### 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.

<table>
<thead>
<tr>
<th></th>
<th>15 Apr</th>
<th>23 Jun</th>
<th>28 Jul</th>
<th>25 Aug</th>
<th>1 Sept</th>
<th>8 Sept</th>
<th>15 Sept</th>
<th>22 Sept</th>
<th>29 Sept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases confirmed per day</td>
<td>537</td>
<td>10</td>
<td>19</td>
<td>104</td>
<td>120</td>
<td>151</td>
<td>210</td>
<td>276</td>
<td>332</td>
</tr>
<tr>
<td>14-day cumulative incidence</td>
<td>155</td>
<td>4.2</td>
<td>5.6</td>
<td>30.6</td>
<td>33.6</td>
<td>40.5</td>
<td>53.9</td>
<td>70.8</td>
<td>88.5</td>
</tr>
<tr>
<td>per 100,000 population</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital in-patients</td>
<td>856</td>
<td>45</td>
<td>11</td>
<td>21</td>
<td>32</td>
<td>46</td>
<td>55</td>
<td>80</td>
<td>103</td>
</tr>
<tr>
<td>Hospital admissions per day</td>
<td>63</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>ICU confirmed cases</td>
<td>149</td>
<td>17</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>9</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>ICU admissions per day</td>
<td>8</td>
<td>&lt; 1</td>
<td>&lt; 1</td>
<td>&lt; 1</td>
<td>&lt; 1</td>
<td>&lt; 1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Deaths confirmed per day</td>
<td>30</td>
<td>2</td>
<td>&lt; 1</td>
<td>&lt; 1</td>
<td>0</td>
<td>&lt; 1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

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. The average number of deaths confirmed per day w/e 22 Sept was 1.6
Situation report 2pm 30 September 2020

- 432 new cases
- 5-day average: 373 cases per day
- 4384 cases over 14 days
  - 14-day cumulative incidence 92 per 100,000
  - of cases notified in 14 days
    - 134 hospitalised, 10 admitted ICU, 6 deaths
- 130 in hospital, 15 in last 24 hours
- 20 in ICU, 4 in last 24 hours
## Testing

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

<table>
<thead>
<tr>
<th>7-day average</th>
<th>14 Apr</th>
<th>22 Jun</th>
<th>27 Jul</th>
<th>24 Aug</th>
<th>31 Aug</th>
<th>7 Sept</th>
<th>14 Sept</th>
<th>21 Sept</th>
<th>28 Sept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests done per day</td>
<td>5842</td>
<td>2634</td>
<td>6477</td>
<td>7534</td>
<td>8865</td>
<td>9780</td>
<td>10891</td>
<td>12922</td>
<td>12533</td>
</tr>
<tr>
<td>% tests positive</td>
<td>17%</td>
<td>0.5%</td>
<td>0.3%</td>
<td>1.7%</td>
<td>1.3%</td>
<td>1.7%</td>
<td>2.1%</td>
<td>2.2%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

Data are 7-day averages (the indicated day and the preceding 6 days)
The testing regimen is robust

The number of tests requested is increasing with targeted testing, testing of contacts, and serial testing in vulnerable settings; the positivity rate is increasing.

Data 5-day rolling averages, tests outsourced to German laboratory in April backdated to specimen collection date.
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 5-day average is now 373.

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.
Deaths per day

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.
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 low but is now starting to increase.

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.
14-day cumulative incidence peaked at 170 per 100,000 in late April, declined to 3 per 100,000 in late June, and is now approximately 92 per 100,000.

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. Vertical dashed lines and shading indicate the dates of escalation and de-escalation of public health restrictions.
Daily incidence: Dublin

The incidence in Dublin is considerably higher than the rest of the country, and almost three times the incidence in the other 25 counties. Dublin may be stabilising, the rest of the country continues to increase.
14-day cumulative incidence by county

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

Scale: 14-day cumulative incidence per 100,000 population, cases dated by date of specimen collection.
Daily incidence by county
A heat map of daily incidence (average number of new cases per day per 100,000 population).

Scale: Daily new cases per 100,000 population, cases dated by notification (event) date, 5-day moving average.
Cases by mode of transmission

The majority of recent cases are close contacts of confirmed cases, mostly in outbreaks. The level of community transmission is stable at 25% of all cases.

A proportion of recent cases that are identified as possible community transmission will, on further investigation, be reclassified.
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.

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.
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.
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.

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

SARS-CoV-2 infection in the first phase of the pandemic was relatively evenly distributed by age for adults aged 18-65; incidence was higher in amongst older people, and there was relatively few infections detected (with low levels of testing) in those under 18 years of age. The age distribution of detected infections is markedly different during the current resurgence of infection, with an very high incidence in the 17-30 year old age group.

Age-specific incidence in one-year age bands (cases per week per 100,000 population, population is CSO 2016 census) for the first phase of the pandemic and the period from 1 August 2020. 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. The plot is truncated above 95 years of age, as numbers of cases are very small.
Severity and age

- 9632 cases notified from 1 August to 28 September 2020
  - 269 admitted to hospital
    - 153 (57%) under 65
    - 56 (21%) under 40
  - 30 admitted to ICU
    - 22 (73%) under 65
    - 4 (13%) under 40
  - 28 deaths notified to date
    - 7 (25%) under 65
    - crude case fatality rate 5% for those 75 and older
Estimates of effective reproduction (R)

R is difficult to estimate. Our best estimate at this time for the country as a whole is that it is between 1.2 and 1.4. It is possible that reproduction number for Dublin is at the lower end of this range, and reproduction number for the remainder of the country is at the higher end of this range.

<table>
<thead>
<tr>
<th>Method</th>
<th>Estimate</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEIR model-inferred</td>
<td>1.61</td>
<td>1.45 – 1.82</td>
</tr>
<tr>
<td>Bayesian model</td>
<td>1.41</td>
<td>0.62 – 2.76</td>
</tr>
<tr>
<td>Time-dependent R</td>
<td>1.43</td>
<td>1.26 – 1.60</td>
</tr>
<tr>
<td>GAM estimate 22 Sept 2020</td>
<td>1.26</td>
<td>0.92 – 1.61</td>
</tr>
<tr>
<td>GAM estimate 29 Sept 2020</td>
<td>1.29</td>
<td>0.79 – 1.79</td>
</tr>
</tbody>
</table>

Estimates generated 29 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.
Situation analysis 30 Sept 20

- Incidence growing
  - Growth rate at 4 - 5% per day
  - Doubling time 14 - 18 days
  - $R$ between 1.2 and 1.4

- Hospitalisations, intensive care admissions and deaths increasing

- While growth rate in Dublin may be starting to decrease
  - the trend is not yet clear
  - incidence in Dublin remains 3 times greater than the rest of the country

- Incidence is growing across the entire country
  - but pattern is very different in different counties
  - outbreaks on a background of increasing community prevalence

- Marked increase in incidence in 19-24 yo cohort; slower increase in those aged 65 and older
Supplementary slides

• These slides give, for key counties of interest
  • Trends in daily incidence since early August
  • Average daily cases by outbreak type
Daily incidence in key counties

Daily incidence (number of new cases per day per 100,000 population). 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.
Daily incidence in key counties

Daily incidence (number of new cases per day per 100,000 population). 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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Daily incidence (number of new cases per day per 100,000 population). 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.

Limerick

- Blue: All cases
- Red: Community transmission / possible community transmission

Monaghan

- Blue: All cases
- Red: Community transmission / possible community transmission
Daily incidence in key counties

Daily incidence (number of new cases per day per 100,000 population). 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.
Daily incidence in key counties

Daily incidence (number of new cases per day per 100,000 population). 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.
Daily incidence in key counties

Daily incidence (number of new cases per day per 100,000 population). 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.
Cases by outbreak type in Dublin

The current rise in incidence in Dublin is almost entirely due to isolated cases and household and family outbreaks.
The recent spike in incidence in Kildare is dominated by workplace outbreaks, followed by household/family outbreaks and an increased number of isolated cases.
Cases by outbreak type in Offaly

The recent spike in incidence in Offaly is dominated by workplace outbreaks.
Cases by outbreak type in Laois

The recent spike in incidence in Laois is dominated by workplace and direct provision outbreaks.
Cases by outbreak type in Donegal

The current rise in incidence in Donegal is a mix of workplace and household / family outbreaks.
Cases by outbreak type in Louth

The current rise in incidence in Louth is a almost entirely household / family outbreaks
Cases by outbreak type in Limerick

- Isolated
- Community/Other
- House/Extended family
- Travel
- Retail
- Restaurant/Café/Public House/Hotel
- Education and childcare
- Workplace
- Hospital
- LTRC

Daily cases by outbreak type in Limerick
Cases by outbreak type in Waterford

- Isolated
- Community/Other
- House/Extended family
- Travel
- Retail
- Restaurant/Café/Public House/Hotel
- Education and childcare
- Workplace
- Hospital
- LTRC
Cases by outbreak type in Cork

Daily cases by outbreak type

- Isolated
- Community/Other
- House/Extended family
- Travel
- Retail
- Restaurant/Café/Public House/Hotel
- Education and childcare
- Workplace
- Hospital
- LTRC

Notification date

21/06/2020 05/07/2020 19/07/2020 02/08/2020 16/08/2020 30/08/2020 13/09/2020 27/09/2020
Cases by outbreak type in Galway
Cases by outbreak type in Roscommon

Daily cases by outbreak type

Notification date

Isolated
Community/Other
House/Extended family
Travel
Retail
Restaurant/Café/Public House/Hotel
Education and childcare
Workplace
Hospital
LTRC

0
10

21/06/2020 05/07/2020 19/07/2020 02/08/2020 16/08/2020 30/08/2020 13/09/2020 27/09/2020
Cases by outbreak type in Tipperary

The recent spike in incidence in Tipperary was almost entirely confined to workplace outbreaks.
Cases by outbreak type in Wicklow