IEMAG briefing

7 October2020

Coronavirus
COVID-19
Public Health
Advice

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Cases, numbers in hospital and intensive care

Case numbers have been increasing since late June. Hospitalisations have increased considerably over the last four weeks, and we have seen increasing admissions to ICU in the last two weeks starting to increase. The number of deaths is increasing.

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	15 Apr	23 Jun	28 Jul	1 Sept	8 Sept	15 Sept	22 Sept	29 Sept	6 Oct
Cases confirmed per day	537	10	19	120	151	210	276	332	468
14-day cumulative incidence *per 100,000 population*	155	4.2	5.6	33.6	40.5	53.9	70.8	88.5	116
Hospital in-patients	856	45	11	32	46	55	80	103	131
Hospital admissions per day	*63*	*2*	*2*	*4*	*4*	*7*	*7*	*9*	*13*
ICU confirmed cases	149	17	6	5	6	9	15	17	21
ICU admissions per day	*8*	*< 1*	*< 1*	*< 1*	*< 1*	*1*	*1*	*1*	*2*
Deaths confirmed per day	30	2	< 1	0	< 1	1	1	2	2

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. NPHET 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.

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Testing

The numbers of tests remains high, the positivity rate is increasing slowly

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7-day average	14 Apr	22 Jun	27 Jul	31 Aug	7 Sept	14 Sept	21 Sept	28 Sept	5 Oct
Tests done per day	5,842	2,634	6,477	8,865	9,780	10,891	12,922	12,533	12,739
% tests positive	17%	0.5%	0.3%	1.3%	1.7%	2.1%	2.2%	2.8%	3.9%

Data are 7-day averages (the indicated day and the preceding 6 days)

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Confirmed cases each day

Daily and weekly count and 5-day rolling average – case counts have been increasing; the 5-day average is now 509.

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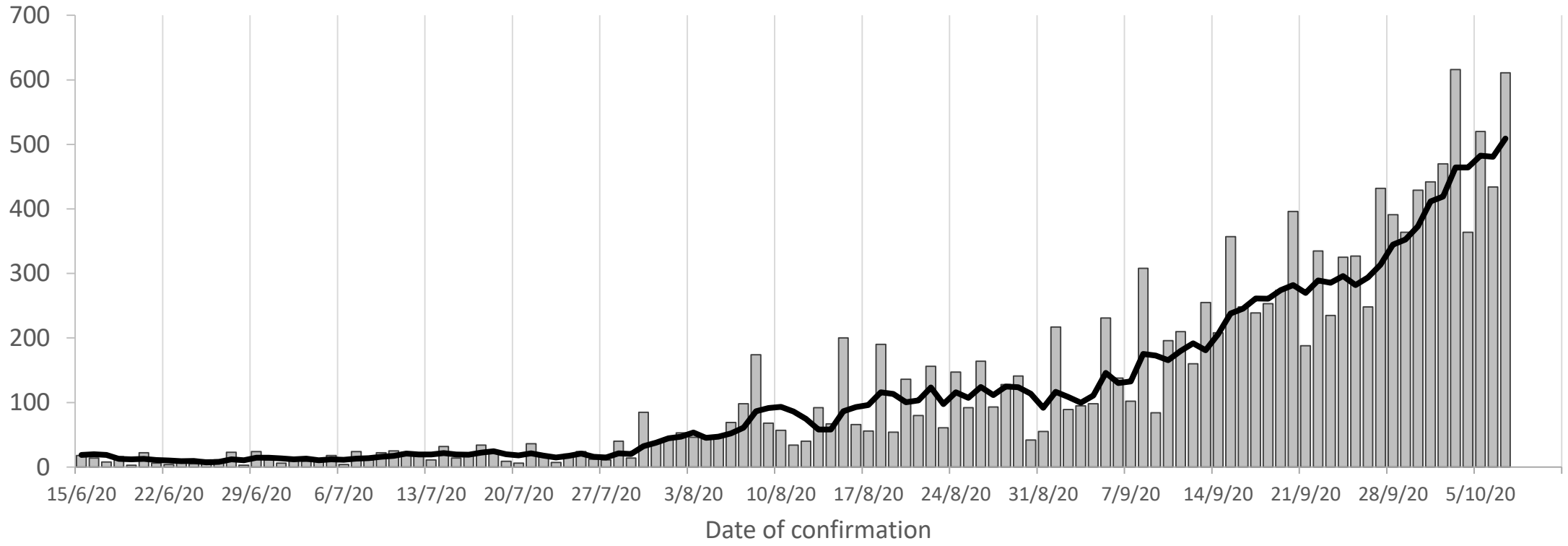
Cases confirmed each week	95	61	93	125	140	119	285	540	546	711	796	912	1304	1948	2062	3045



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. The number and percentage of cases defined as 'sporadic' is given: sporadic cases are those not associated with an outbreak, nor identified as close contacts of a confirmed case, nor acquired in a healthcare setting. A number of recent cases classified as sporadic will, on further investigation and data validation, be linked to outbreaks

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Confirmed cases each day

Daily case count and 5-day rolling average for Dublin alone and for the other 25 counties. Case counts may have started to stabilise in Dublin, but are growing exponentially across the rest of the country

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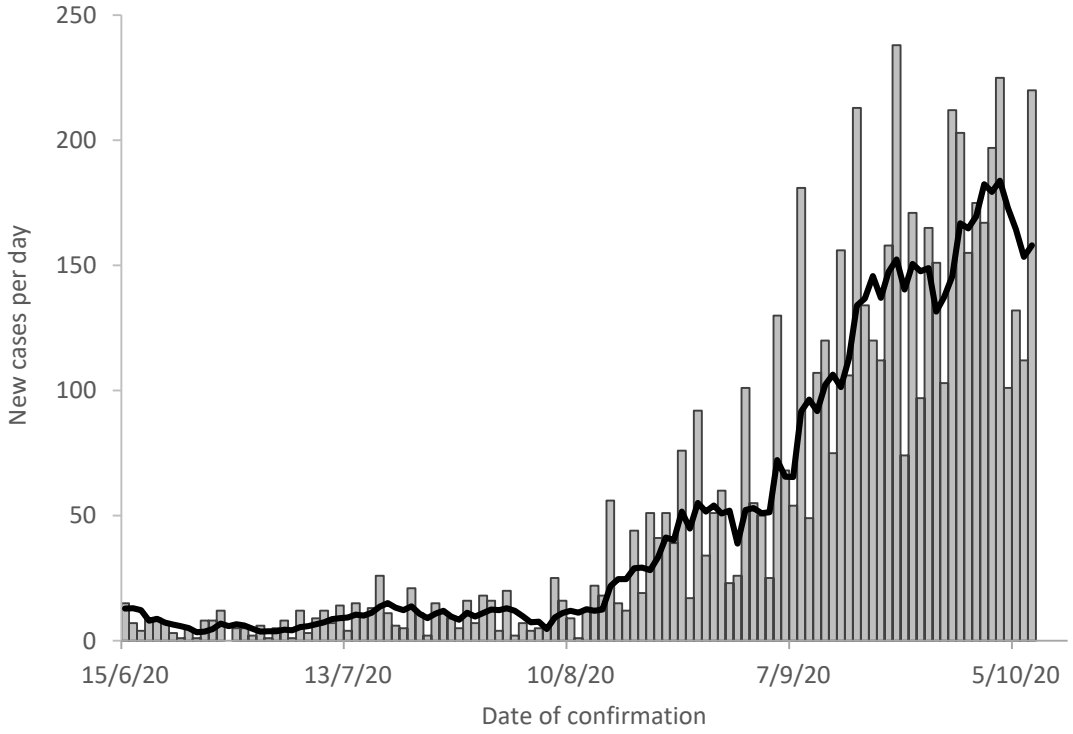
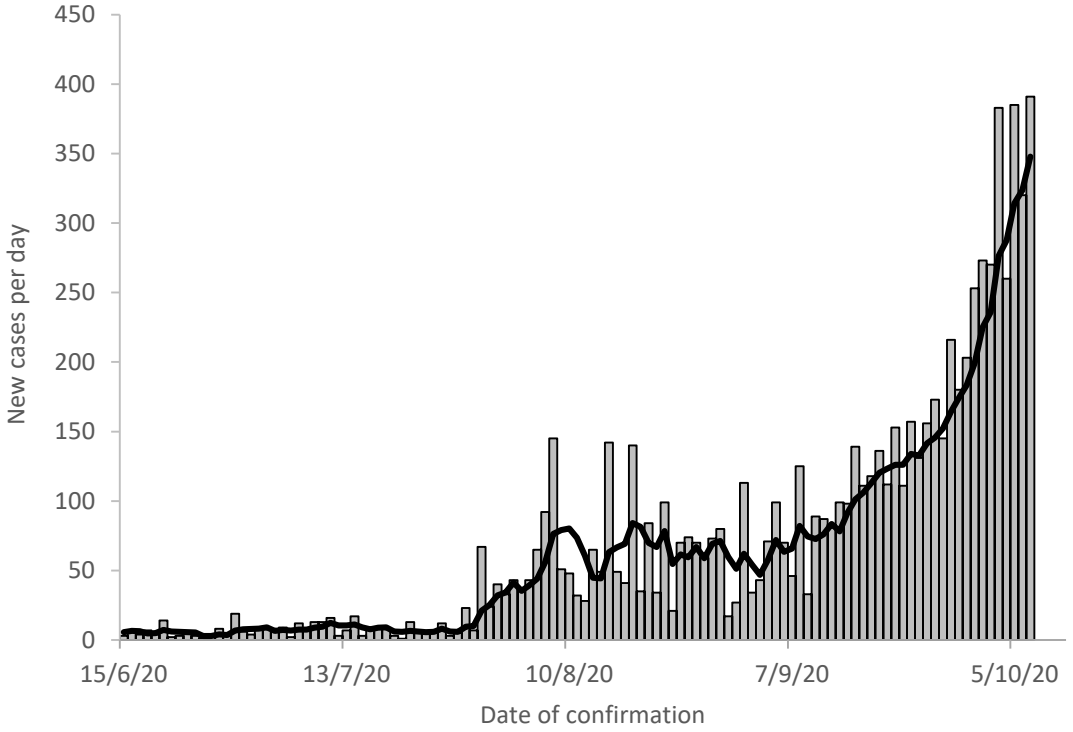
Dublin



25 counties



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.

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Cases, numbers in hospital and intensive care

Case numbers have been increasing since late June, followed by a delayed increase in hospitalisations, with a lower hospitalisation rate, because better testing and contact tracing have led to the detection of mild and asymptomatic cases. The number of people in ICU remains relatively low but is now starting to increase.

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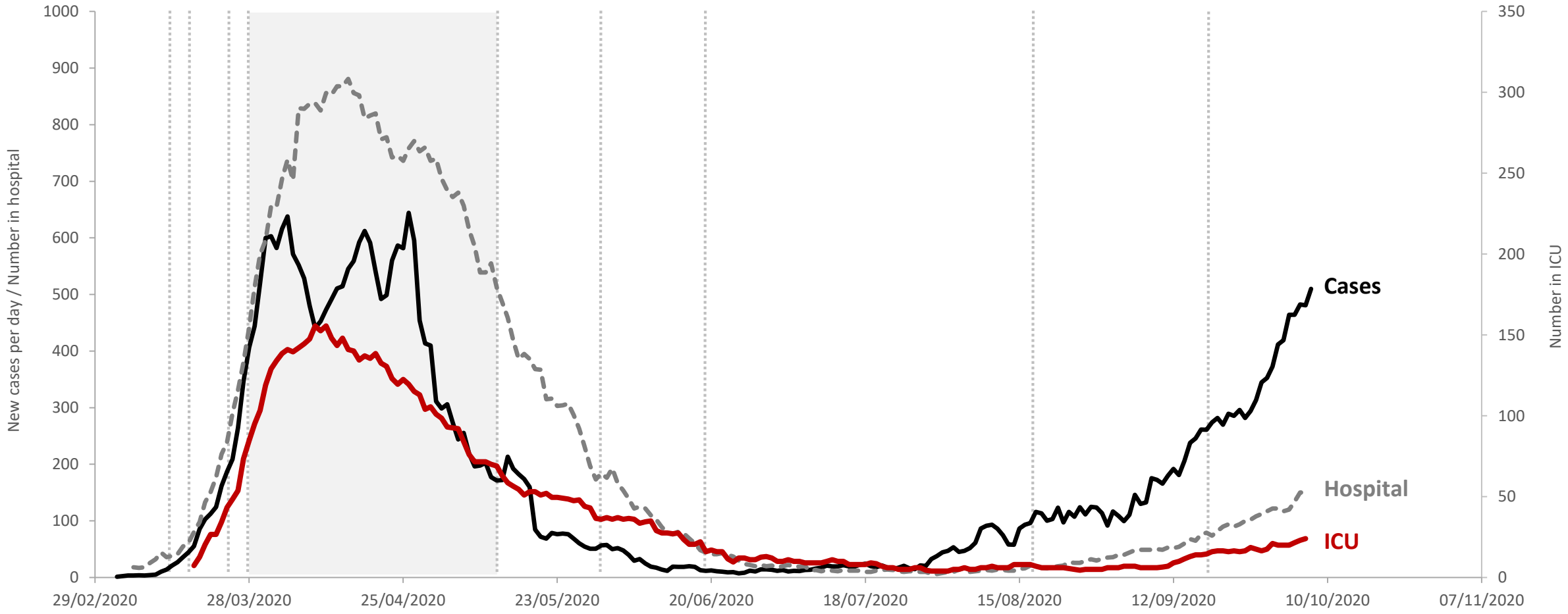

Cases: Number of new cases confirmed per day, cases assigned to date confirmed by HPSC. Tests outsourced to German laboratory in April backdated, using the specimen collection date, to the date they would have been confirmed if tested in a timely manner. Hospital: number of COVID-19 confirmed patients in acute hospitals. ICU: number of COVID-19 confirmed patients in ICU. 5-day averages. Grey vertical dashed lines and shading indicate the dates of escalation and de-escalation of public health restrictions.

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Deaths per day

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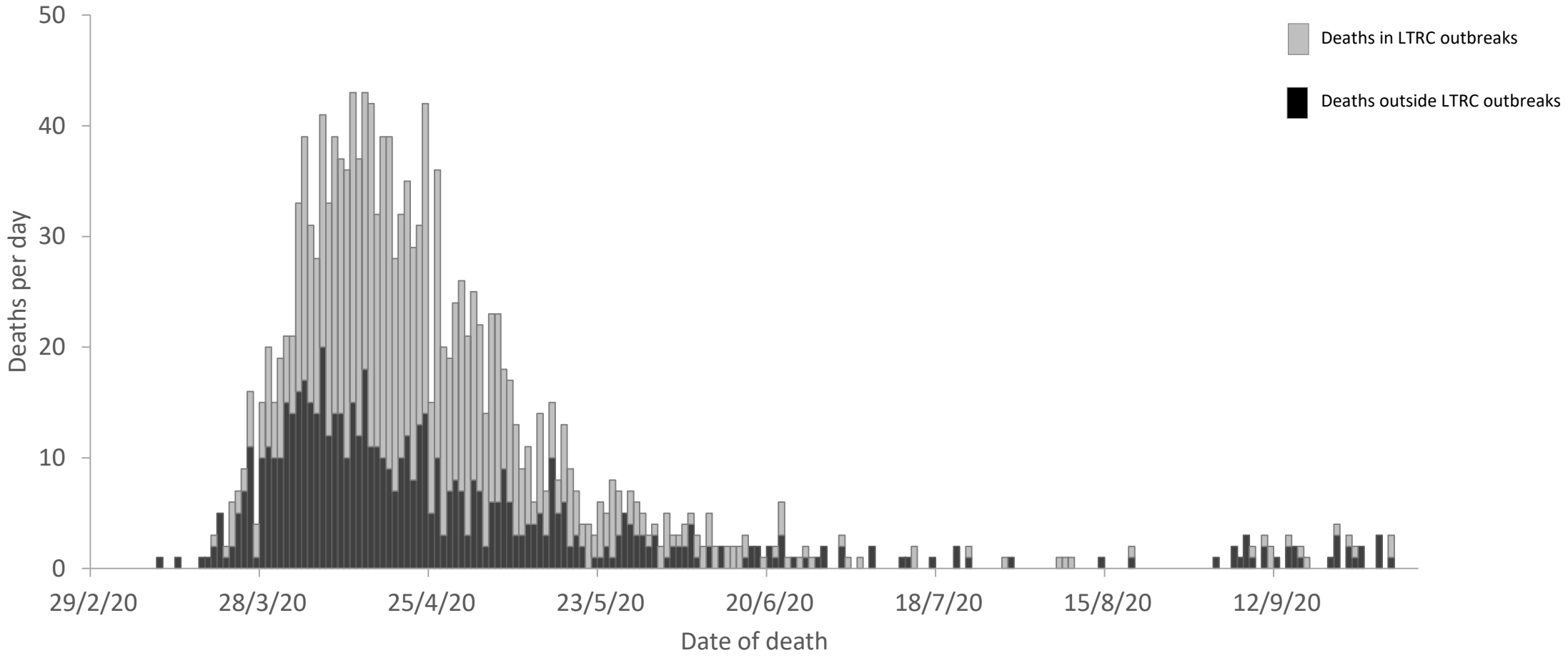

Deaths per day, separated into those associated with outbreaks in long-term residential care and those not associated with such outbreaks. Deaths with laboratory confirmed SARS-CoV-2 only

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Cases growing exponentially

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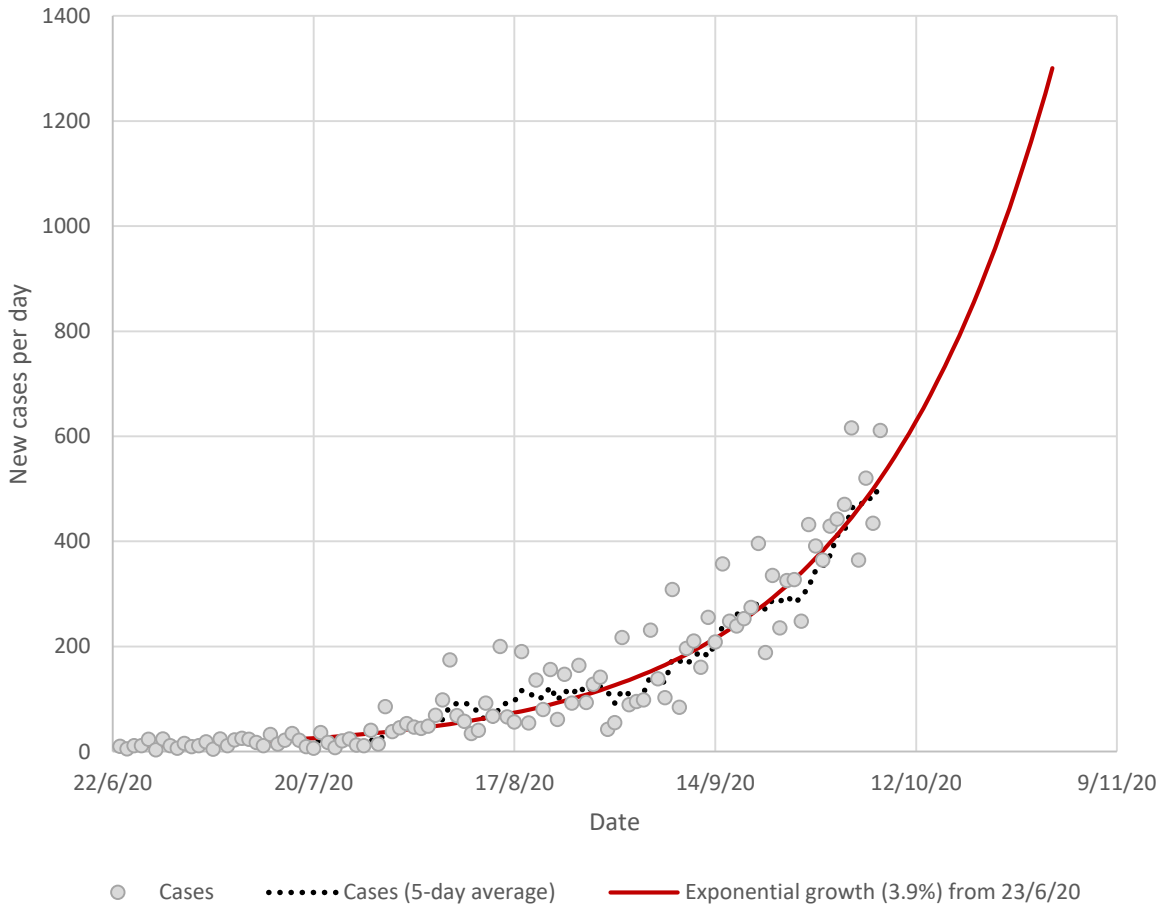

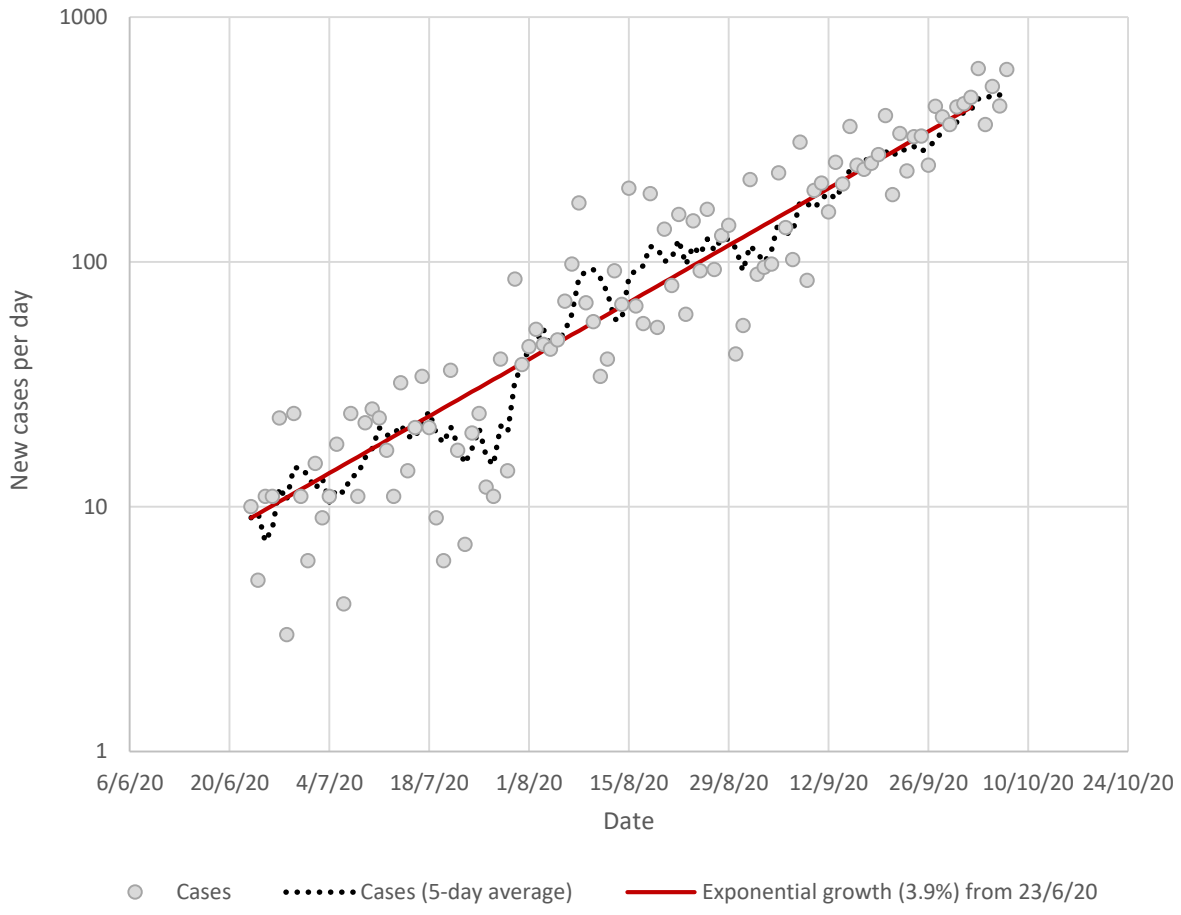

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Hospital occupancy growing exponentially

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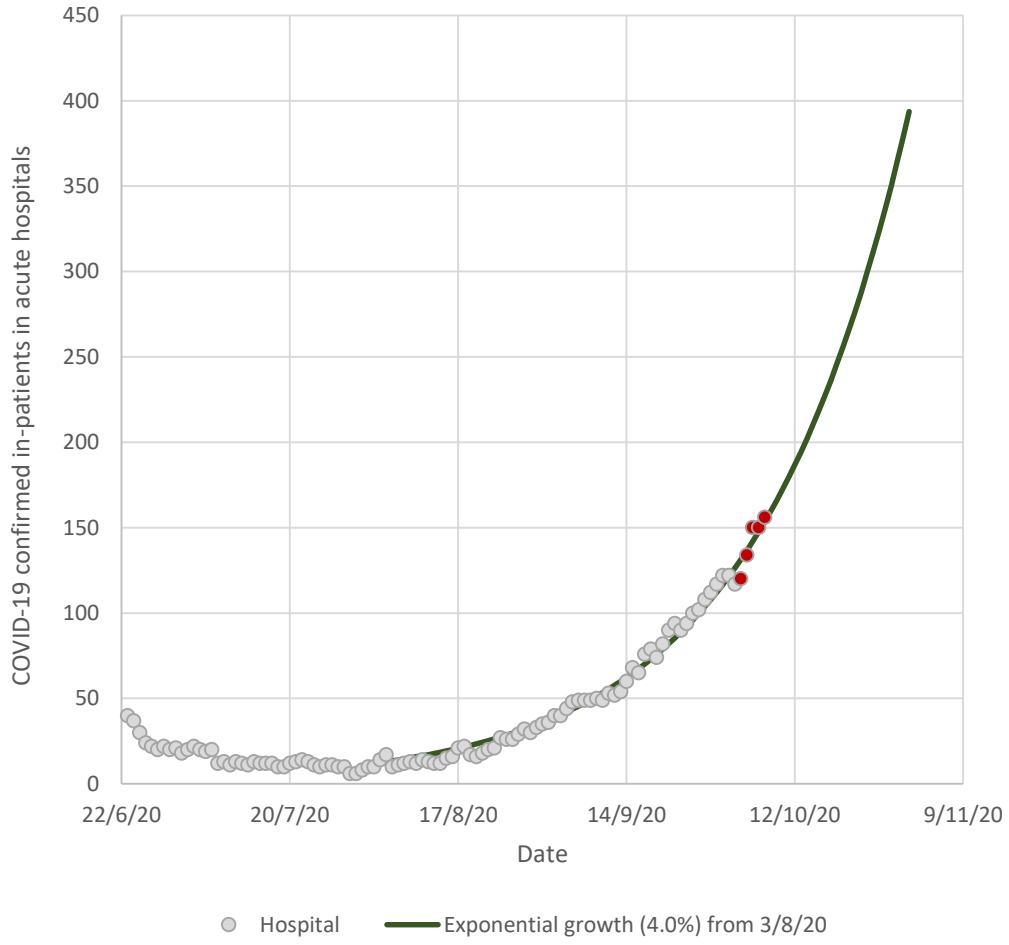

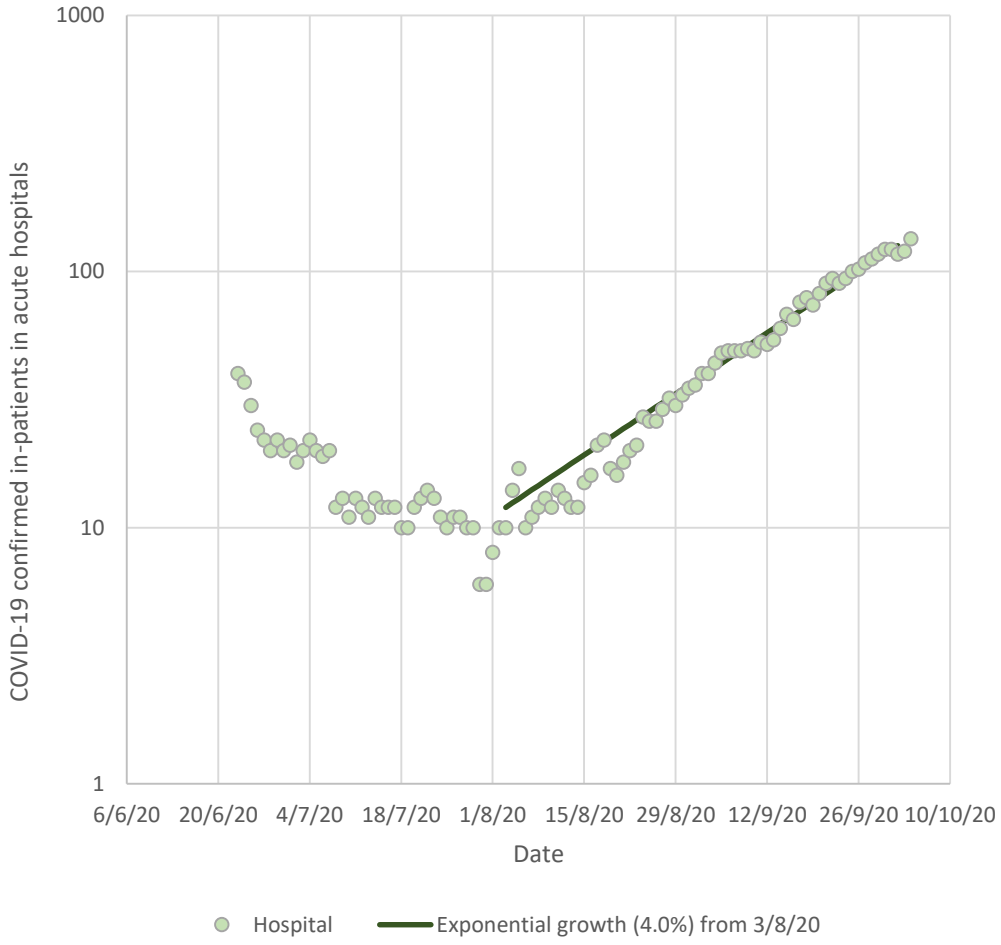

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14-day cumulative incidence by county

A heat map of 14-day cumulative incidence by county.

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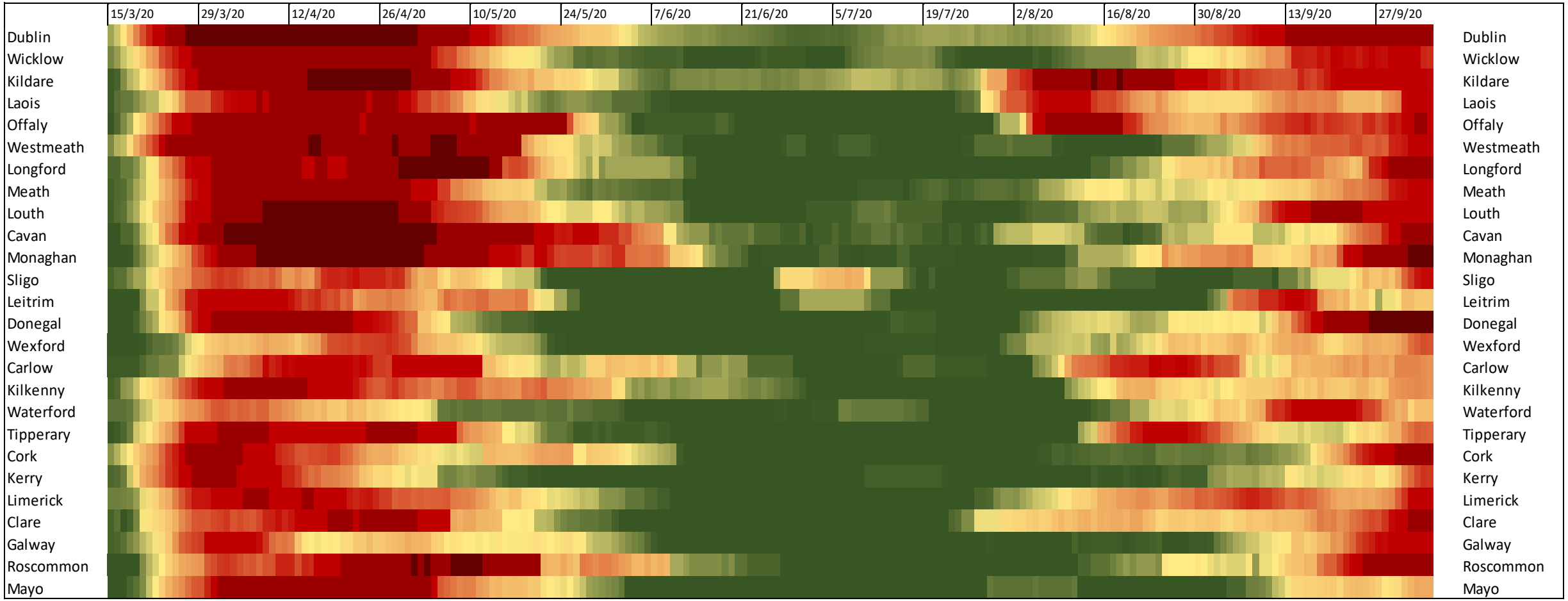

3	5	10	20	30	40	50	75	100	200

Scale: 14-day cumulative incidence per 100,000 population, cases dated by date of specimen collection.

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Incidence across different age groups (excl. HCW and LTRC)

When incidence started to rise again July, cases increased first in the 0-19 and 20-39 age group; the former relates to increased detection in children in household outbreaks, the latter due to younger workers in workplace outbreaks. There has been a major increase in incidence in recent weeks. Incidence in older age groups has started to rise and there has been a marked increase in incidence in the 19-24 age group. The incidence in the 0-18 age group, as a proportion of the overall incidence, is stable or decreasing

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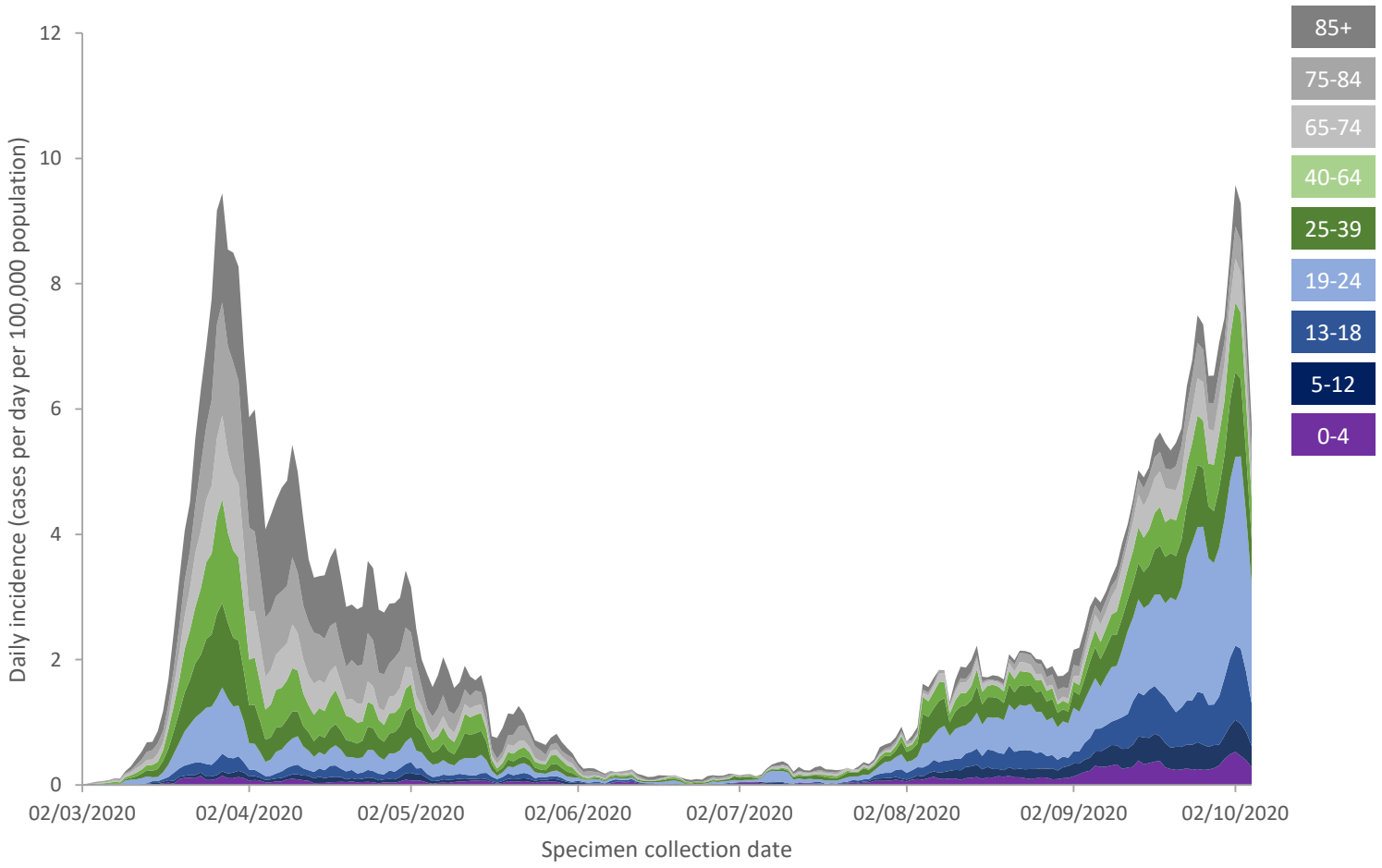

Week	Age band								
	0-4	5-12	13-18	19-24	25-39	40-64	65-74	75-84	85+
9	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.0
10	0.0	0.2	0.3	0.0	0.2	0.7	0.5	1.0	0.0
11	0.6	0.2	0.5	5.4	5.0	4.4	4.6	6.6	5.9
12	4.5	2.4	7.5	23.6	27.8	31.1	25.4	25.4	28.1
13	6.9	4.2	14.5	58.0	73.4	86.6	72.6	88.5	84.4
14	4.5	4.4	6.7	28.1	40.3	50.9	51.1	92.1	109.5
15	5.7	5.6	9.1	32.0	29.3	47.6	46.9	71.8	108.1
16	3.0	5.3	10.8	18.7	20.8	32.1	28.4	50.4	69.6
17	3.3	4.2	7.8	21.1	23.7	26.6	21.2	49.9	60.7
18	4.5	6.4	9.4	20.2	26.1	21.0	18.7	37.1	45.9
19	2.1	2.7	4.8	13.3	15.3	14.6	10.4	18.8	31.1
20	3.6	1.6	4.8	12.1	16.4	11.9	6.7	9.2	10.4
21	3.3	2.7	4.6	8.5	6.3	8.2	7.5	15.3	20.7
22	2.1	2.4	2.2	4.2	5.1	6.8	4.0	4.6	4.4
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	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	10.9	2.0	1.1	1.9	1.0	3.0
29	1.2	0.4	0.8	3.0	3.3	1.9	2.4	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	1.5
32	4.5	3.8	6.7	19.9	16.7	11.0	4.8	2.5	3.0
33	6.6	10.4	12.9	28.7	20.5	12.5	8.6	2.5	5.9
34	6.6	6.9	16.7	34.7	15.3	10.5	5.6	5.1	1.5
35	6.3	9.7	13.5	37.4	18.6	11.2	4.8	9.2	5.9
36	13.0	13.5	17.5	47.7	22.4	13.5	11.0	11.7	16.3
37	17.5	17.5	29.9	64.0	28.4	24.8	22.8	8.7	7.4
38	21.4	26.2	44.1	90.6	44.6	35.1	32.9	19.8	14.8
39	12.4	22.8	42.8	149.2	51.0	42.8	33.7	31.0	17.8
40	28.4	27.5	61.1	166.4	68.6	58.5	34.3	27.0	29.6

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). 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 date of specimen collection.

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Estimates of effective reproduction (R)

R estimates are very unstable at present, because transmission rates in Dublin and the rest of the country appear to be different. Our best estimate at this time Is that R for the country as a whole is approximately 1.2. It is possible that reproduction number for Dublin is closer to 1.0, but that reproduction number for the rest of the country is significantly higher, closer to 1.5.

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Method	Estimate	95% confidence interval
SEIR model-inferred	1.64	1.46 – 1.58
Bayesian model	1.32	0.67 – 1.31
Time-dependent R	1.19	1.06 – 1.32
GAM estimate 29 Sept 2020	1.26	0.92 – 1.61
GAM estimate 6 Oct 2020	1.21	0.71 – 1.70

Estimates generated 6 October 2020, refer to IEMAG technical notes for methodology. Estimates are unreliable when case numbers are low or variable. Time-dependent R estimates relate to infectious events approximately two weeks ago. GAM is best estimate for current R. 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 *22 September 2020*. R varies over a wide range thereafter, with strong public health measures introduced to bring R below 1 as cases approach 1000 per day

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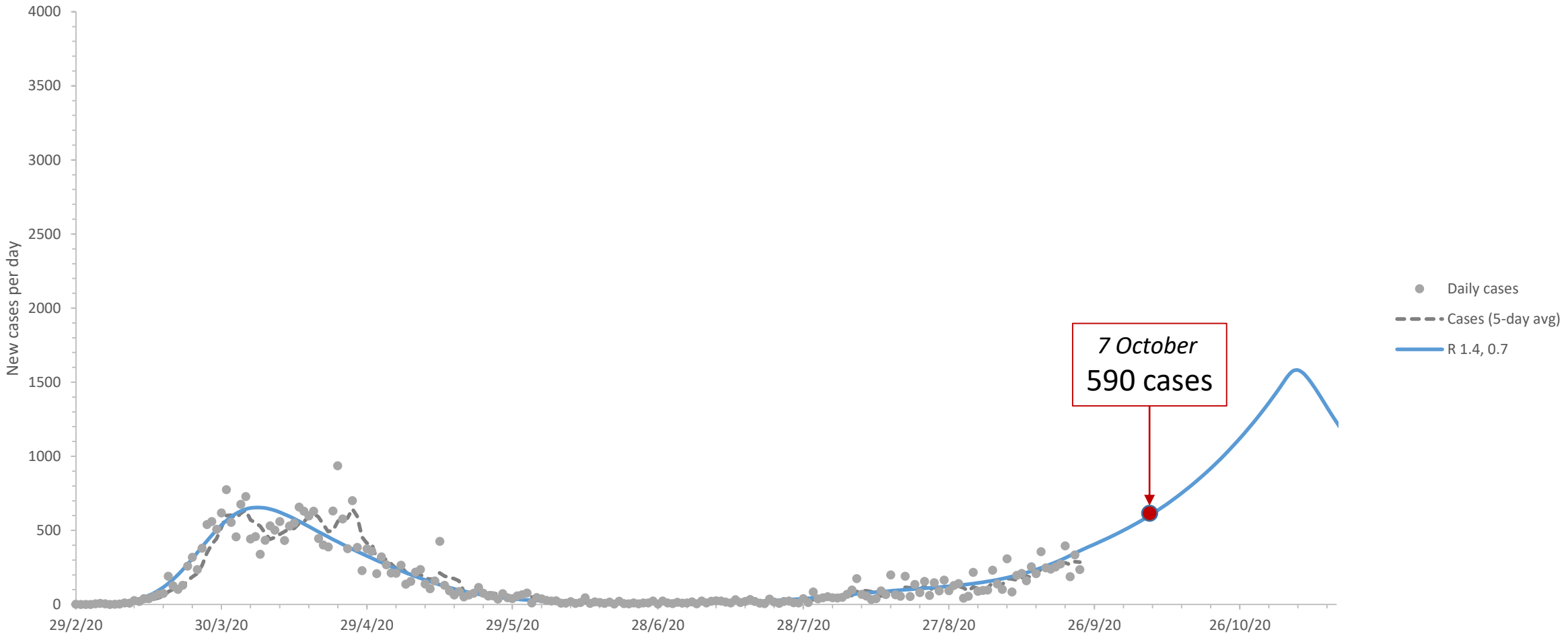

Model projections of the number of new cases infections per day. The model is calibrated with daily case counts to 22 September 2020, and run with R between 0.7 and 1.8. It is assumed that strict public health restrictions are re-introduced, to bring R below 1.0, 6 weeks later for R = 1.4, and 4 weeks later for R = 1.8. This is a scenario model only. If is not a forecast, nor does it imply or anticipate any future policy decision.

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What do our models tell us?

Model calibrated to case data until *5 October 2020*. R varies over a wide range thereafter, with strong public health measures introduced to bring R below 1 as cases approach 1000 per day

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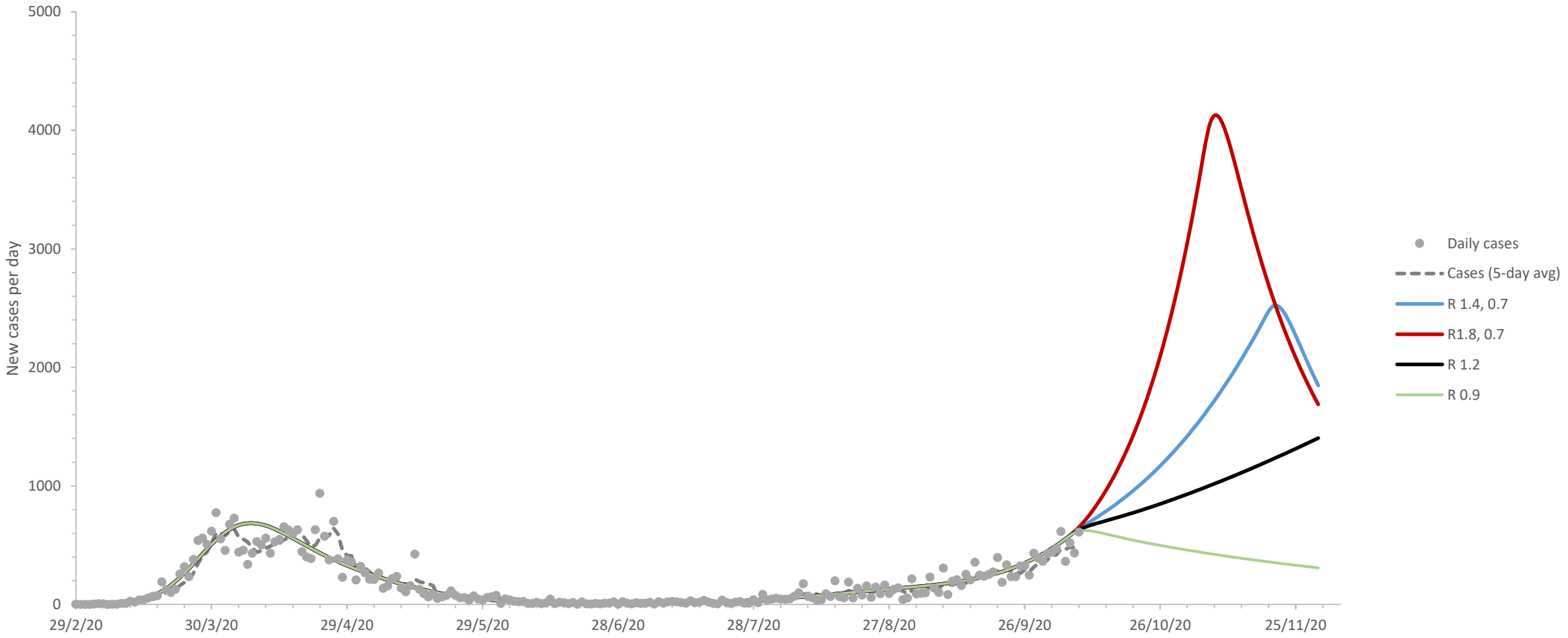

Model projections of the number of new cases infections per day. The model is calibrated with daily case counts to 28 September 2020, and run with R between 0.7 and 1.8. It is assumed that strict public health restrictions are re-introduced, to bring R below 1.0, 6 weeks later for R = 1.4, and 4 weeks later for R = 1.8. This is a scenario model only. If is not a forecast, nor does it imply or anticipate any future policy decision.

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Situation analysis 7 October 20

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- Case numbers growing exponentially
  - Growth rate approximately 4% per day
  - Doubling time 18 days
  - R estimated at 1.2
- Hospitalisations also increasing exponentially
- Intensive care admissions and deaths increasing
- A different pattern outside Dublin
  - Growth rate in Dublin is lower, less than 2%, perhaps beginning to stabilize, but recent case counts very variable and it is too early to confirm this as a trend
  - Growth rate outside Dublin significantly higher
  - R may be close to 1.0 in Dublin, but is likely to be as high as 1.5-1.6 across the rest of the country
- Continued increase in incidence in 19-24 yo cohort; slower increase in those aged 65 and older; increasing case numbers in Nursing Homes
- If we fail to reduce viral transmission nationwide immediately, we could see 1100-1500 cases per day, and 300- 450 people in hospital by 7 November 2020

HSE

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