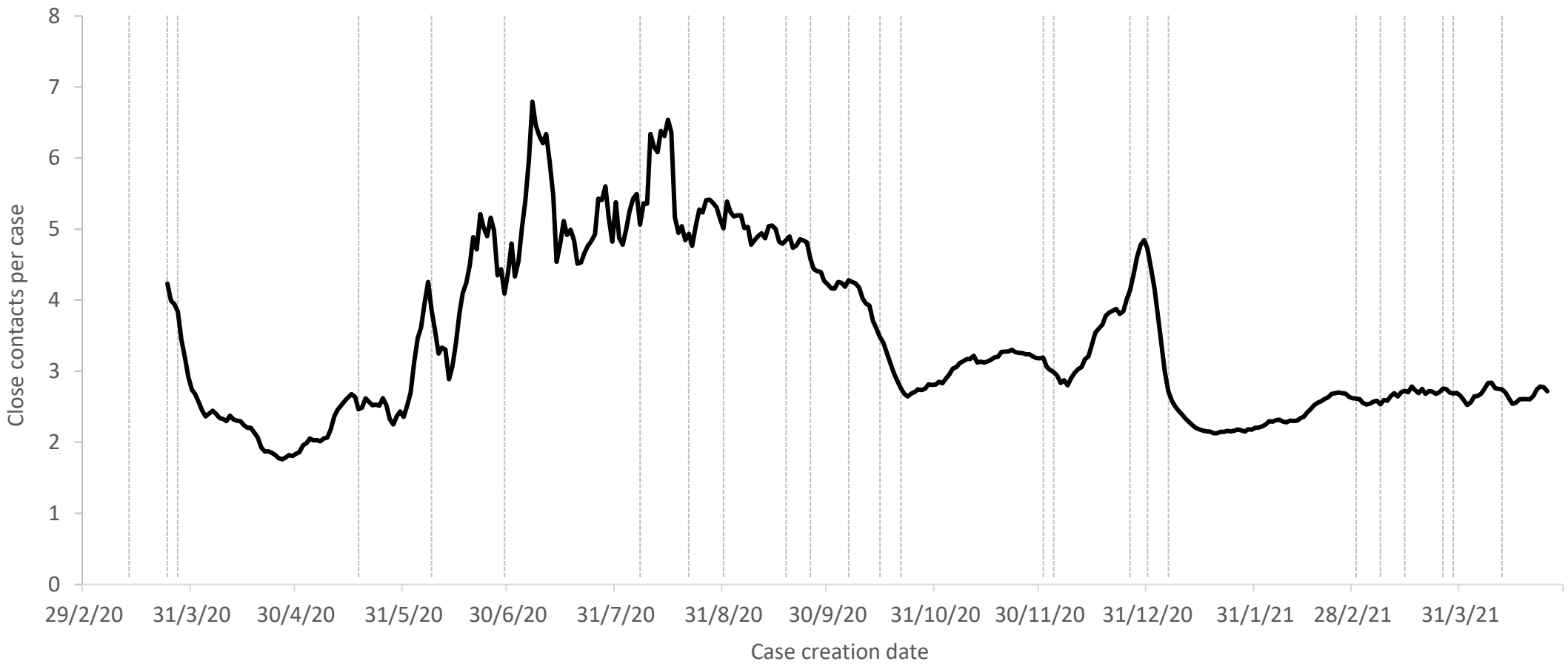

The average number of close contacts per confirmed case. Data from COVID-19 Care Tracker (CCT). Cases dated by case creation date. Cases (but not contacts) aged 18 and younger are excluded. Data are 7-day trailing averages except for the months of June – August where a 21-day trailing average is used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

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Growth rate for case numbers

Growth rate peaked at 13% per day over the 21-day period up to 10 January 2021. While case numbers decreased very rapidly in January (-6 to -10% per day) the rate of decline slowed to -2 to -4% per day from mid-February. Infections were static or grew slowly (growth rate 0% to +2% per day) for the latter half of March, and declined again in early April. . Case numbers have been growing againg: the growthrate is currently estimated at 0% to 2% per day.

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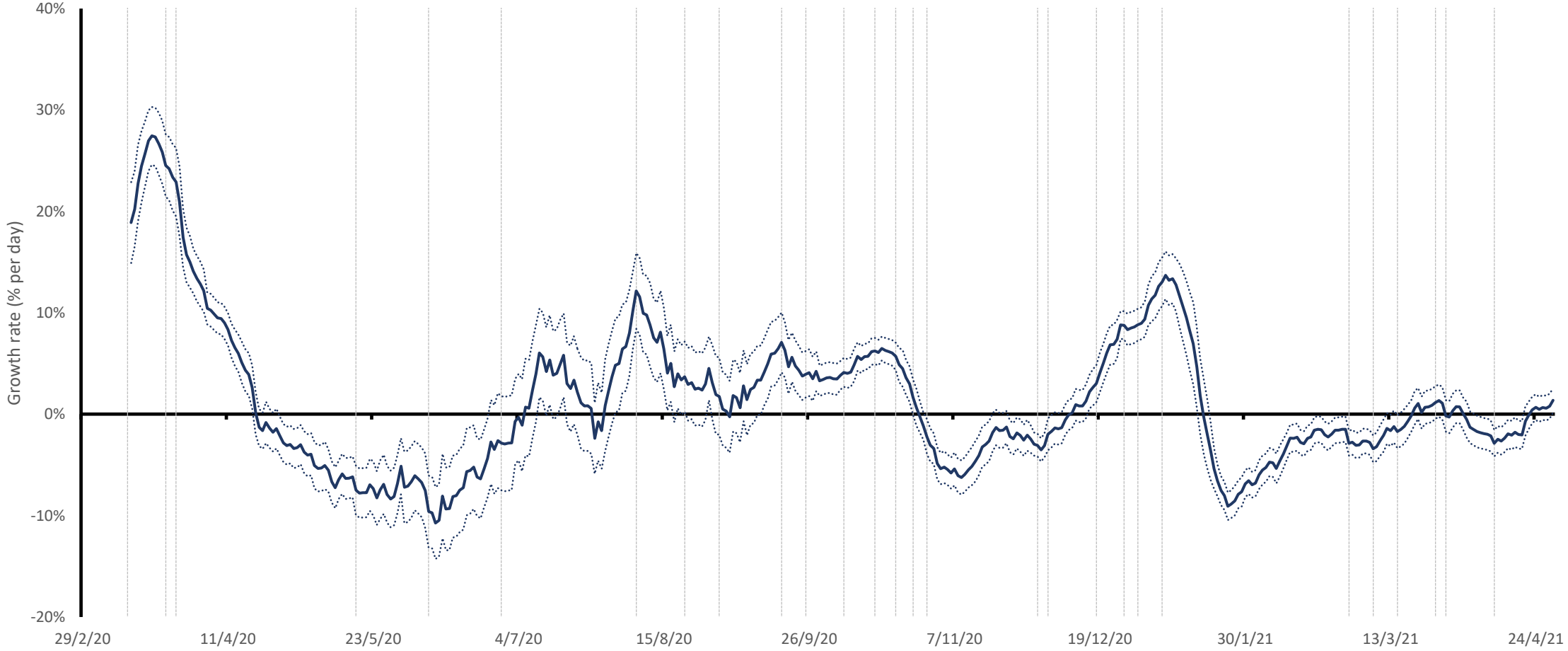

Growth rate calculated as the average growth rate over a 21-day trailing window,with 95% confidence interval; cases dated by notification (event) date.

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Estimates of effective reproduction number (R)

Reproduction number is above 1.0 with moderate levels of uncertainty in its estimation;
it is currently estimated at 1.0 – 1.2

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Method	Estimate	95% confidence interval
SEIR model-inferred	1.38	1.10 – 1.81
Bayesian model	0.98	0.71– 1.39
Time-dependent R	1.01	0.90 – 1.10
GAM estimate 20 Apr 2021	1.07	0.91 – 1.10
GAM estimate 27 Apr 2021	1.09	0.90 – 1.27

Estimates generated 28 April 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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Cautious phased reopening in May and June

A progressive reopening scenario, where social contact and reproduction number increase on 10 May to give an R_{eff} of 1.25, and on 7 June to give an R_{eff} of 1.5. Note that there is no further reopening after June 2021 in this scenario

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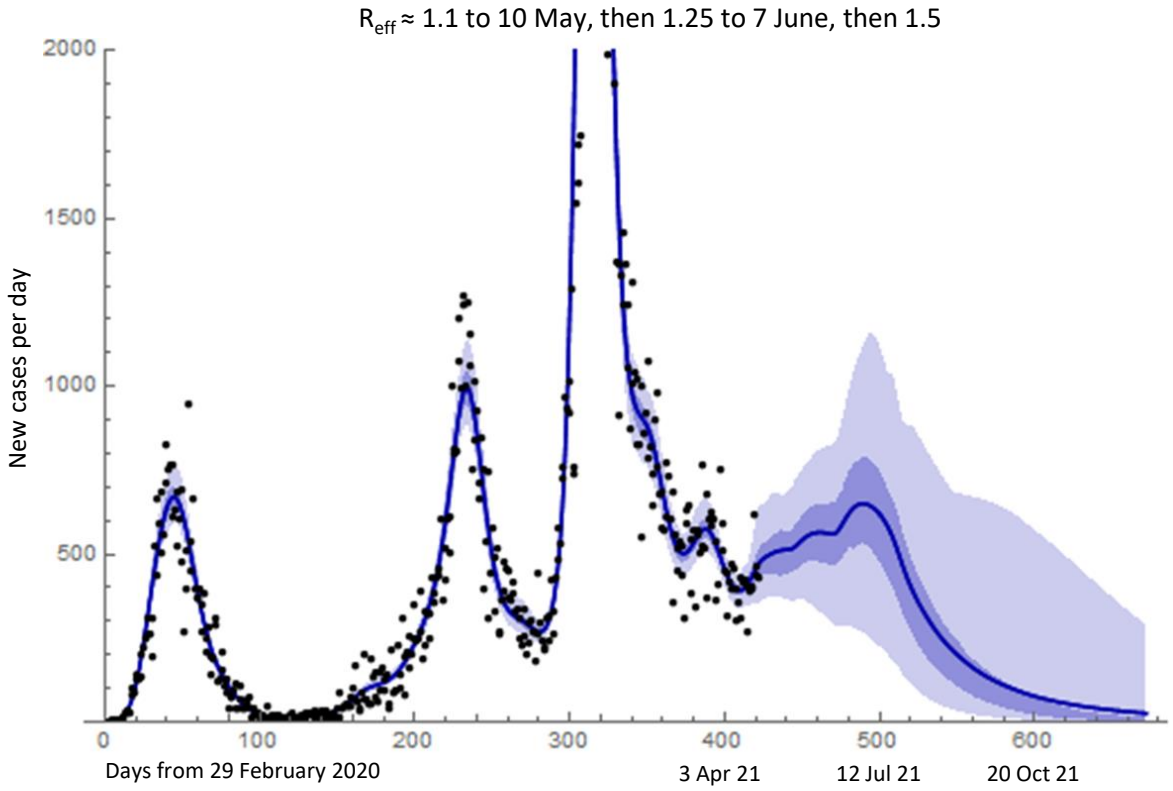

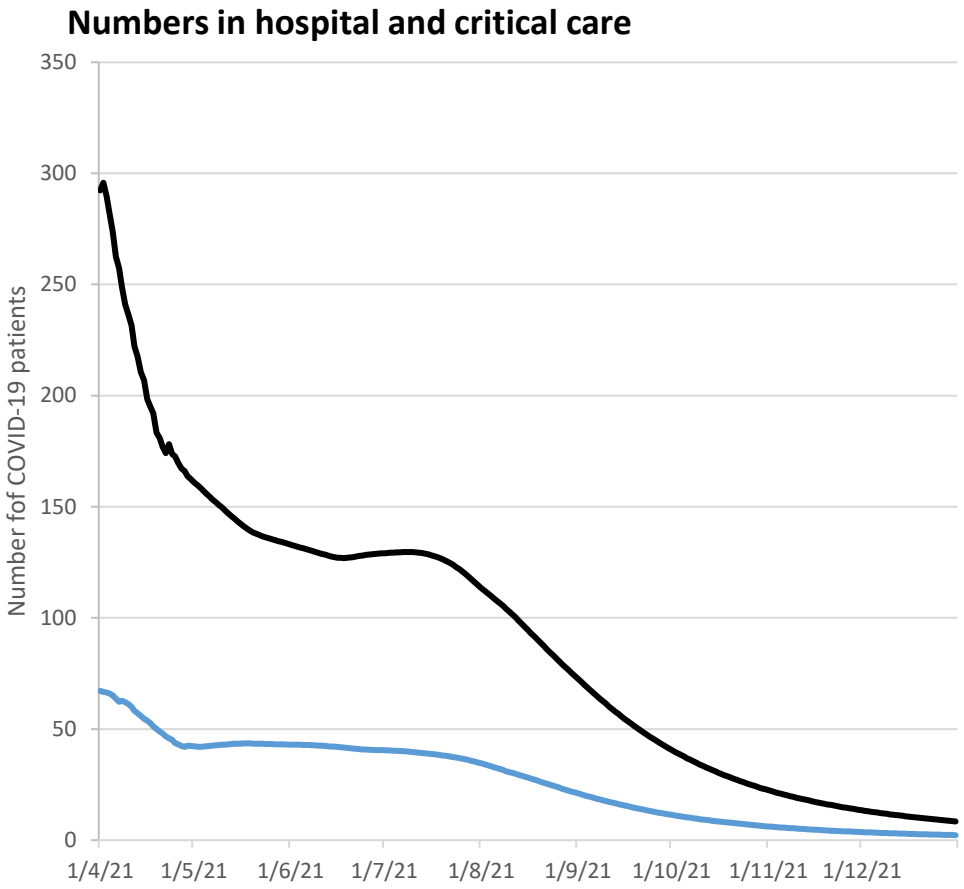

Left panel: Homogeneous population SEIR model scenario estimates of new cases per day where social contact and reproduction number increase on 10 May to give an Reff of 1.25, and on 7 June to give an Reff of 1.5. The effect of vaccination is included according to current vaccination plan, with average vaccine effectiveness and uptake assumptions as stated elsewhere. The stated R_{eff} applies on 23 April 2020 – transmissibility is held constant in the model from that point, but measured R_{eff} will decrease as immunity increases; transmissibility is then increased from 10 May and 7 June, and maintained constant thereafter; the stated R_{eff} is that which would have been measured, for that level of transmissibility, if the level of population immunity was the same as on 23 April 2021. The actual measured R_{eff} will be lower due to increased population immunity due to vaccination. The case counts are the total number of new cases (mean and 95% confidence intervals) over the period 1 May 2021 to 30 September 2021. Right panel: Numbers of people with COVID-19 in general beds (black) and requiring critical care (blue) in acute hospitals under the same transmission scenarios, along with the total number of new admissions over the period 1 May 2021 to 30 September 2021.

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Situation analysis 30 April 2021

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- Incidence is stable or deteriorating, with significant variability and uncertainty
  - Cases (5-day average) 450 cases per day; 14-day incidence 127 per 100,000
  - Test positivity low with increasing referral, especially in 13-18 year olds
  - Reproduction number (R) is estimated at 1.0 – 1.2, growth rate 0 to +2% per day
- Deaths and numbers in hospital continue to decrease, numbers in ICU static or decreasing slowly
- Significant impact of vaccination in those who have been vaccinated
- Significant increase in mobility, presence in the workplace, and a decrease in time spent at home; now at levels seen in early September 2020
- The number of close contacts per confirmed case is relatively stable
- A broadly positive outlook, with some uncertainty. Reopening has a low to medium risk and requires a strict adherence to the public health restrictions and advice
  - Outdoors is lower risk, but we still need to take the basic precautions
  - We need to keep close contacts low, and minimize the risk of transmission during any close contact