IEMAG briefing

30 October 2020

Coronavirus
COVID-19
Public Health
Advice

Rialtas na hÉireann
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Cases, numbers in hospital and intensive care

Case numbers have been increasing since late June, and have decreased for the first time over the last week. Hospitalisations and admissions to ICU have increased over the last six weeks, as have the number of deaths. Hospitalisations and deaths are delayed relative to changes in case numbers.

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	16 Apr	24 Jun	29 Jul	23 Sept	30 Sept	7 Oct	14 Oct	21 Oct	30 Oct
Cases confirmed per day	551	9	18	274	359	493	809	1176	836
14-day incidence *per 100,000 population*	157	3.8	5.7	75	93	125	192	291	287
Hospital in-patients	858	42	11	84	108	136	204	279	330
Hospital admissions per day	*56*	*2*	*2*	*7*	*10*	*14*	*19*	*23*	*18*
ICU confirmed cases	147	15	5	16	18	22	30	32	40
ICU admissions per day	*8*	*< 1*	*< 1*	*1*	*1*	*2*	*3*	*3*	*3*
Deaths confirmed per day	32	2	< 1	1	2	2	3	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. 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 now starting to decrease.

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7-day average	15 Apr	23 Jun	28 Jul	22 Sept	29 Sept	6 Oct	13 Oct	20 Oct	29 Oct
Tests done per day	5579	2610	6494	12996	12624	12924	14486	16002	14237
% tests positive	18%	0.5%	0.4%	2.2%	3.0%	4.0%	6.3%	7.1%	5.3%

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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Testing and test positive rate

The number of tests remains high and the positivity rate is now starting to decrease.

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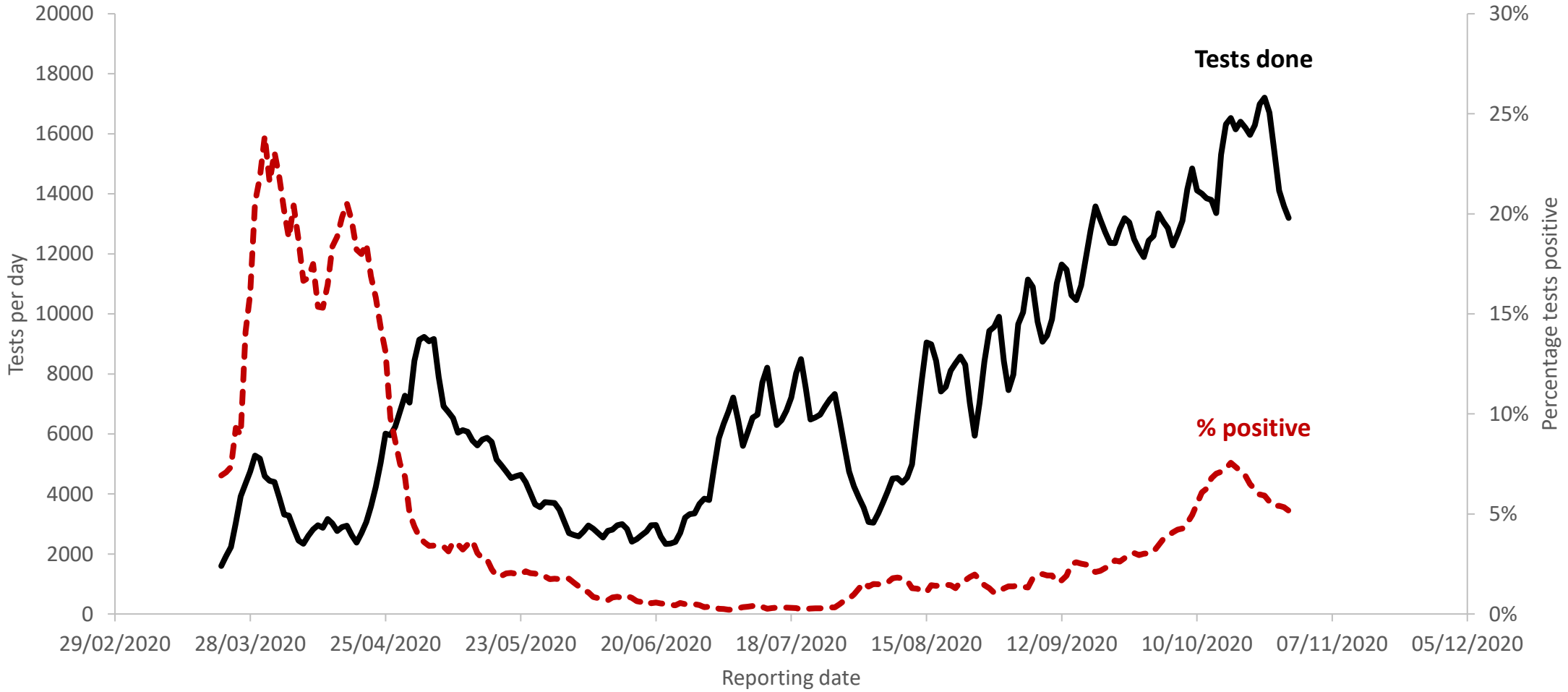

Data 5-day rolling averages, tests outsourced to German laboratory in April backdated using specimen collection date. The aggregate positivity rate should be interpreted with caution, as it includes community referrals, close contacts, mass and serial testing, and hospital testing, and changes in numbers 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 – case counts have been decreasing since 23 October; the 5-day average peaked at 1205 on 21 October and is now 794.

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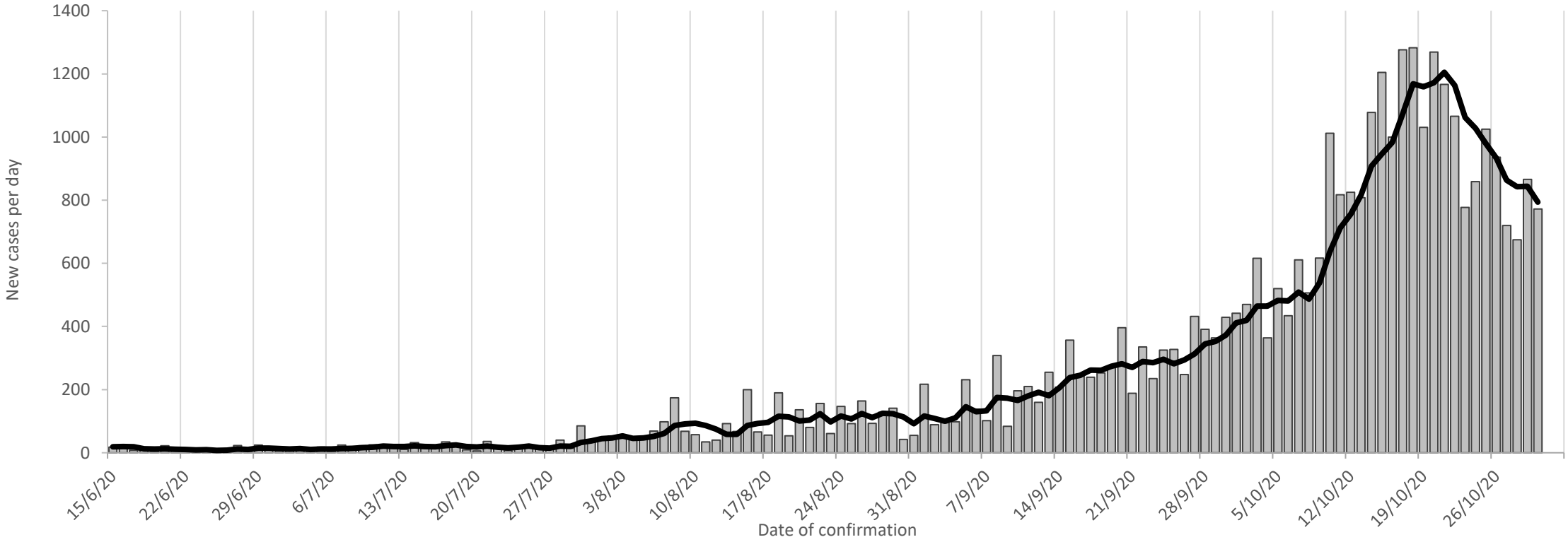
Cases confirmed each week	95	61	93	125	140	119	284	540	546	711	796	912	1304	1948	2060	3035	4473	7453	7163



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.

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14-day cumulative incidence

14-day cumulative incidence peaked at 170 per 100,000 in late April, declined to 3 per 100,000 in late June, peaked again on 26 October at 310, and is now 287 per 100,000

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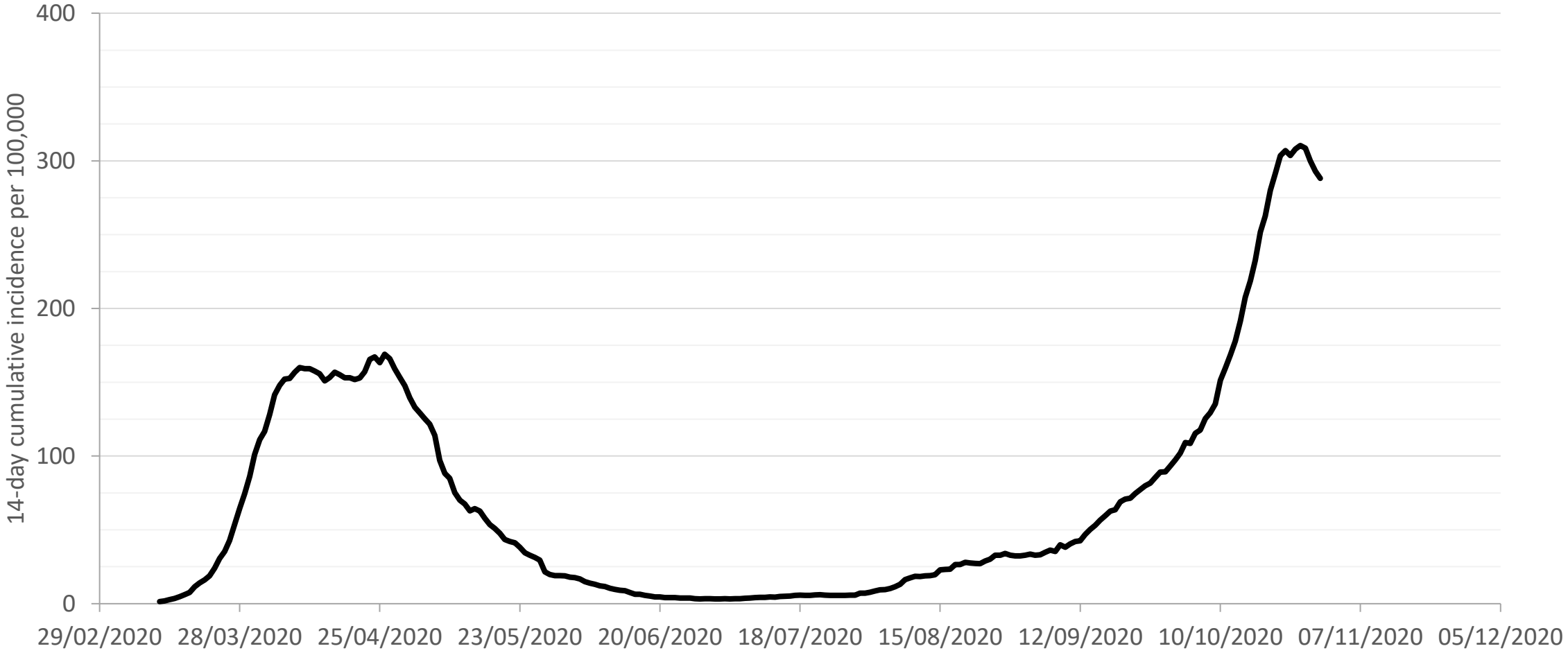

14-day cumulative incidence by date of confirmation. Tests outsourced to German laboratory in April backdated, using the specimen collection date, to the date they would have been confirmed if tested in a timely manner.

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Confirmed cases in acute hospitals

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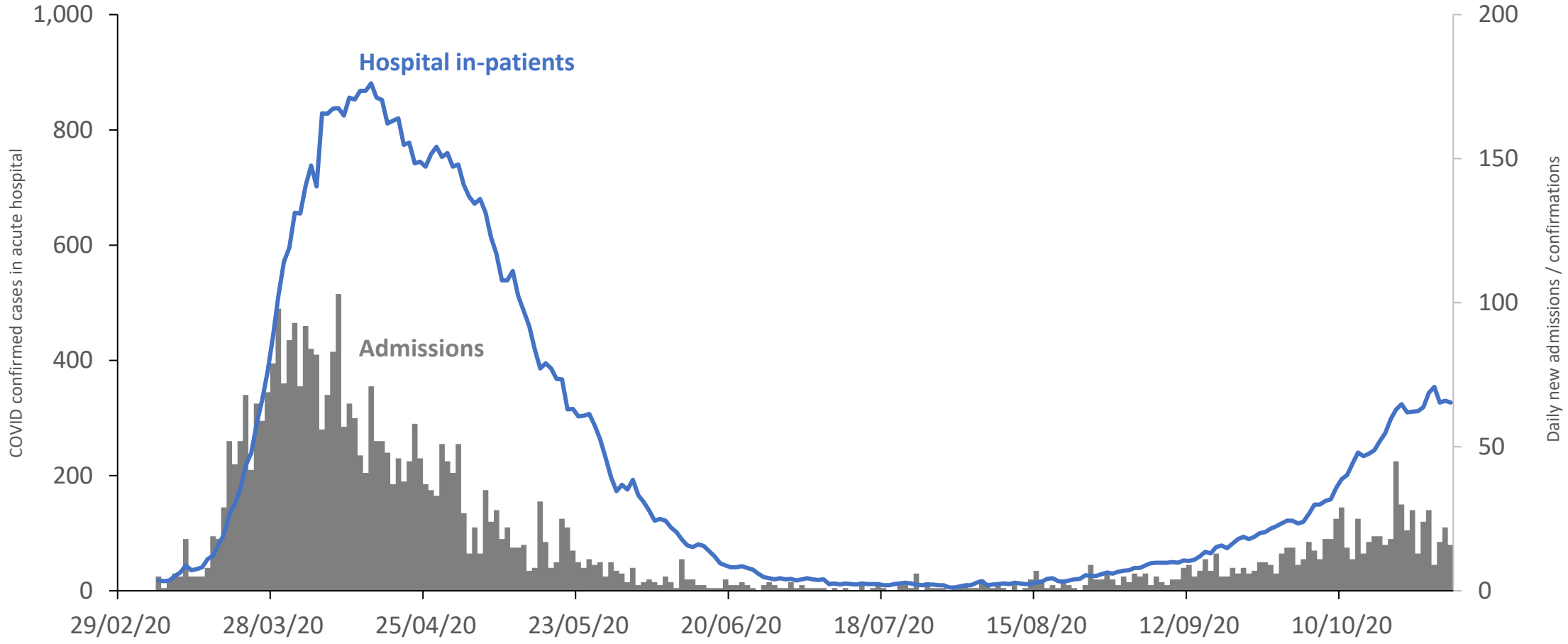

Hospital in-patients: Daily count of number of COVID-19 confirmed cases in acute hospitals. Daily admissions: New COVID-19 confirmed admissions and new laboratory confirmations of suspected cases in preceding 24 hours. Data from HSE PMIU-SDU, 8am census.

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Confirmed cases in intensive care

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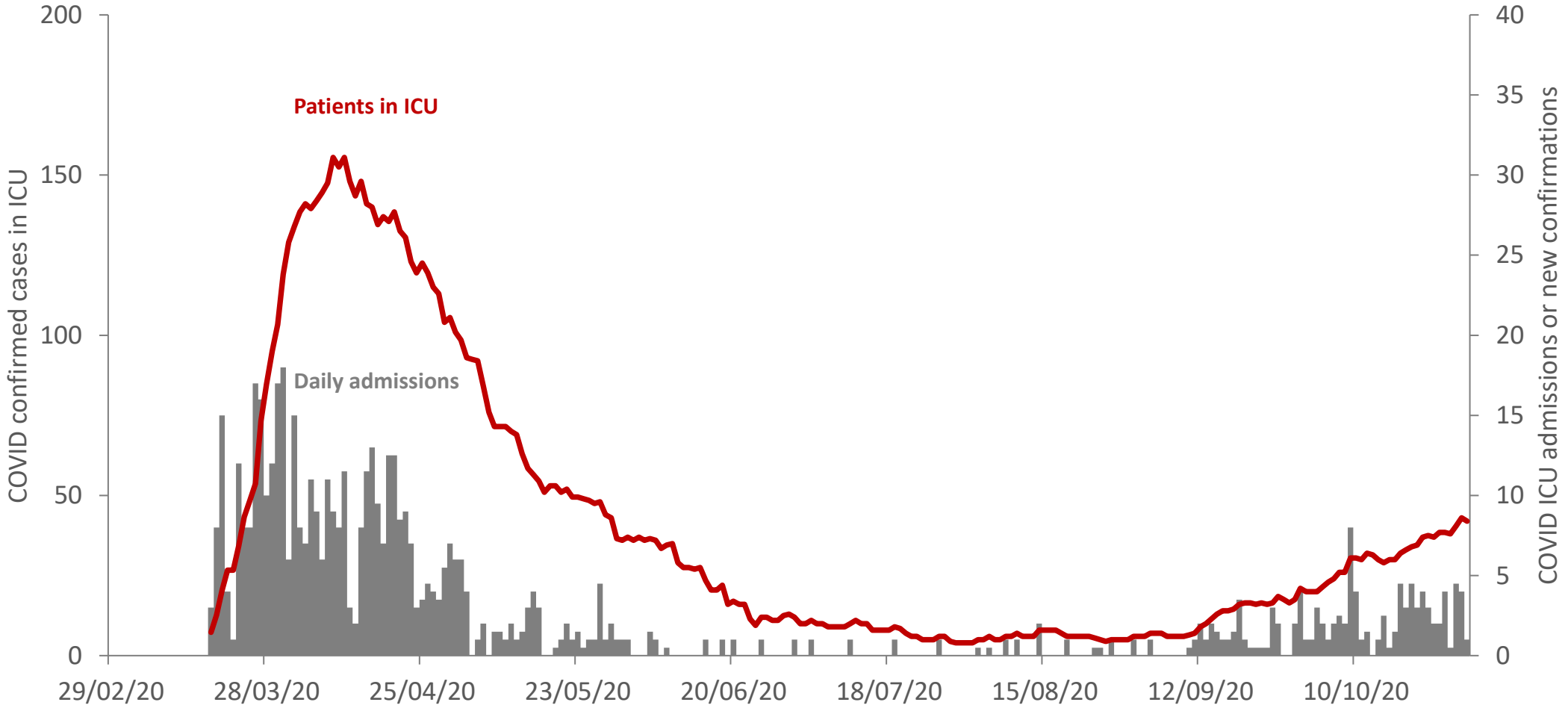

Patients in ICU: Daily count of number of COVID-19 confirmed cases in ICU. Daily admissions: new COVID-19 confirmed admissions to ICU and new laboratory confirmations of suspected cases in ICU. Average of morning and evening census from NOCA

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Deaths per day

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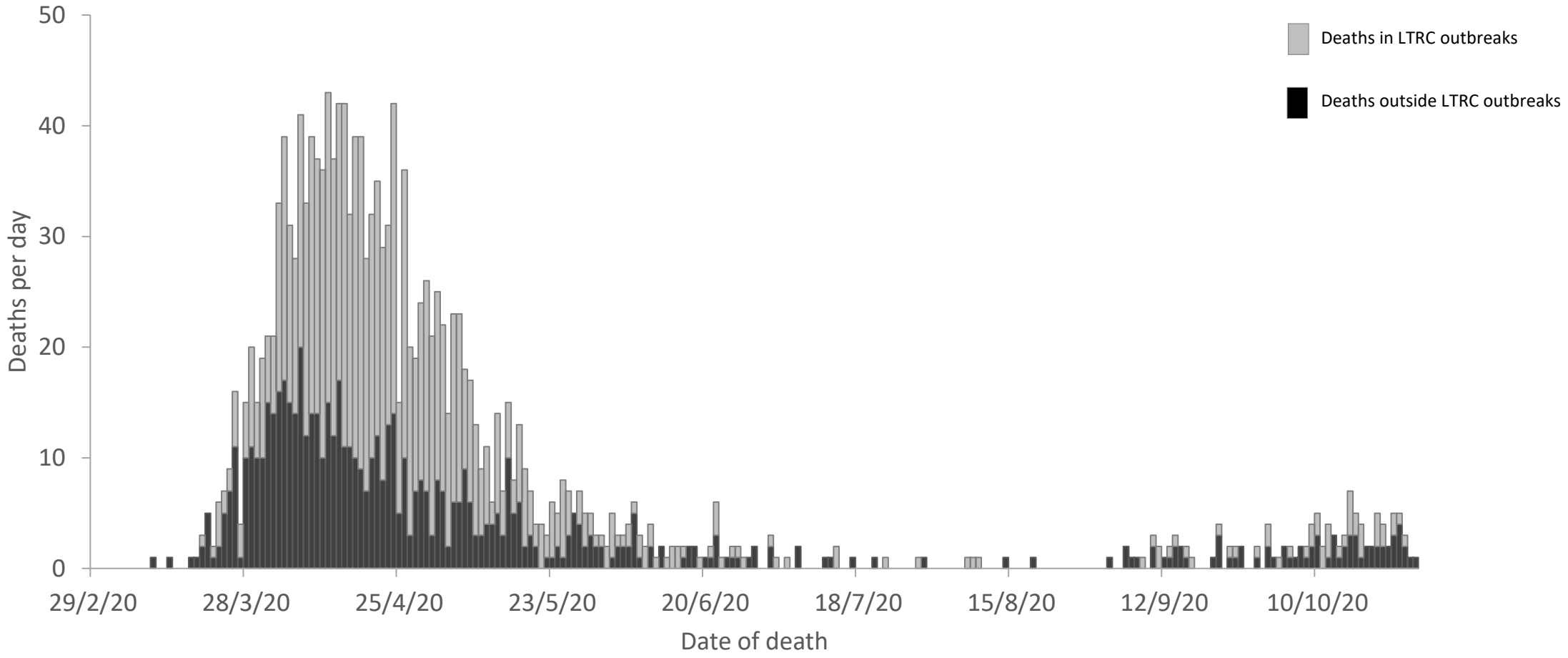

Deaths per day, separated into those associated with outbreaks in long-term residential care and those not associated with such outbreaks. Deaths with laboratory confirmed SARS-CoV-2 only

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Severity and fatality increase steeply with age

The percentage of those with confirmed SARS-CoV-2 infection who were admitted to hospital, admitted to intensive care, and who died, for the period from 29 February 2020 to 30 June 2020 and separately for the period 1 July 2020 to 30 September 2020. The seroprevalence study suggests that for each case detected in the early part of the pandemic there were two mild or asymptomatic cases that were not detected. While it is an oversimplification, we would expect hospitalisation and case-fatality rates in the coming months to be one third to one fifth of those experienced in the early part of the pandemic. Our best estimate of infection-fatality ratio is that it ranges from around 0.1% in those aged 20-30 to 7-8% in those aged over 85.

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Cases notified 29 February 2020 to 30 June 2020

Age (years)	Admitted to Hospital	Admitted To Intensive Care	Died
0-19	6.6%	0.4%	0.1%
20-39	6.3%	0.5%	0.2%
40-59	13.7%	3.0%	1.0%
60-64	26.4%	7.6%	3.2%
65-69	38.4%	9.5%	9.5%
70-74	49.0%	8.3%	14.3%
75-79	56.9%	6.0%	22.2%
80-84	64.6%	2.0%	25.2%
85+	66.4%	1.1%	33.2%
All ages	**20.1%**	**2.9%**	**4.7%**

Cases notified 1 July 2020 to 30 September 2020

Age (years)	Admitted to Hospital	Admitted To Intensive Care	Died
0-19	1.3%	0.0%	0.0%
20-39	1.2%	0.0%	0.0%
40-59	3.5%	0.6%	0.2%
60-64	6.8%	1.6%	0.3%
65-69	8.5%	2.0%	0.0%
70-74	20.7%	5.9%	3.6%
75-79	25.4%	3.5%	6.1%
80-84	24.7%	0.0%	5.6%
85+	31.9%	0.0%	8.3%
All ages	**3.4%**	**0.5%**	**0.3%**

The percentage of those with confirmed SARS-CoV-2 infection notified were admitted to hospital, admitted to intensive care, and who died. This analysis excludes healthcare workers and those cases associated with outbreaks in long-term residential care, in order to be representative of the wider population. This analysis based on CIDR extract of 09.15 14 October 2020

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Daily incidence: Dublin

The introduction of Level 3 measures in Dublin coincided with an immediate stabilisation of case numbers; this is likely due to people reducing their social contacts in anticipation of the formal restrictions. However, this was not sustained, and incidence rose rapidly from 6 October, doubling over the next 10 days, before stabilising again. This suggests that Level 3 measures stabilise but do not reduce incidence, and at high incidence leave us vulnerable to further surges.

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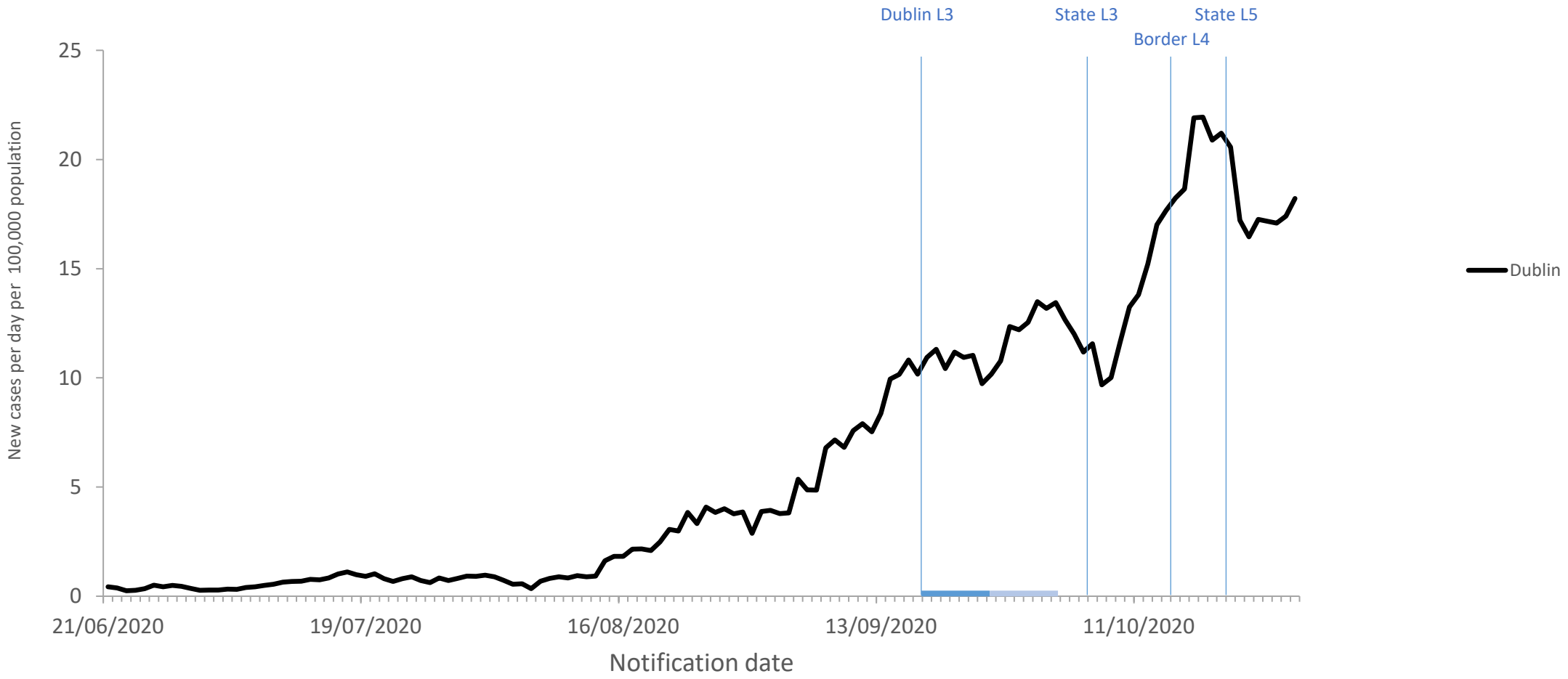

New cases per day per 100,000 population (5-day moving average) by notification (event) date.

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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 0-18 and 19-39 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 marked increase in incidence in recent weeks in incidence across adult age groups, concentrated in the 19-24 age group. There was a delayed increase in incidence in older (65+) age group, and now, as incidence has decreased over the last week, it remains high in this age group.

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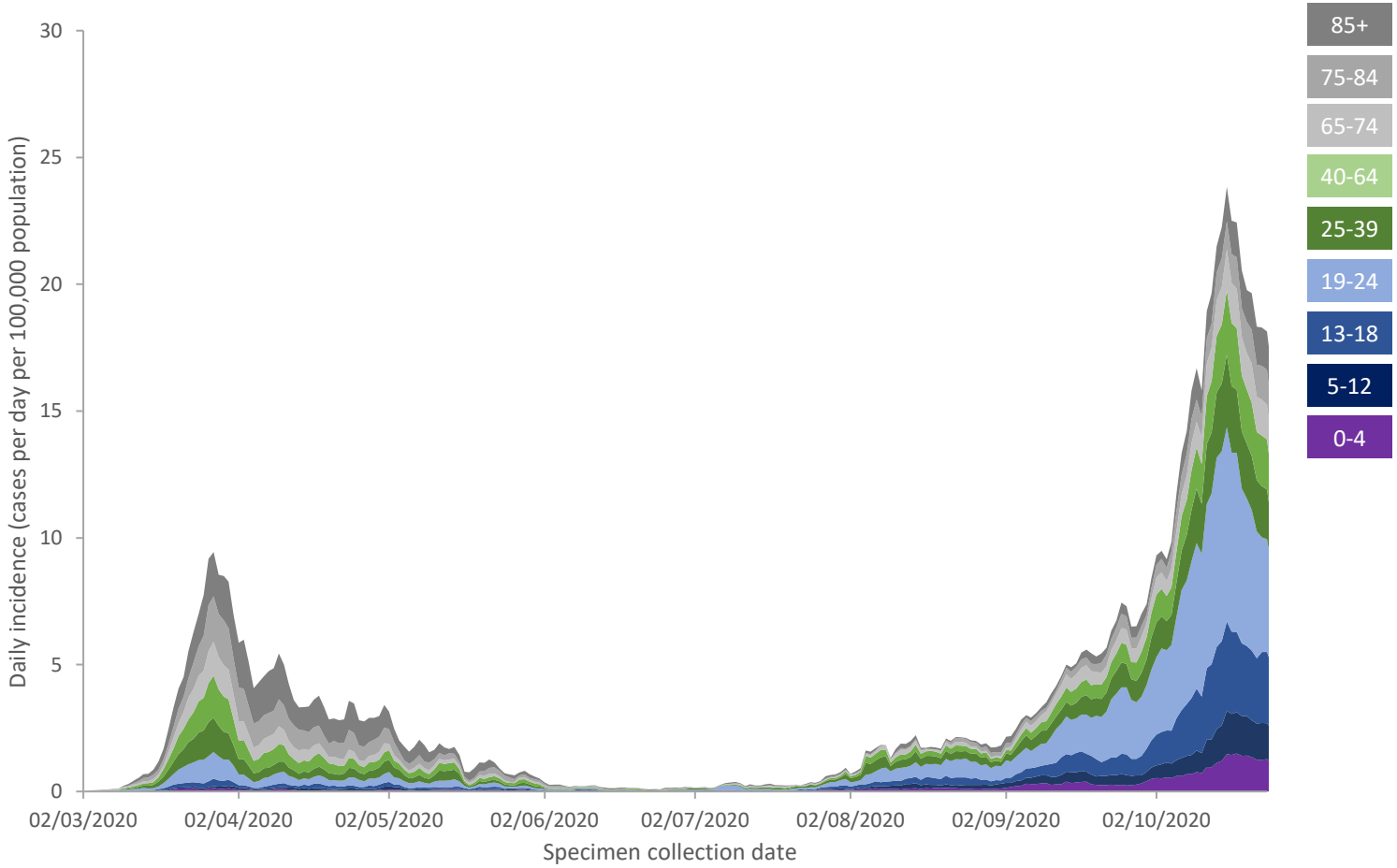

Heat map of 7-day incidence by age

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	31.2	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	47.7	46.9	71.8	108.1
16	3.0	5.3	10.8	18.7	20.8	32.0	28.4	50.4	69.6
17	3.3	4.2	7.8	21.1	23.7	26.6	21.2	50.4	60.7
18	4.5	6.4	9.4	20.2	26.0	21.0	18.7	37.1	44.4
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	22.3	13.5	11.0	11.7	16.3
37	17.5	17.5	29.9	64.0	28.4	24.9	22.8	8.7	7.4
38	21.4	26.2	44.1	90.6	44.3	34.9	32.9	19.8	14.8
39	12.4	22.8	42.8	148.2	50.7	42.3	33.2	31.0	17.8
40	30.2	29.0	63.2	173.0	69.2	59.4	34.3	27.0	19.2
41	43.7	47.0	136.4	321.9	118.1	92.4	62.9	52.9	56.3
42	84.8	96.2	206.1	450.5	165.2	152.8	99.1	69.7	63.7
43	73.3	84.9	161.5	293.8	119.3	119.2	84.3	84.0	77.0

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

When incidence started to rise again July, cases increased first in the 0-18 and 19-39 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 marked increase in incidence in recent weeks in incidence across adult age groups, concentrated in the 19-24 age group. There was a delayed increase in incidence in older (65+) age group, and now, as incidence has decreased over the last week, it remains high in this age group and continues to increase in those aged 75 and older

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Week	Age band								
	0-4	5-12	13-18	19-24	25-39	40-64	65-74	75-84	85+
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	22.3	13.5	11.0	11.7	16.3
37	17.5	17.5	29.9	64.0	28.4	24.9	22.8	8.7	7.4
38	21.4	26.2	44.1	90.6	44.3	34.9	32.9	19.8	14.8
39	12.4	22.8	42.8	148.2	50.7	42.3	33.2	31.0	17.8
40	30.2	29.0	63.2	173.0	69.2	59.4	34.3	27.0	19.2
41	43.7	47.0	136.4	321.9	118.1	92.4	62.9	52.9	56.3
42	84.8	96.2	206.1	450.5	165.2	152.8	99.1	69.7	63.7
43	73.3	84.9	161.5	293.8	119.3	119.2	84.3	84.0	77.0

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)

Reproduction number has decreased since the last estimate, and is currently estimated at very close to 1.0, and similar or slightly higher in Dublin compared to the rest of the country

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Method	Estimate	95% confidence interval
SEIR model-inferred	1.50	1.37 – 1.70
Bayesian model	0.85	0.37 – 1.83
Time-dependent R	1.07	1.03 – 1.12
GAM estimate 20 Oct 2020	1.09	0.88 – 1.30
GAM estimate 27 Oct 2020	0.98	0.70 – 1.25

Estimates generated 27 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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Situation analysis 30 October 20

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- Case numbers have started to decrease over the last week
  - Growth rate decreasing *(1% per day over last 21 days, -3% per day over last 14 days)*
  - R estimated at 1.0
- Numbers in hospital and intensive care still growing, but at a slower rate
  - Number of people in hospital growing at 2-4% per day, number in ICU at about 2% per day
- Incidence is decreasing in younger adults, but incidence continues to increase those aged 75 and older
- The need now is to sustain our efforts to further reduce transmission and bring the number of cases and force of infection to very low levels
- We note
  - There is evidence that the public reduce their close contacts before formal public health restrictions come into place
  - The best estimate of the effect of Level 3 restrictions is they reduce reproduction number to about 1.0, and stabilize, but not reduce, the number of infections; we note with particular concern that case numbers increased in Dublin about two weeks after the move to Level 3, and remain high.
  - The decrease in case numbers over the last week is most likely due to a combination of the restriction on visits to homes and the move to Level 4 in Border counties from midnight 15 October.
  - The additional effect of Level 5 measures will become evident over the next two weeks

HSE

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