# IEMAG Briefing

16 September 2020

Coronavirus
COVID-19
Public Health
Advice

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# Cases, numbers in hospital and intensive care

Case numbers rose sharply five weeks ago and are now increasing rapidly. Hospitalisations have increased considerably over the last four weeks. The number of people in ICU remains low. The number of deaths is increasing.

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| | 15 Apr | 23 Jun | 28 Jul | 11 Aug | 18 Aug | 25 Aug | 1 Sept | 8 Sept | 15 Sept |
|---|---|---|---|---|---|---|---|---|---|
| Cases confirmed per day | 537 | 10 | 19 | 78 | 102 | 104 | 120 | 151 | 210 |
| 14-day cumulative incidence *per 100,000 population* | 155 | 4.2 | 5.6 | 18.6 | 26.8 | 30.6 | 33.6 | 40.5 | 53.9 |
| Hospital in-patients | 856 | 45 | 11 | 13 | 16 | 21 | 32 | 46 | 55 |
| *Hospital admissions per day* | *63* | *2* | *2* | *2* | *3* | *3* | *4* | *4* | *7* |
| ICU confirmed cases | 149 | 17 | 6 | 6 | 7 | 6 | 5 | 6 | 9 |
| *ICU admissions per day* | *8* | *< 1* | *< 1* | *< 1* | *< 1* | *< 1* | *< 1* | *< 1* | *1* |
| Deaths confirmed per day | 30 | 2 | < 1 | < 1 | < 1 | < 1 | 0 | < 1 | 1 |

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 remove day-of-week effects.

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# Testing

The numbers of tests remains high, the positivity rate low, but not as low as it was in June and July

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| 7-day average | 14 Apr | 22 Jun | 27 Jul | 10 Aug | 17 Aug | 24 Aug | 31 Aug | 7 Sept | 14 Sept |
|---|---|---|---|---|---|---|---|---|---|
| Tests done per day | 5842 | 2634 | 6477 | 4352 | 7876 | 7534 | 8865 | 9780 | 10891 |
| % tests positive | 17% | 0.5% | 0.3% | 1.7% | 1.3% | 1.7% | 1.3% | 1.7% | 2.1% |

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 – daily average confirmed cases had been stable at 20 per day up to 29 July
Case counts have been increasing; the daily average is now 246

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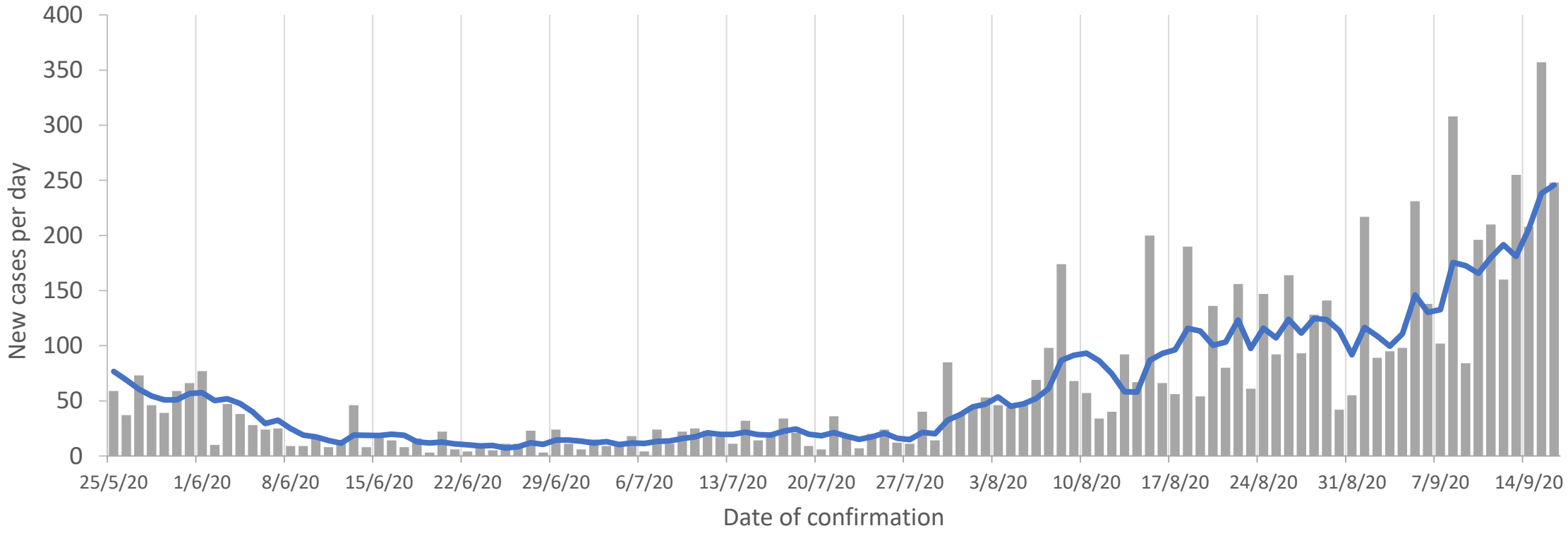
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases confirmed each week | 412 | 232 | 110 | 95 | 61 | 93 | 124 | 140 | 119 | 285 | 540 | 546 | 711 | 799 | 917 | 1311 |
| Sporadic cases | 59 (14%) | 48 (21%) | 29 (27%) | 24 (25%) | 25 (41%) | 37 (40%) | 36 (29%) | 64 (46%) | 36 (30%) | 52 (18%) | 44 (8%) | 143 (26%) | 126 (18%) | 165 (21%) | 235 (26%) | 462 (35%) |




Daily count (bars) 5-day average (line) and weekly case 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 in acute hospitals

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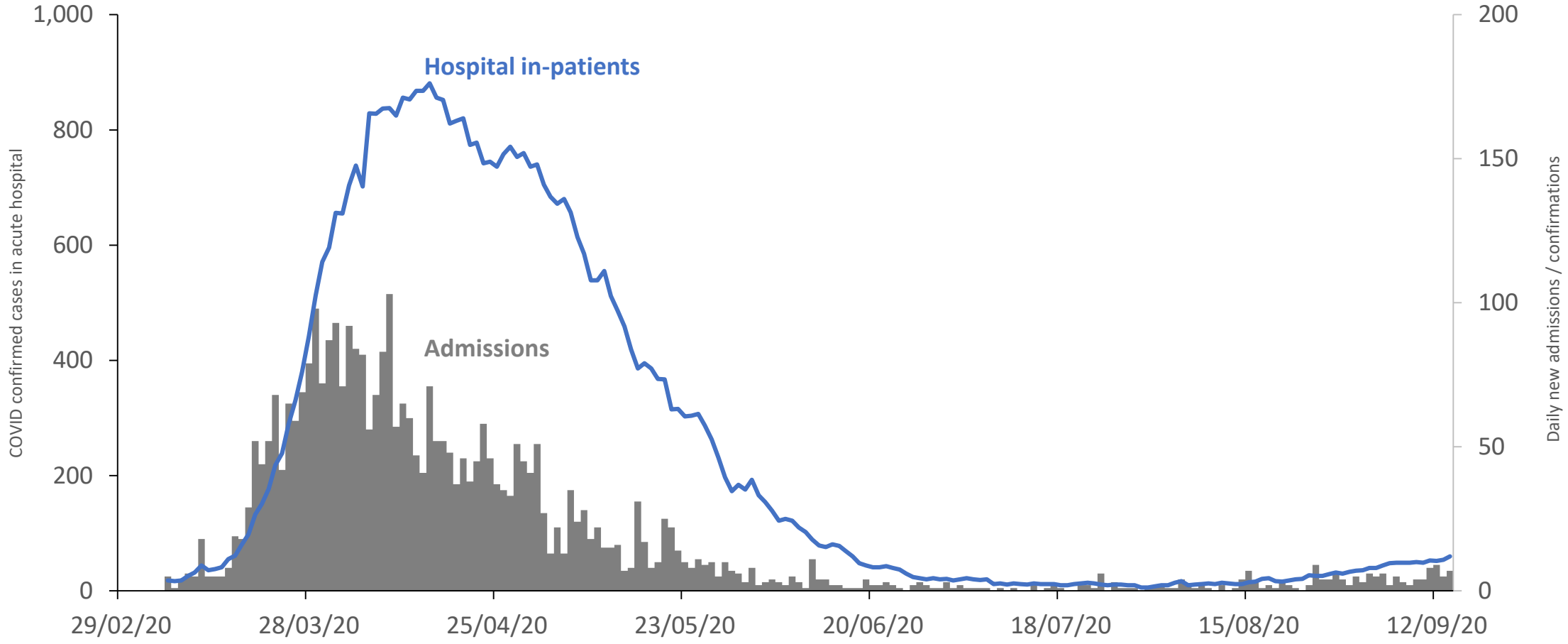


Hospital in-patients: Daily count of number of COVID-19 confirmed cases in acute hospitals. Daily admissions: New COVID-19 confirmed admissions and new laboratory confirmations of suspected cases in preceding 24 hours. Data from HSE PMIU-SDU, 8am census.

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# Deaths per day

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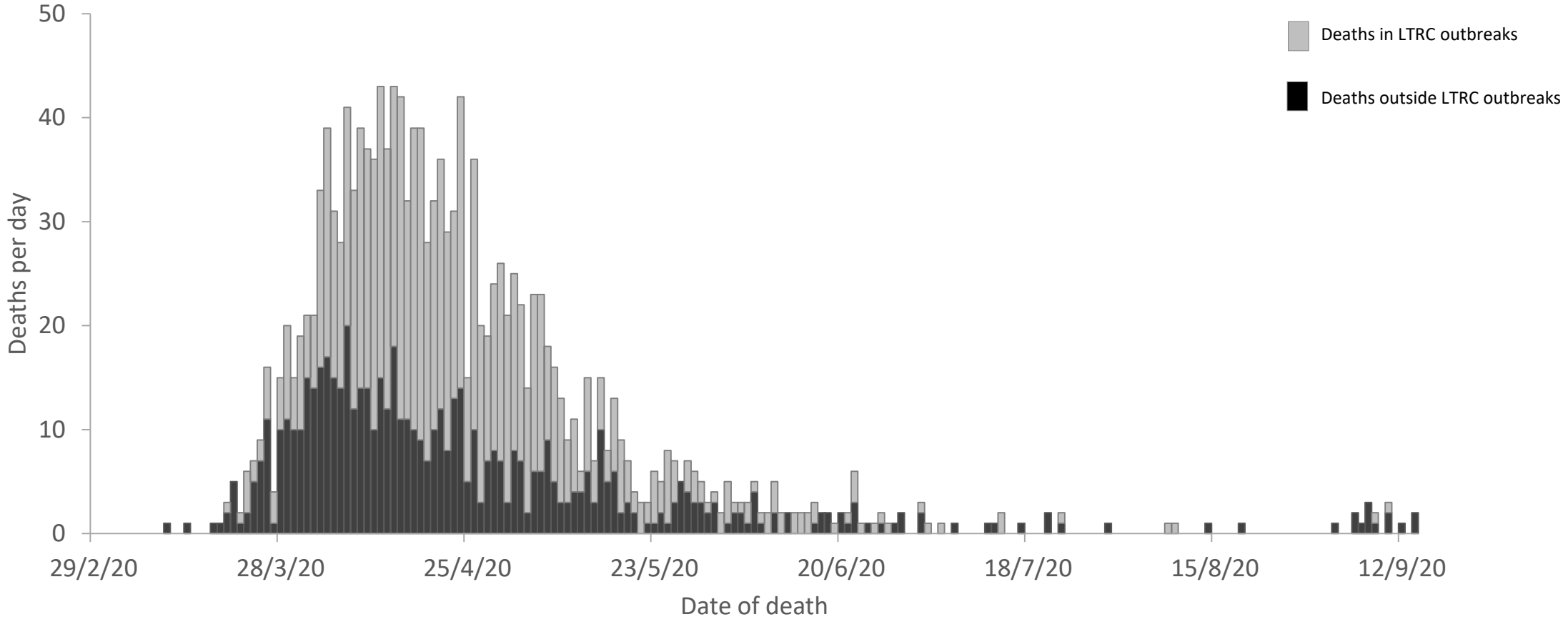


Deaths per day, separated into those associated with outbreaks in long-term residential care and those not associated with such outbreaks. Deaths with laboratory confirmed SARS-CoV-2 only

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# Cases by mode of transmission

The proportion of cases by mode of transmission. A large number of recent cases are close contacts of confirmed cases, mostly in outbreaks. While there was an underlying increase in the absolute number of cases due to community transmission, the *proportion* of cases due to community transmission is relatively constant around 25-30%. The lower percentage of community transmission in early August was due to an increase in the size of outbreaks, not a reduction in community transmission.

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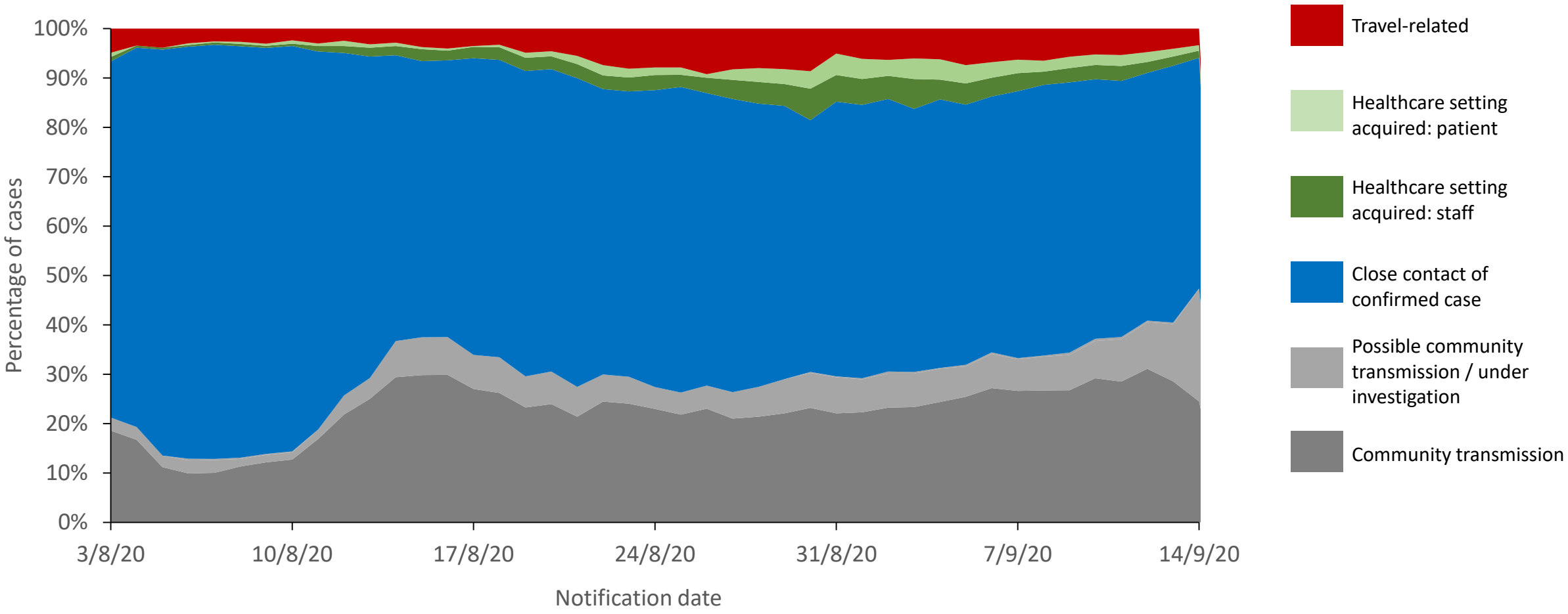


The percentage of cases by mode of transmission. 5 day rolling average, cases dated by date event notified to HPSC (event date).
A proportion of recent cases that are identified as possible community transmission will, on further investigation, be reclassified.

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

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 is a recent increase in incidence in the 65+ age group

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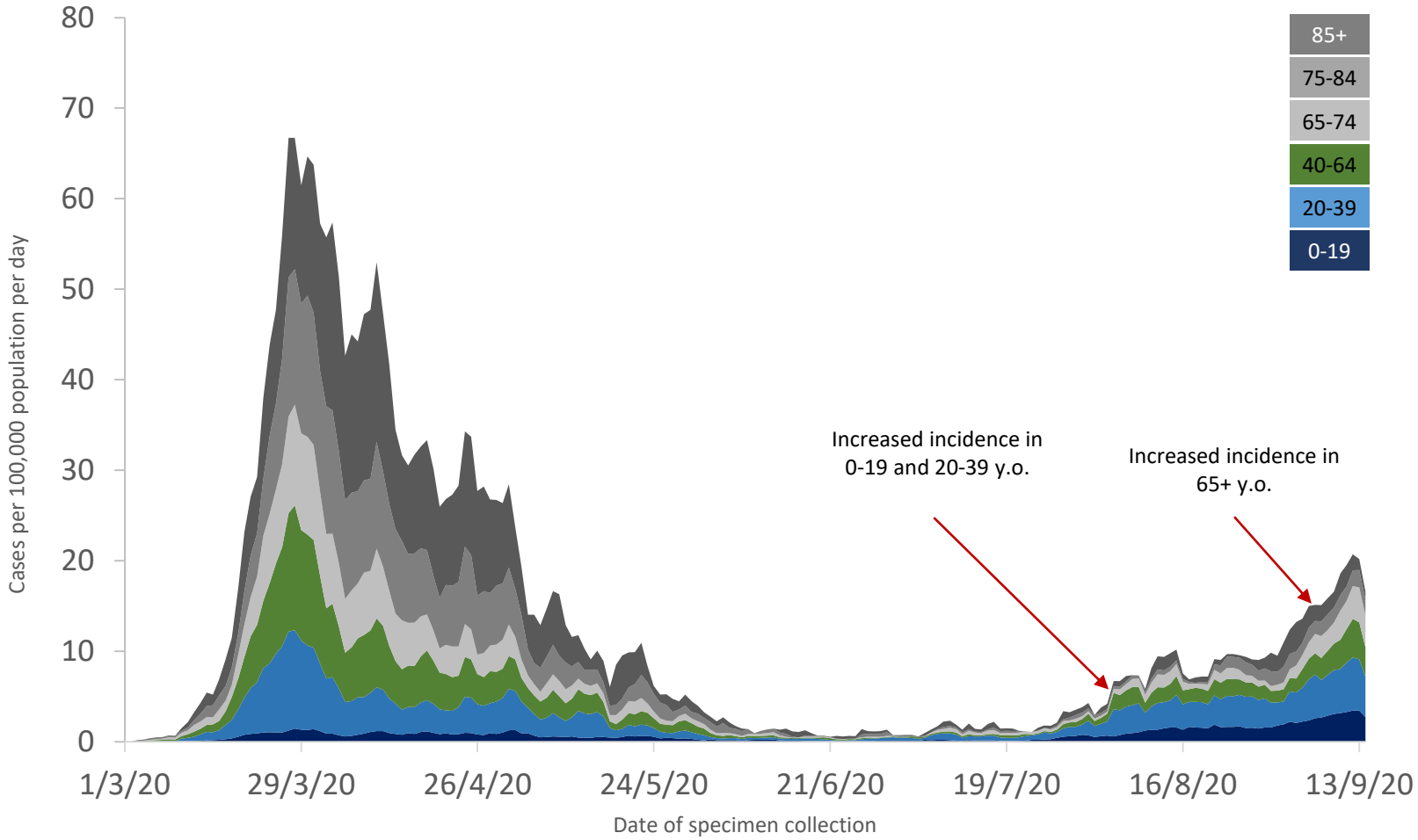


| Week | Age band | | | | | |
|---|---|---|---|---|---|---|
| | 0-19 | 20-39 | 40-64 | 65-74 | 75-84 | 85+ |
| 9 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 10 | 0.2 | 0.2 | 0.7 | 0.5 | 1.0 | 0.0 |
| 11 | 0.7 | 5.0 | 4.4 | 4.8 | 6.6 | 5.9 |
| 12 | 5.0 | 27.4 | 31.1 | 25.4 | 25.4 | 28.1 |
| 13 | 8.9 | 71.5 | 86.7 | 72.6 | 88.5 | 84.4 |
| 14 | 5.5 | 38.3 | 50.9 | 51.1 | 92.1 | 109.5 |
| 15 | 7.3 | 30.3 | 47.6 | 46.9 | 71.8 | 108.1 |
| 16 | 6.8 | 20.3 | 32.1 | 28.4 | 50.4 | 69.6 |
| 17 | 5.8 | 23.1 | 26.6 | 21.2 | 49.9 | 60.7 |
| 18 | 7.4 | 24.9 | 21.0 | 18.7 | 37.1 | 45.9 |
| 19 | 3.5 | 15.0 | 14.6 | 10.4 | 18.8 | 31.1 |
| 20 | 3.5 | 15.5 | 11.9 | 6.7 | 9.2 | 10.4 |
| 21 | 3.7 | 6.7 | 8.2 | 7.5 | 15.3 | 20.7 |
| 22 | 2.1 | 5.1 | 6.8 | 4.0 | 4.6 | 4.4 |
| 23 | 1.1 | 1.1 | 1.9 | 1.6 | 5.6 | 3.0 |
| 24 | 1.4 | 1.5 | 1.4 | 1.6 | 2.0 | 1.5 |
| 25 | 0.4 | 1.5 | 1.0 | 0.5 | 0.5 | 1.5 |
| 26 | 0.5 | 1.5 | 0.7 | 0.8 | 1.5 | 3.0 |
| 27 | 0.7 | 1.9 | 0.9 | 0.0 | 1.0 | 0.0 |
| 28 | 1.1 | 4.1 | 1.1 | 1.9 | 1.0 | 3.0 |
| 29 | 0.8 | 3.3 | 1.9 | 2.4 | 1.5 | 3.0 |
| 30 | 1.3 | 4.2 | 0.9 | 1.9 | 0.0 | 1.5 |
| 31 | 5.0 | 9.0 | 4.6 | 2.1 | 2.5 | 1.5 |
| 32 | 5.6 | 17.3 | 11.0 | 4.8 | 2.5 | 3.0 |
| 33 | 10.8 | 22.4 | 12.5 | 8.6 | 2.5 | 5.9 |
| 34 | 11.1 | 19.1 | 10.5 | 5.6 | 5.1 | 1.5 |
| 35 | 10.8 | 23.0 | 11.2 | 4.8 | 8.7 | 5.9 |
| 36 | 16.4 | 27.4 | 13.6 | 11.2 | 11.7 | 17.8 |
| 37 | 23.0 | 36.6 | 25.7 | 23.6 | 12.2 | 10.4 |

Chart shows 5-day rolling average of age-specific incidence (cases per day per 100,000 population) and heat map shows cases per week per 100,000 population for all cases in the community. Healthcare workers and cases associated with outbreaks in long-term residential care are excluded from analysis.
Cases dated by date of specimen collection.

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# 14-day cumulative incidence by county

A heat map of 14-day cumulative incidence by county. This is now decreasing in Kildare, Laois, Offaly, and Carlow
The increase in Dublin and Limerick is a cause for concern

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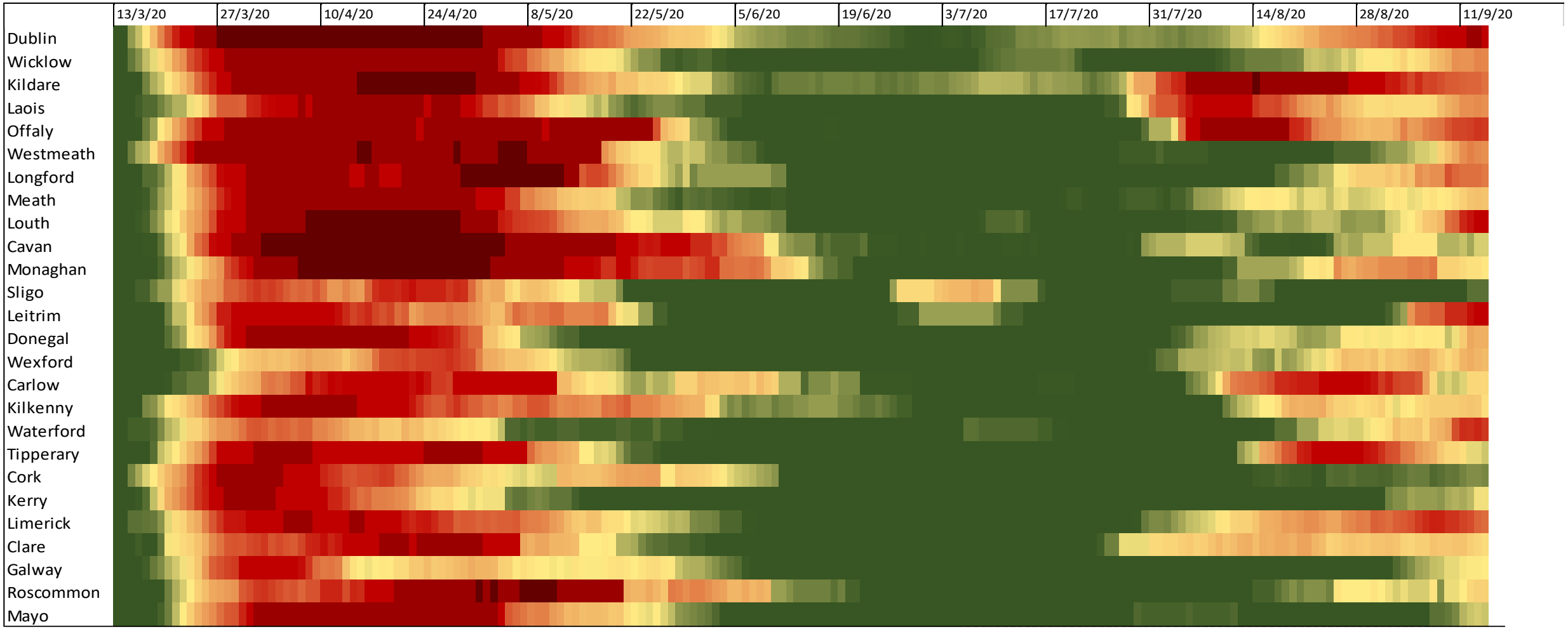


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Scale: 14-day cumulative incidence per 100,000 population, cases dated by date of specimen collection.

# Daily incidence by county

The burden of infection in Dublin is increasing, but also in other parts of the country

Note: All others excludes Dublin, Kildare, Laois & Offaly

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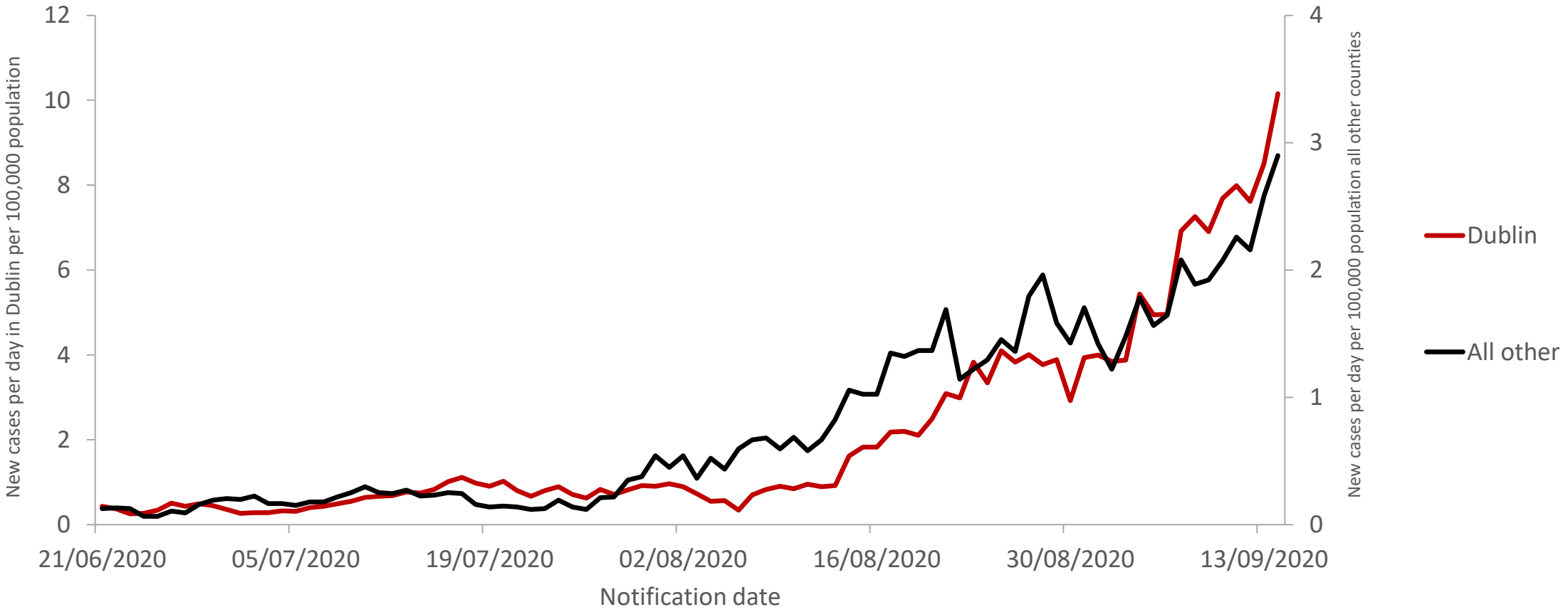


14-day cumulative incidence per 100,000 population by notification (event) date.

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# Estimates of effective reproduction number (R)

R is difficult to estimate, our best estimate at this time for the country as a whole is that it is between 1.3 and 1.7 with the epidemic growing quickly. R for Dublin alone is similar.

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| Method | Estimate | 95% confidence interval |
|---|---|---|
| SEIR model-inferred | 1.27 | 1.19 – 1.35 |
| Bayesian model | 1.49 | 0.83 – 2.58 |
| | | |
| Time-dependent R | 1.08 | 0.48 – 1.73 |
| GAM estimate 1 Sept 2020 | 1.38 | 1.18 – 1.59 |
| GAM estimate 7 Sept 2020 | 1.70 | 1.26 – 2.14 |

Estimates generated 15 September 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 13 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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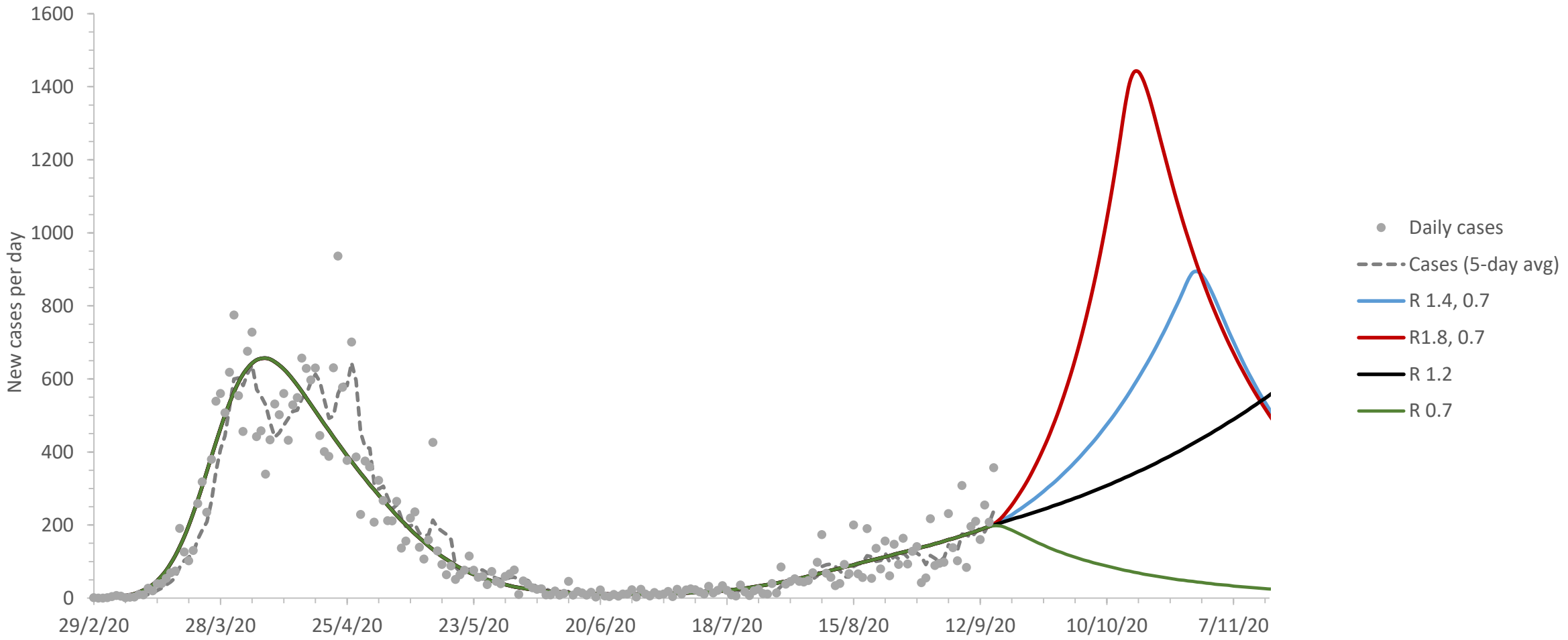


Model projections of the number of new cases infections per day. The model is calibrated with daily case counts to 13 September 2020, and run with R between 0.7 and 1.8. It is assumed that strict public health restrictions are re-introduced, to bring R below 1.0, 6 weeks later for R = 1.4, and 4 weeks later for R = 1.8.

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# Situation analysis

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- Incidence growing rapidly
  - Growth rate between 5 and 7% per day
  - Doubling time 10-14 days
  - R between 1.3 and 1.7
  - Potentially 500-1000 cases by 14 October, 50-60 % in Dublin
- Hospitalisations increasing and deaths
- Incidence in Dublin 3-5 times greater than the rest of the country
- Incidence is growing at a similar rate across the entire country
- Incidence is increasing across all age groups
- Cases, hospitalisations and deaths will increase exponentially in coming weeks if we do not
  - Reduce contacts, and radically reduce mixing between households
  - Take additional precautions during our priority contacts
  - Get R back below 1.0

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