IEMAG briefing

24 August 2021

Coronavirus
COVID-19
Public Health
Advice

Cases, numbers in hospital and intensive care

Case counts have increased very significanlty in recent weeks; the number of people in hospital has increased six-fold since the end of June, as has the number of new admissions per day; numbers in ICU have increased after a delay.

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	Apr 2020	Summer 2020	Oct 2020	Dec 2020	Jan 2021	Jun 2021	3 Aug	10 Aug	17 Aug	24 Aug	Daily count 24 Aug
Cases confirmed per day	859 18-04	8.7 25-06	1158 21-10	262 12-12	6516 10-01	308 19-06	*1277*	*1574*	*1759*	*1822*	1571
14-day incidence *per 100,000 population*	212 19-04	3.0 04-07	306 26-10	79 09-12	1528 15-01	91 20-06	*370*	*419*	*490*	*526*	
Hospital in-patients	862 17-04	9 02-08	333 01-11	198 16-12	1949 24-01	43 29-06	166	200	233	277	307
Hospital admissions per day	*85* *04-04*	*<1* *10-07*	*27* *26-10*	*11* *13-12*	*158* *15-01*	*6* *27-06*	*23*	*28*	*33*	*41*	42
ICU confirmed cases	150 14-04	4 04-08	43 04-11	26 27-12	217 28-01	13 27-06	26	31	47	55	55
ICU admissions per day	*14* *31-03*	*<1* *03-06*	*4* *03-11*	*1* *16-12*	*20* *17-01*	*<1* *02-07*	*2*	*3*	*6*	*5*	5
Deaths confirmed per day	46 22-04	<1 30-07	7 01-12	4 17-12	57 03-02	-	-	-	-	-	-

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. Case data from 13 May 2021 onward are estimates based on the number of positive tests reported. Data on deaths is incomplete and not reported

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Confirmed cases each day

Daily count and 7-day rolling average in recent weeks. There was a long period in April and May where case counts were stable or decreasing, reaching a low of approximately 300 per day in the week beginning 13 June 2021; incidence increased rapidly in July with an unusual pattern: the 7-day average is now **1822,** up from **11759** seven days ago, **1574** two weeks ago, and **1277** three weeks ago.

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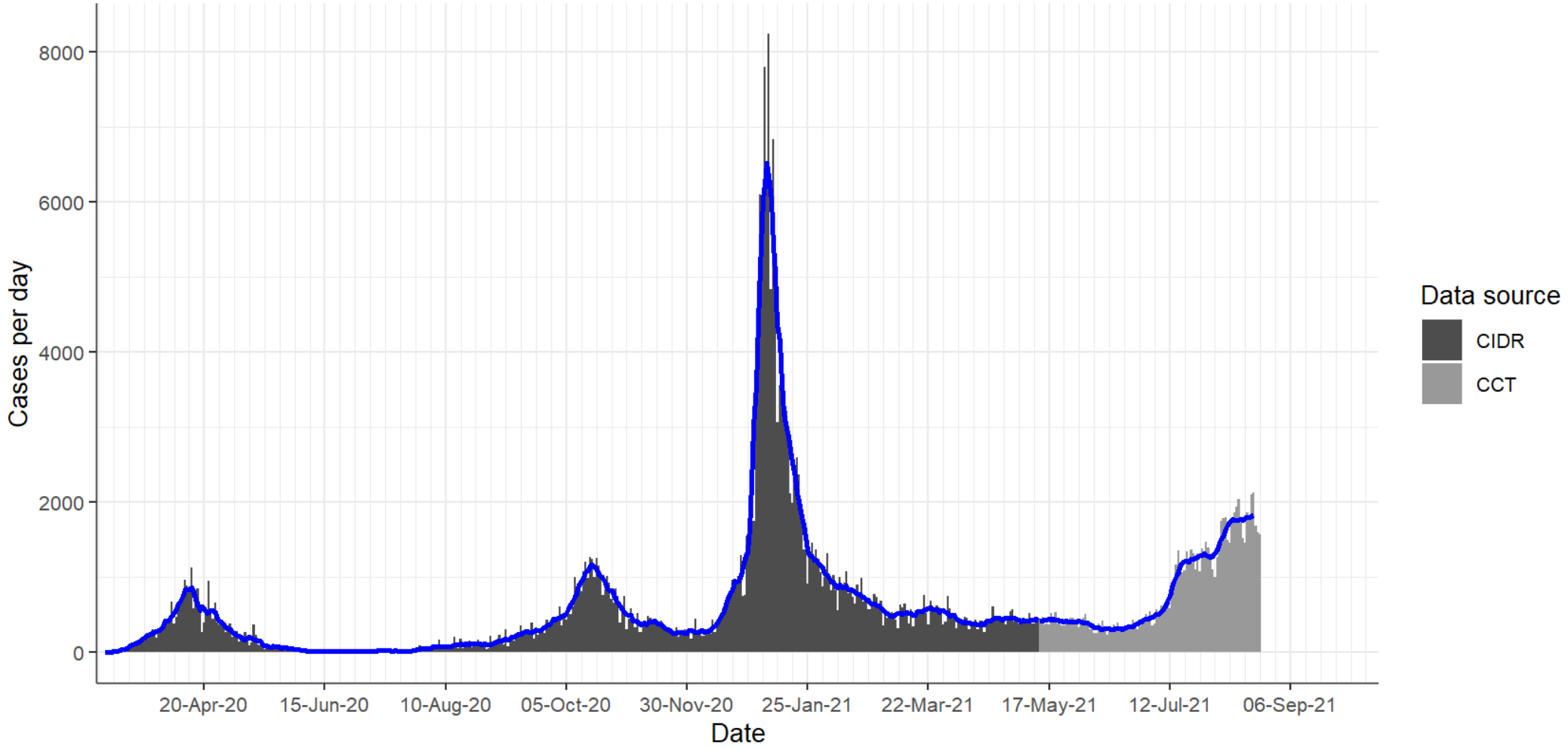

Daily count (bars) and 7-day average (line) of the number of laboratory confirmed new cases by date on which they were notified HPSC. Case counts may change due to denotification of cases. Case data from 13 May 2021 onward are provisional based on the number of positive tests reported through the HSE contact management programme.

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Confirmed cases each day

The population dynamics of infection are hard to discern at present, with step changes in early July and again in early August and very strong weekend effects: the average growth rate in cases since late June is 3-4% per day, the current estimate of growth rate is 0-2% per day

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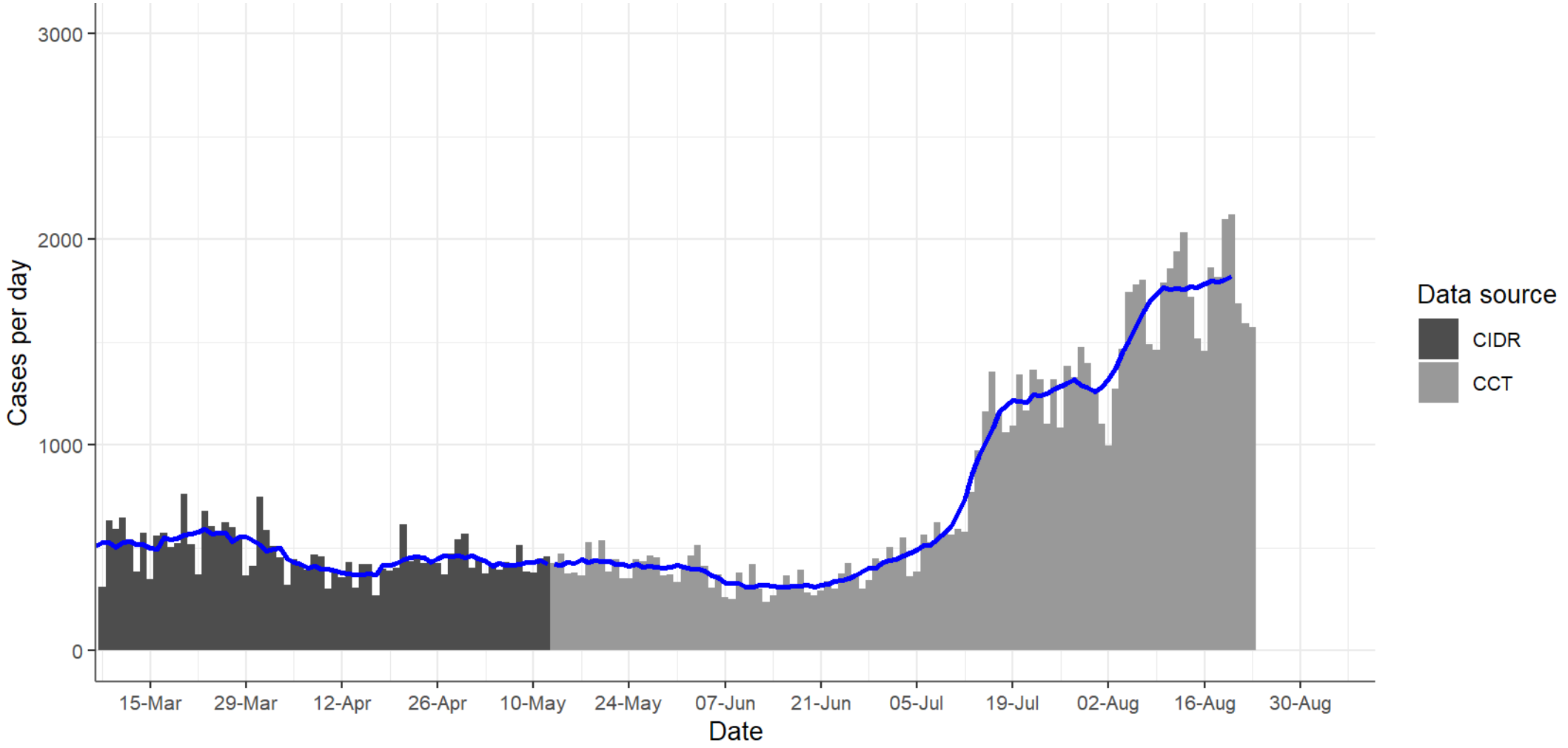

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Confirmed cases each week

The population dynamics of infection are complex at present: there was a rapid increase, almost a step change, in case counts over the week beginning 12 July, and a period of apparent stability or slow growth from that point.

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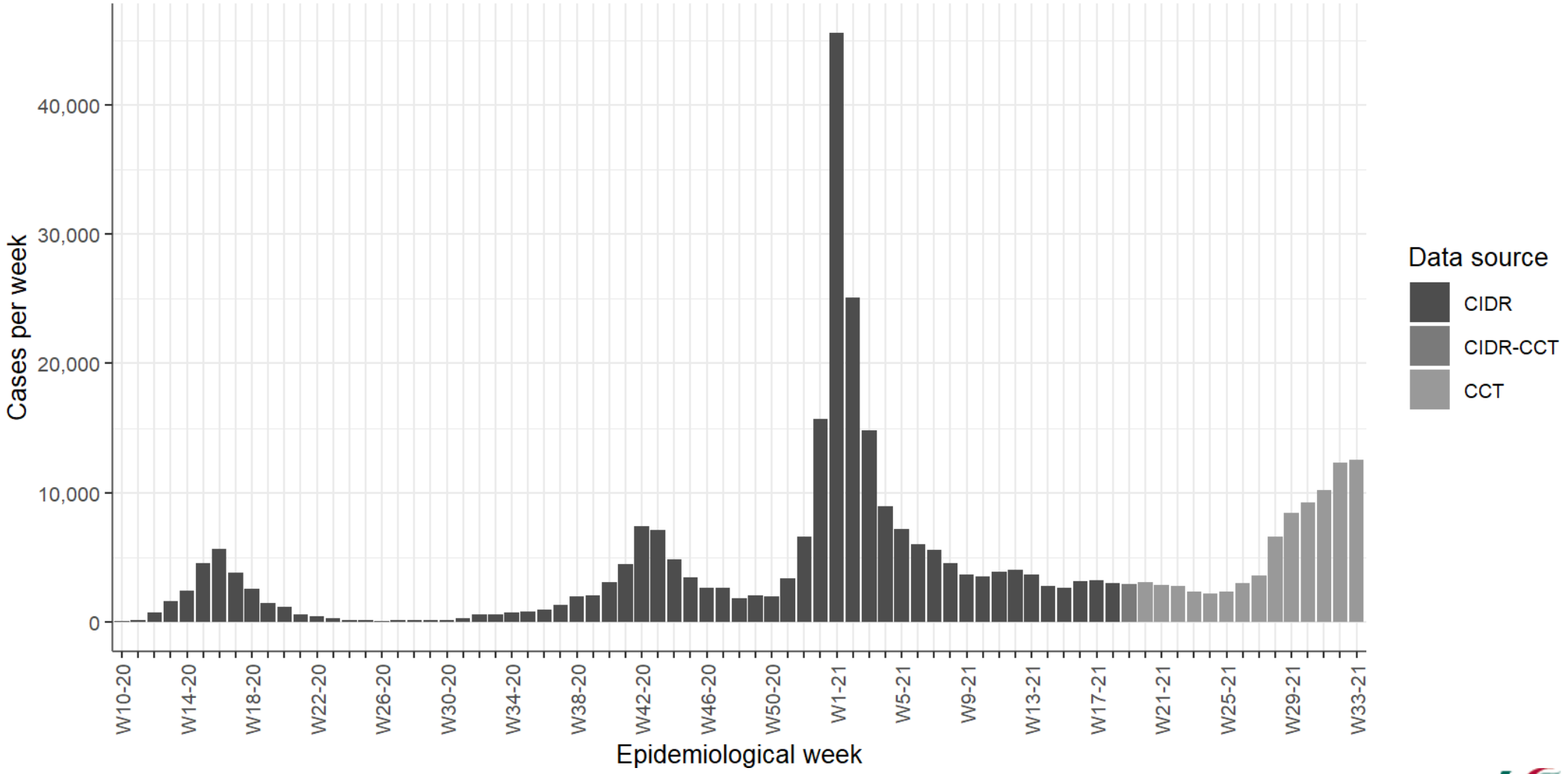

Weekly count (bars) of the number of laboratory confirmed new cases by date on which they were notified HPSC. Case counts may change due to denotification of cases. Case data from 13 May 2021 onward are provisional based on the number of positive tests reported through the HSE contact management programme.

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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 **307**. The number of admissions and newly confirmed cases in hospital per day has increased to an average of **41 per day**.

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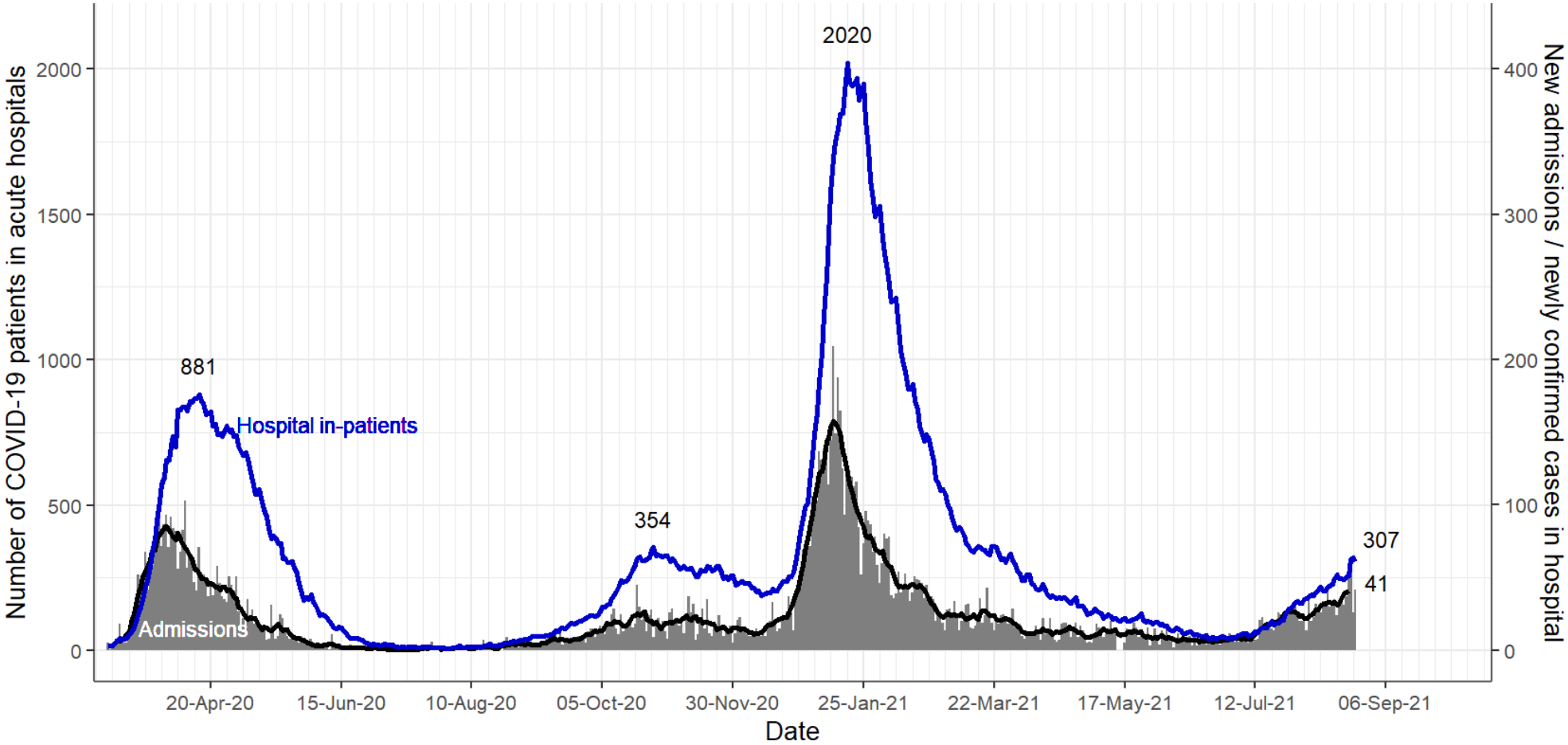

HSE PMIU-SDU data to Tue 24 Aug 2021. Number of in-patients with COVID-19 (blue line) and number of newly admitted or newly confirmed cases per day (columns, with 7-day moving average, black line, secondary y-axis) on HSE acute hospital sites

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Confirmed cases in intensive care

The number of people in ICU with confirmed SARS-CoV-2 infection and the number requiring mechanical ventilation remain low but have started to trend upward. **55** people in ICU, **25** mechanically ventilated, average **5** admissions per day.

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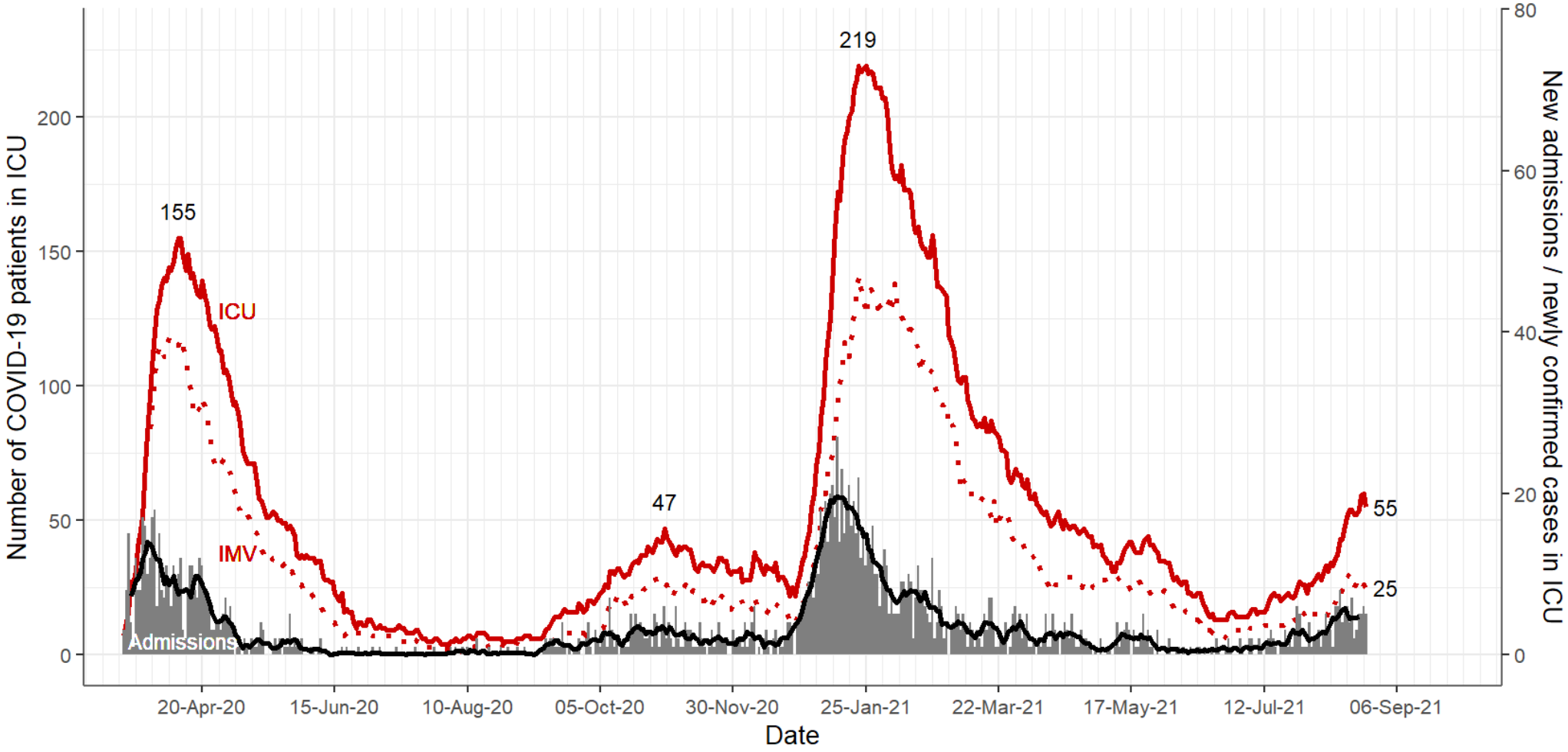

NOCA ICU-BIS data to Tue 24 Aug 2021. Number of patients with COVID-19 in ICU (red solid line) and number requiring mechanical ventilation (IMV, red dotted line) and number of new admissions per day (columns, with 7-day moving average, black line, secondary y-axis).

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Young unvaccinated adults dominate case counts

Incidence is very high in those aged 19-24 years and 13-18 years; until recently most of the cases in this group were in 16-18 year olds, but incidence has also start to increase in those aged 13-15 years. Incidence may be plateauing or starting to decrease in these groups, though this is complicated by very strong weekend effects. Incidence in childrena and older adults is increasing as force of infection increases; incidence in children under 12 has been lower than other unvaccinated groups, comparable with incidence in vaccinated adults aged 35-64 years.

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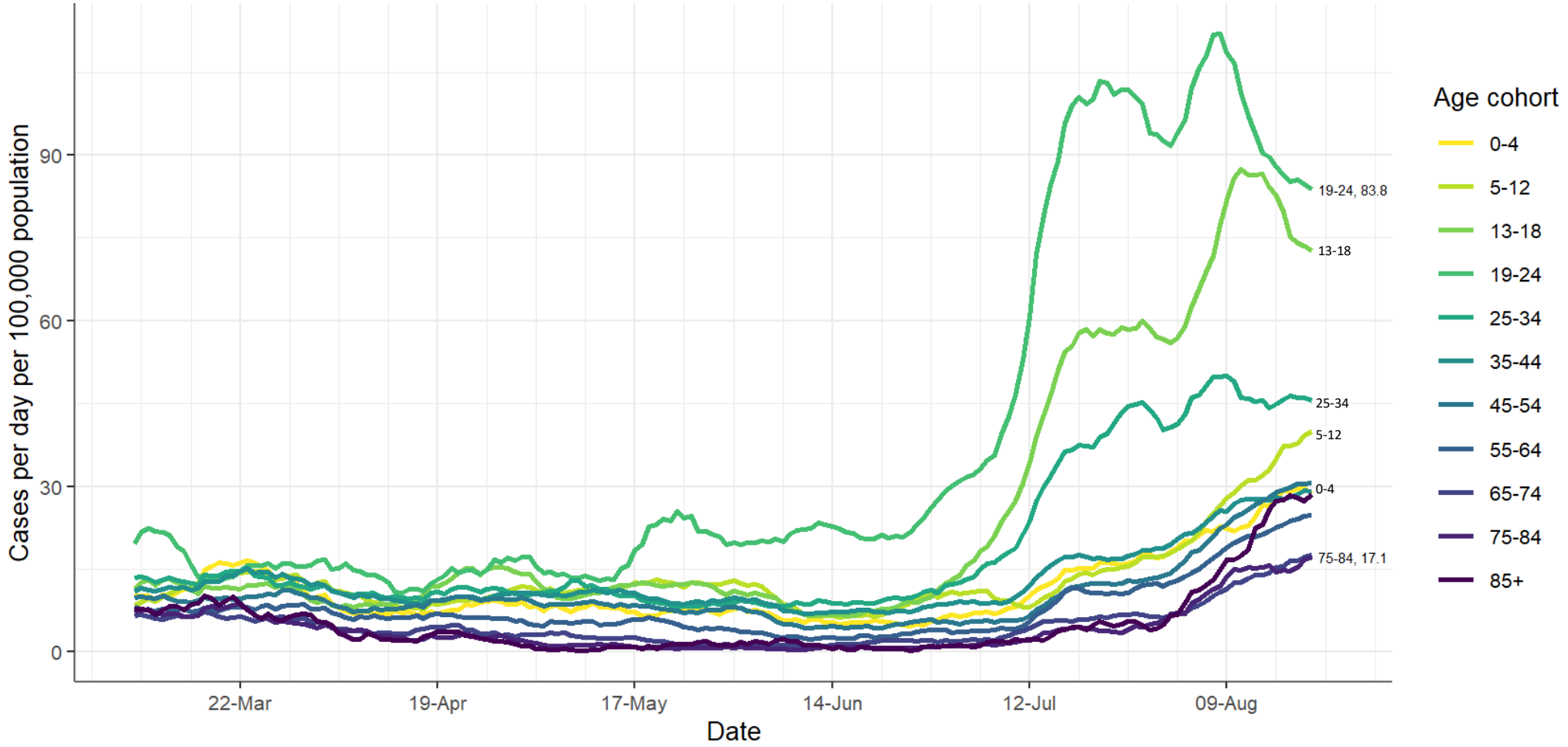

Age-specific incidence (cases per day per 100,000 population). 7-day moving average.
CIDR data to midnight Wed 12 May 2021 and CCT data to midnight Mon 23 Aug 2021. Cases dated by event creation / case creation date

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School opening and closure

The opening and closure of schools had minimal and transient effects on incidence in those aged 5-18 years, whereas broader societal re-openings and the rise to dominance of the delta variant had very significant effects.

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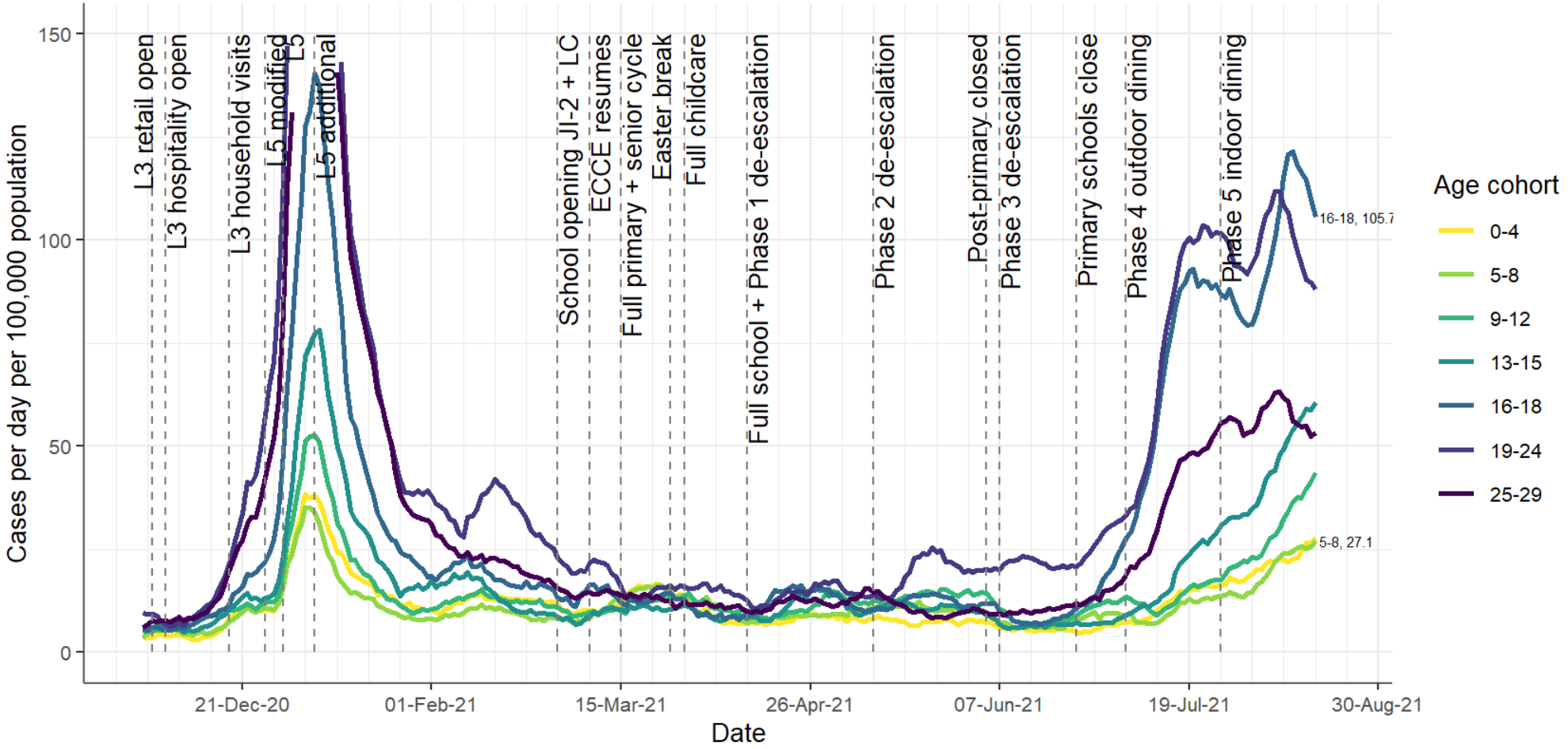

Age-specific incidence (cases per day per 100,000 population). 7-day moving average.
CIDR data to midnight Wed 12 May 2021 and CCT data to midnight Thu 19 Aug 2021. Cases dated by event creation / case creation date

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Incidence by county

Incidence is very high in border counties. 14-day cumulative incidence is greater than 200 per 100,000 in all counties, greater than 500 per 100,000 in 14, and greater than 1000 per 100,000 (1%) in 3.

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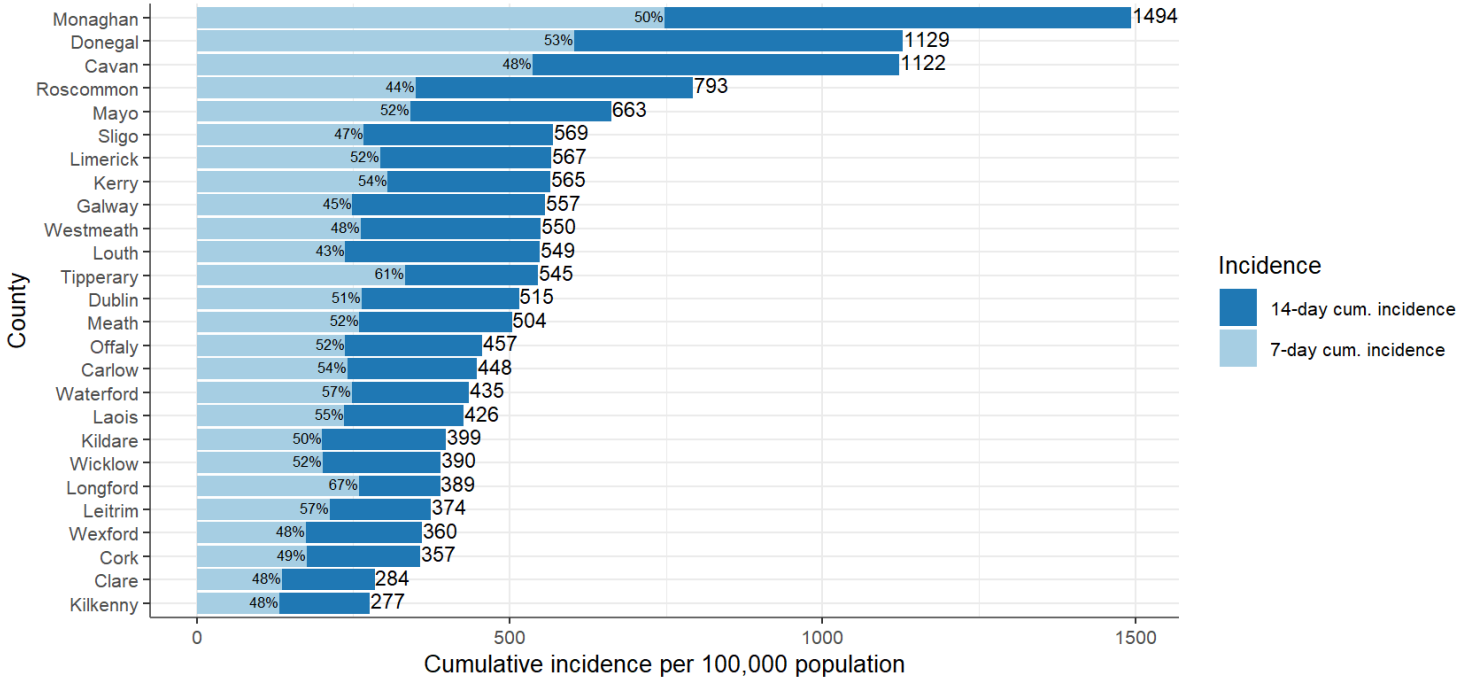
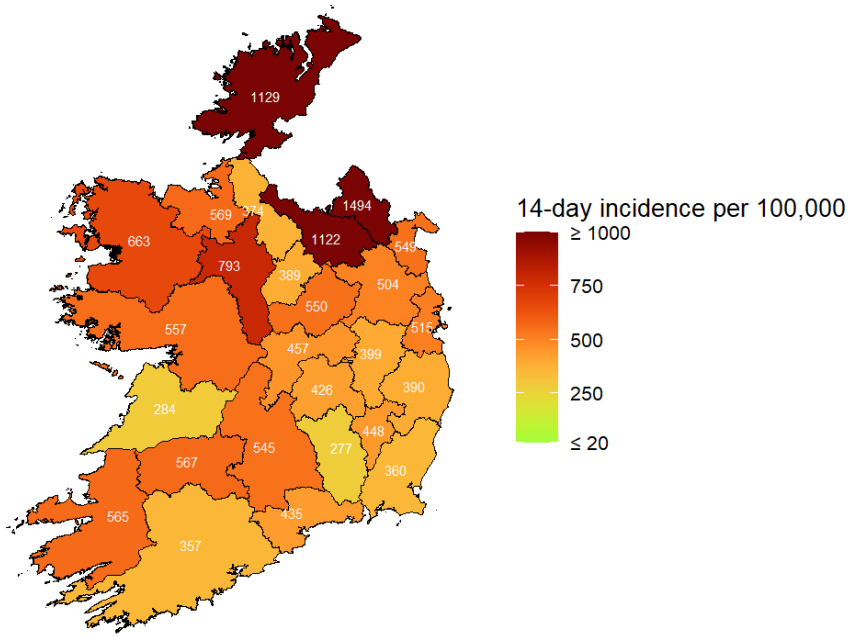


14-day and 7-day cumulative incidence per 100,000 population by county. Data labels are 14-day cumulative incidence, and 7-day cumulative incidence as a percentage of 14-day cumulative incidence.
CIDR data to midnight Wed 12 May 2021 and CCT data to midnight Mon 23 Aug 2021. Cases dated by event creation / case creation date



14-day cumulative incidence per 100,000 population for each county.
Colour scale truncated at 20 and 1000 cases per week per 100,000 population.
CCT data to midnight Mon 23 Aug 2021. Cases dated by case creation date

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Cases by self-reported vaccination status

The proportion of cases in people with two doses of vaccine has, as expected, increased over time as the proportion of the population vaccinated has increased; currently approximately 30% of cases, where their self-reported vaccination status is recorded, say they have received two doses.

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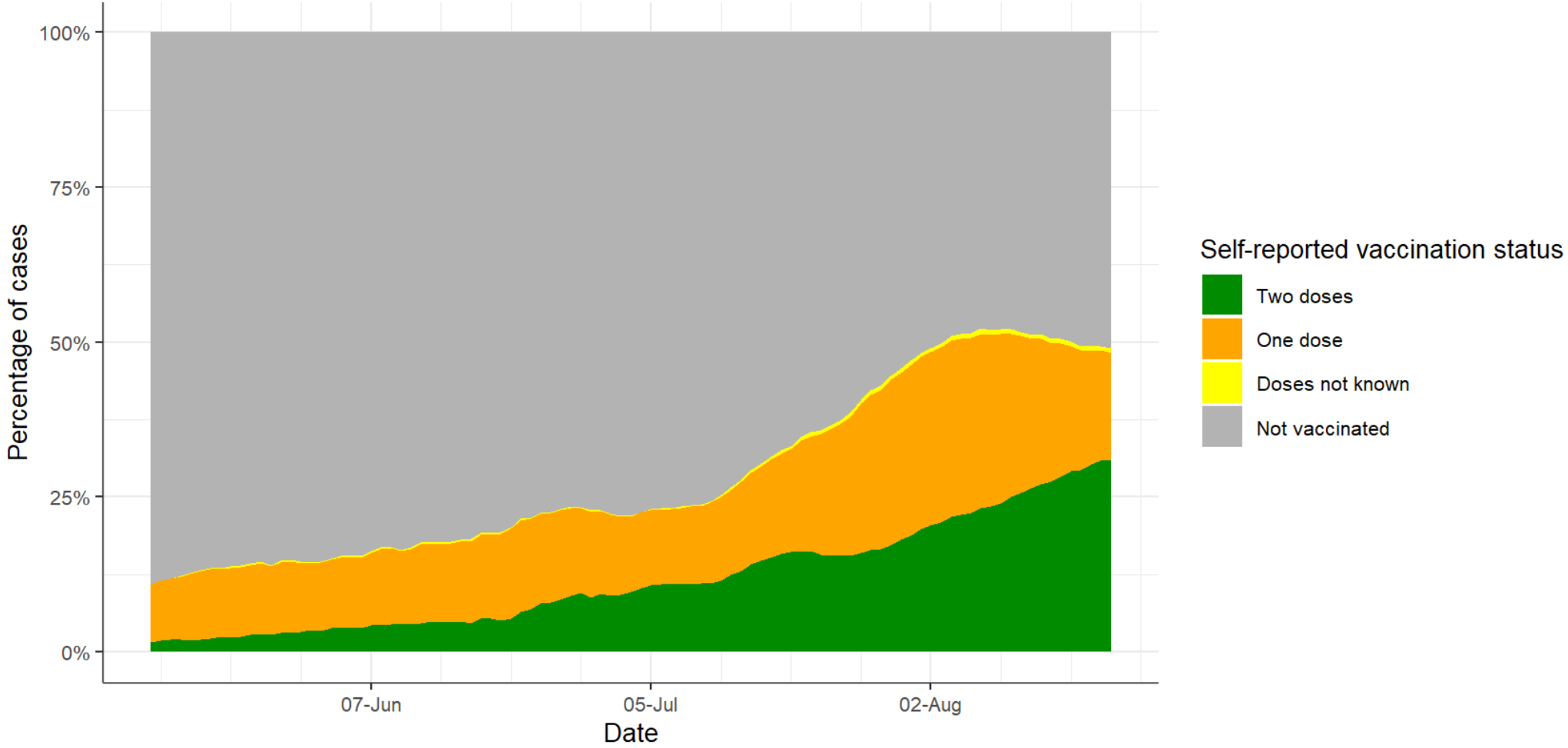

Percentage of daily cases by self-reported vaccination status excluding cases where vaccination status is not known.
CCT data from Thu 13 May 2021 to midnight Mon 23 Aug 2021. Cases dated by case creation date

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Cases by self-reported vaccination status

The majority of cases reported in recent weeks are in younger people who are not yet protected by vaccination; in older groups with higher vaccination rates the absolute number of cases is much lower, but a high proportion of those cases occur in vaccinated people

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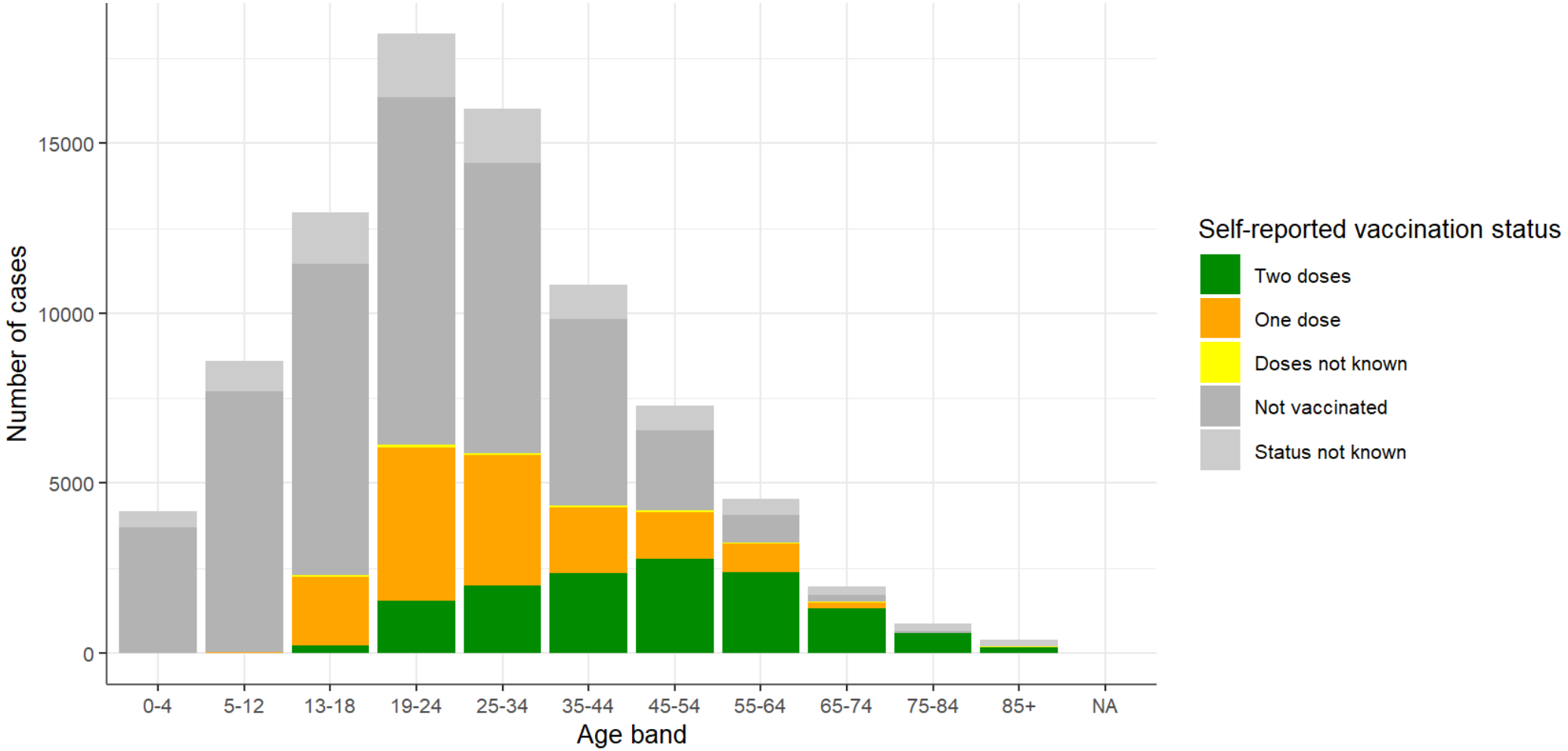

Number of cases by age and self-reported vaccination status. CCT data from Thu 13 May 2021 to midnight Mon 23 Aug 2021.
Cases dated by case creation date

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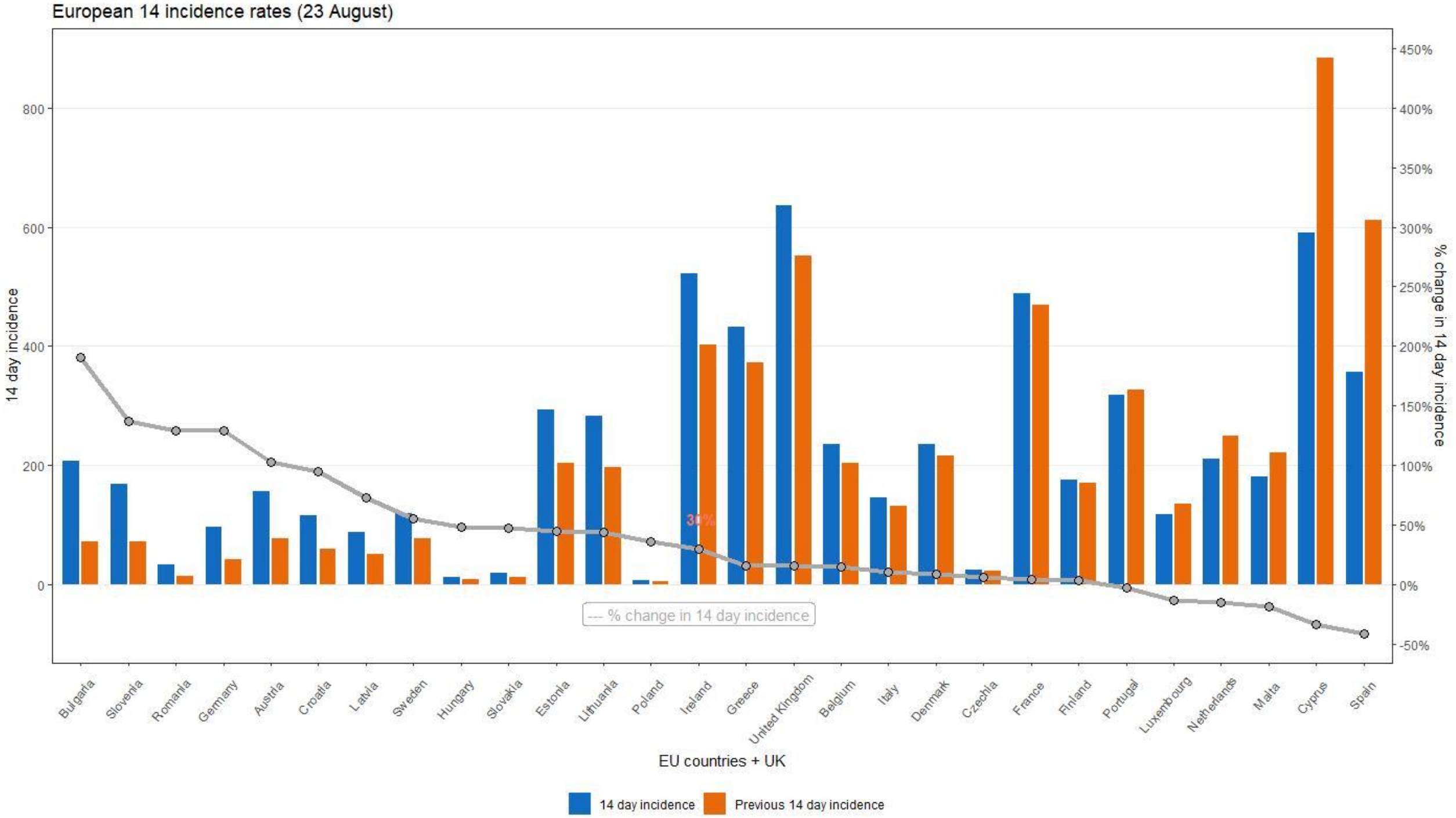
European 14 incidence rates (23 August)
14 day incidence
% change in 14 day incidence
800
600
400
200
0
450%
400%
350%
300%
250%
200%
150%
100%
50%
0%
-50%
30%
--- % change in 14 day incidence
Bulgaria
Slovenia
Romania
Germany
Austria
Croatia
Latvia
Sweden
Hungary
Slovakia
Estonia
Lithuania
Poland
Ireland
Greece
United Kingdom
Belgium
Italy
Denmark
Czechia
France
Finland
Portugal
Luxembourg
Netherlands
Malta
Cyprus
Spain
EU countries + UK
14 day incidence
Previous 14 day incidence

United Kingdom

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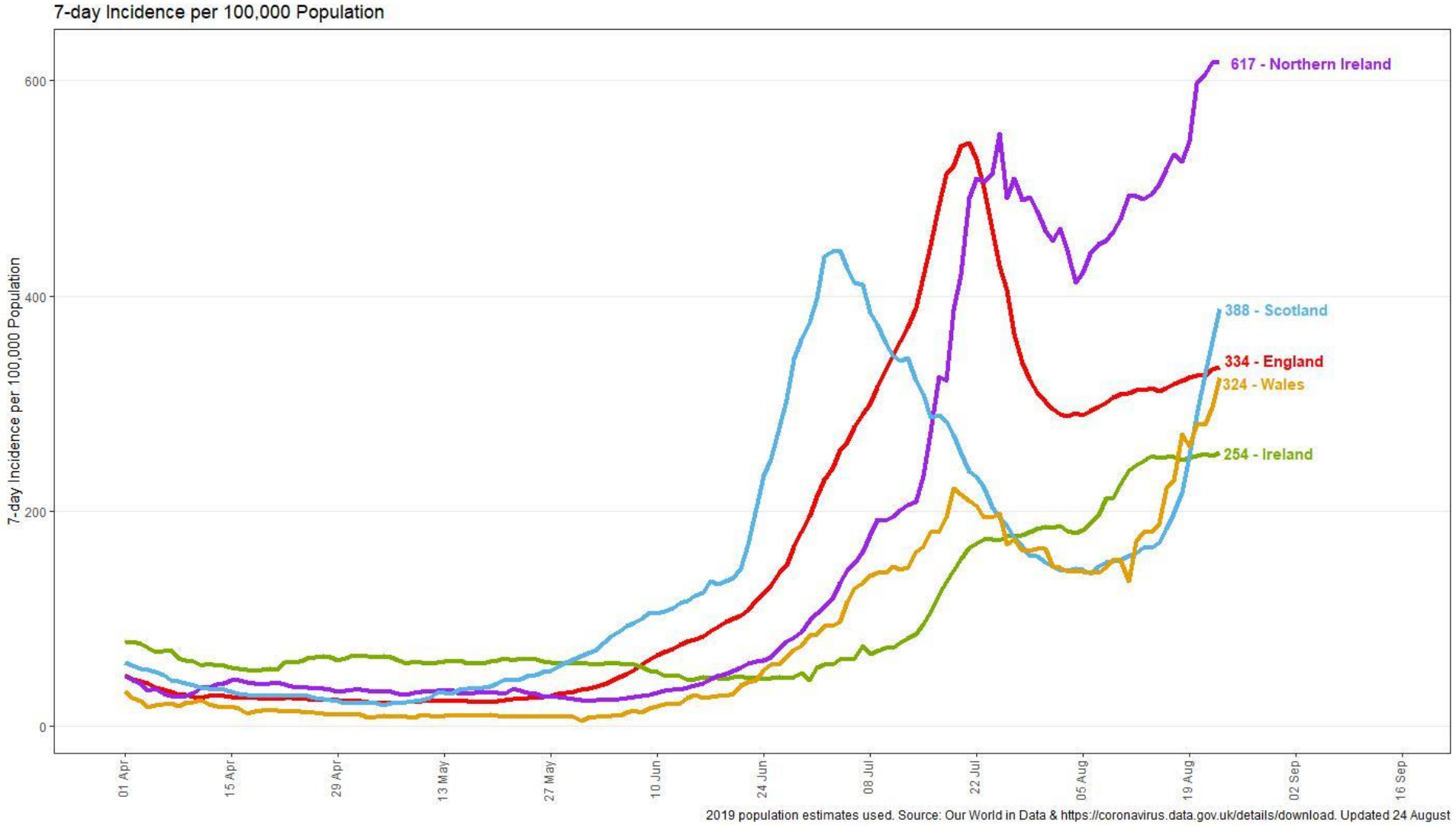

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Growth rate

Growth rate has been unstable during the summer, and exceeded 5% per day (doubling time 14 days) in July; growth rate is currently estimated at 0.7% (-0.2 – 1.7) per day

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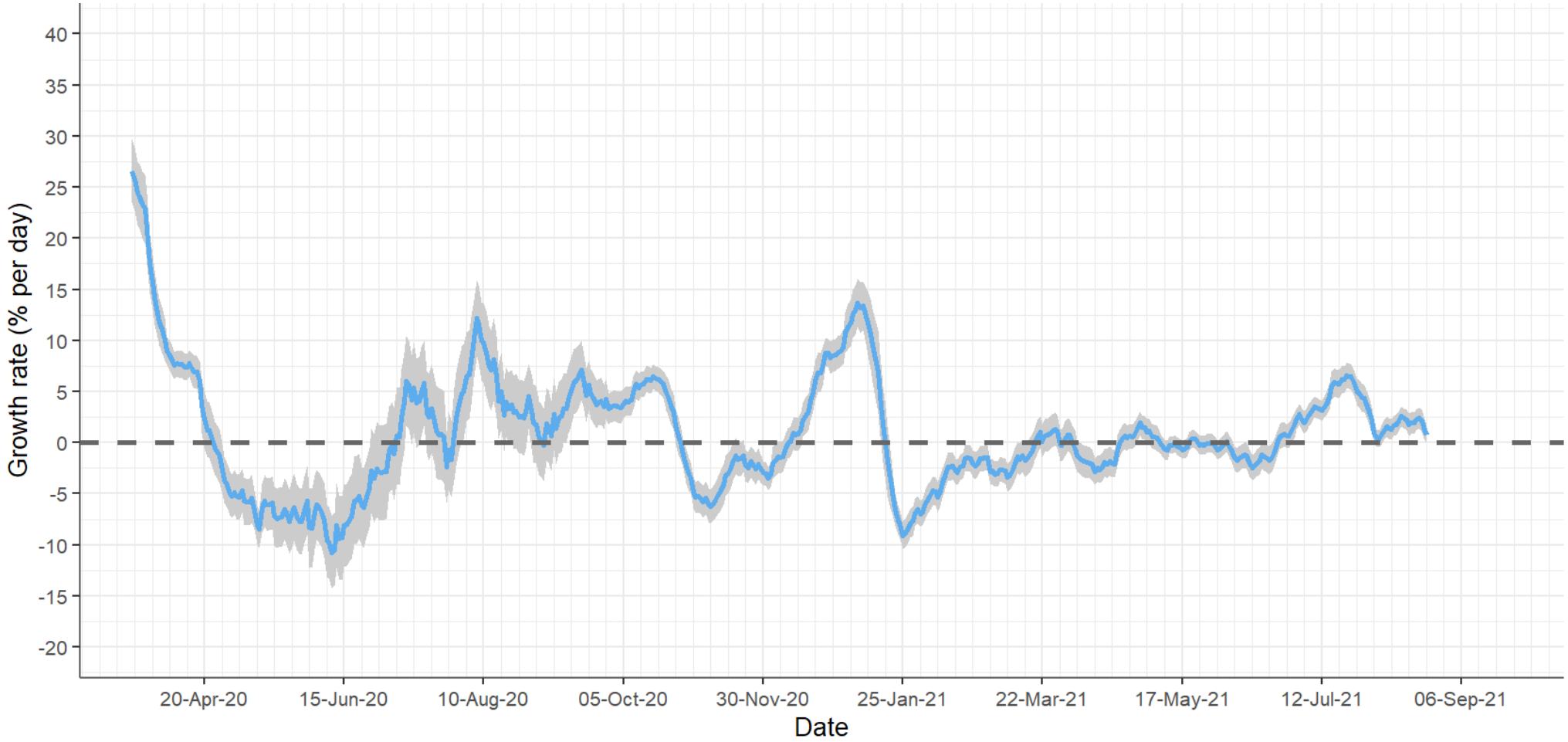

CIDR data to midnight Wed 12 May 2021 and CCT data to midnight Mon 23 Aug 2021. Cases dated by event creation / case creation date.
Growth rate in case counts using a 21-day window, cases dated by event (notification) date. Mean and 95% confidence intervals

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Model scenarios

Actual case counts (points) and short-term scenario models calibrated to 11 August 2021; at current levels of effective social contact we are likely to track the Optimistic or Central 1 scenarios, though we are at a critical point and moderate changes in effective social contact bring about significant changes in outcome.

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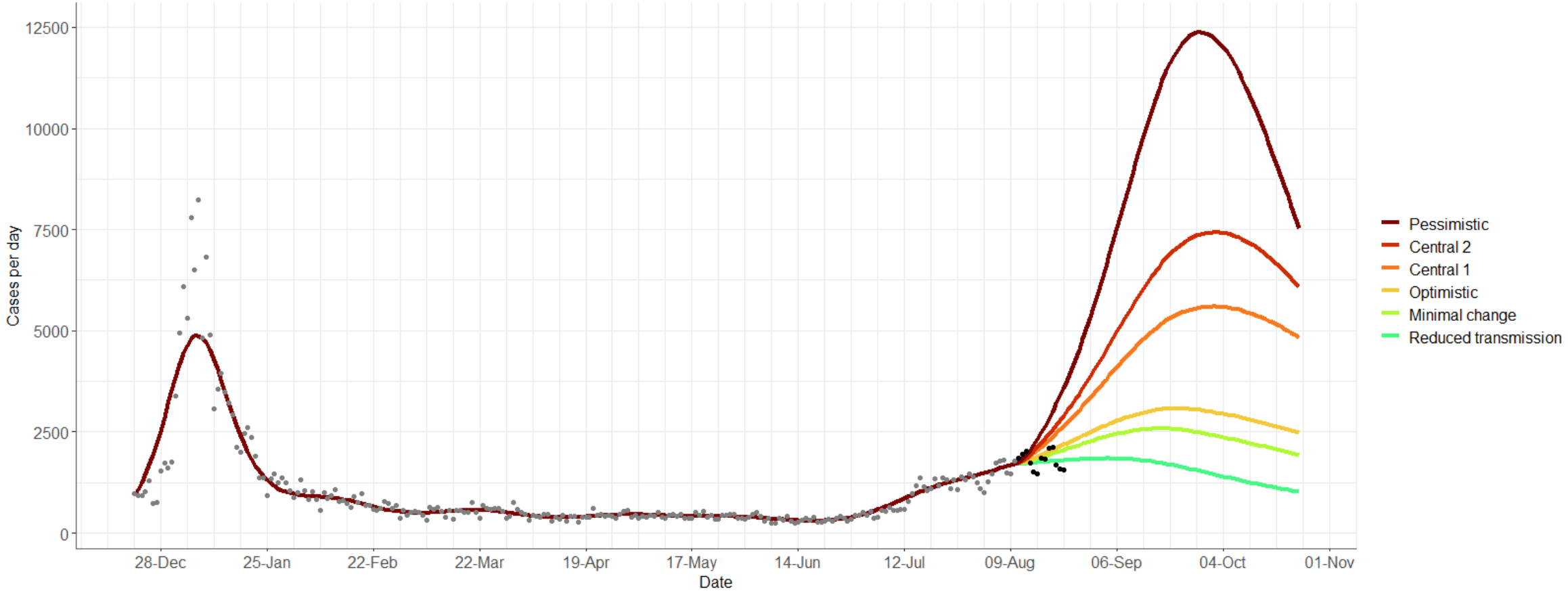

Homogeneous population SEIR model scenario estimates of new cases per day, calibrated to 11 August 2021. Data are the mean of 1000 runs of the model with different assumptions on asymptomatic fraction, transmissibility of asymptomatic infections, latent period and duration of infectious period. Confidence intervals not shown. Delta variant replaces alpha in July 2021, accounting for 70% of transmissions by 18 July 2021. A step change in close social contact is introduced on 11 August 2021 and maintained constant thereafter. The current vaccination is included.

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Model scenarios – healthcare demand

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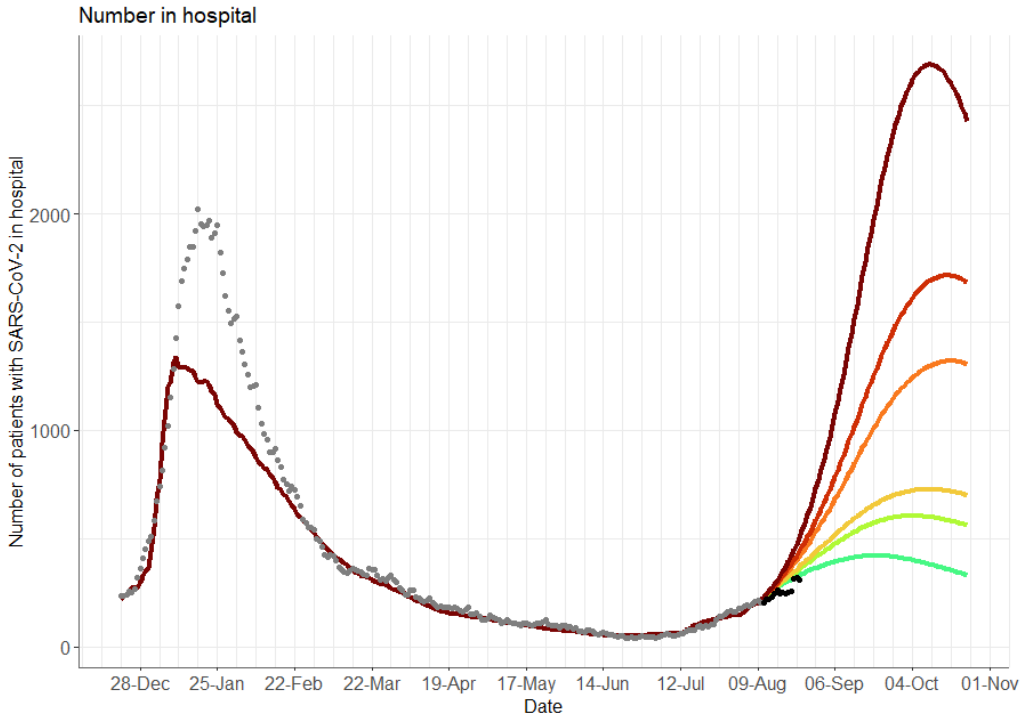

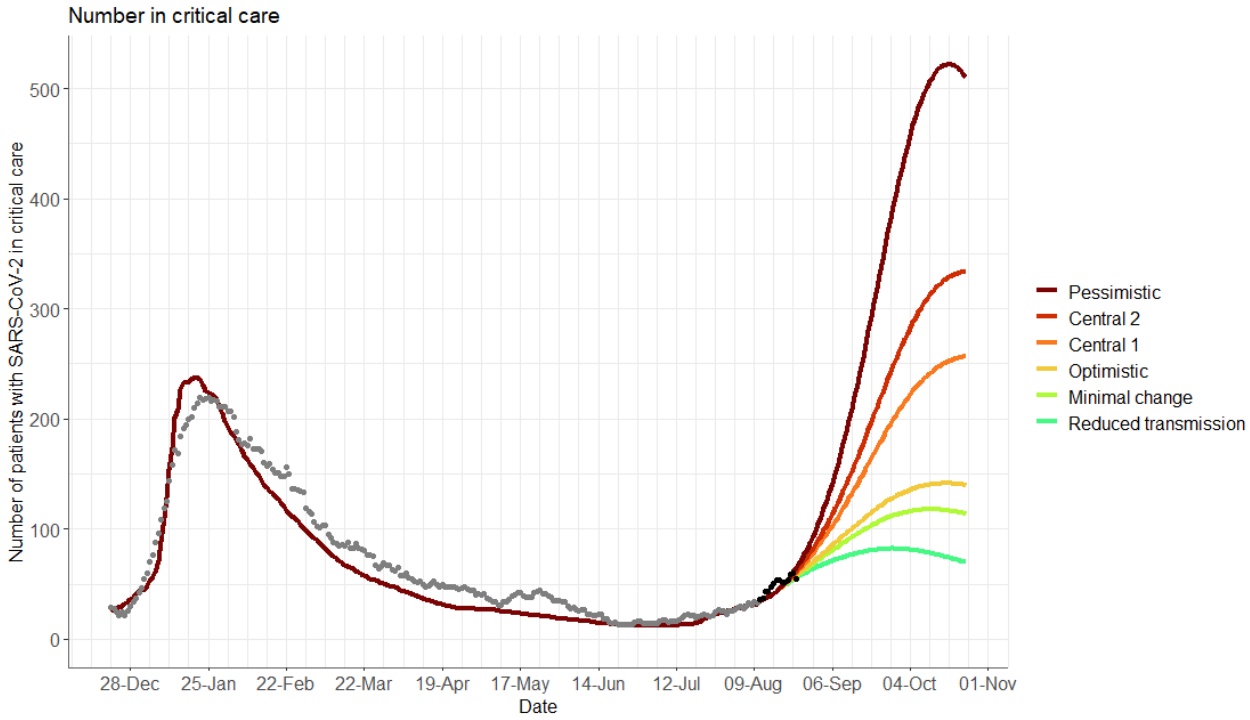

Estimates of numbers of people in hospital and critical care, based on the mean estimated daily cases from the homogeneous population SEIR model from model runs from 11 August 2021. There are known calibration issues with the number in hospital which are being resolved. Vaccination reduces the risk that symptomatic infection will lead to severe disease. The effectiveness of vaccines in this regard is assumed to be similar for alpha and delta variants. The risk of severe disease and mortality is also assumed to be similar for alpha and delta variants.

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Model scenarios

The timing and scale of the peak in disease over the coming weeks depends greatly on whether or not children as as likely to become infected and/or as likely to transmit the disease as adolescents and adults. Actual case counts (points) and short-term scenario models calibrated to 11 August 2021 with a simulated 50% reduction in the susceptibility of children.

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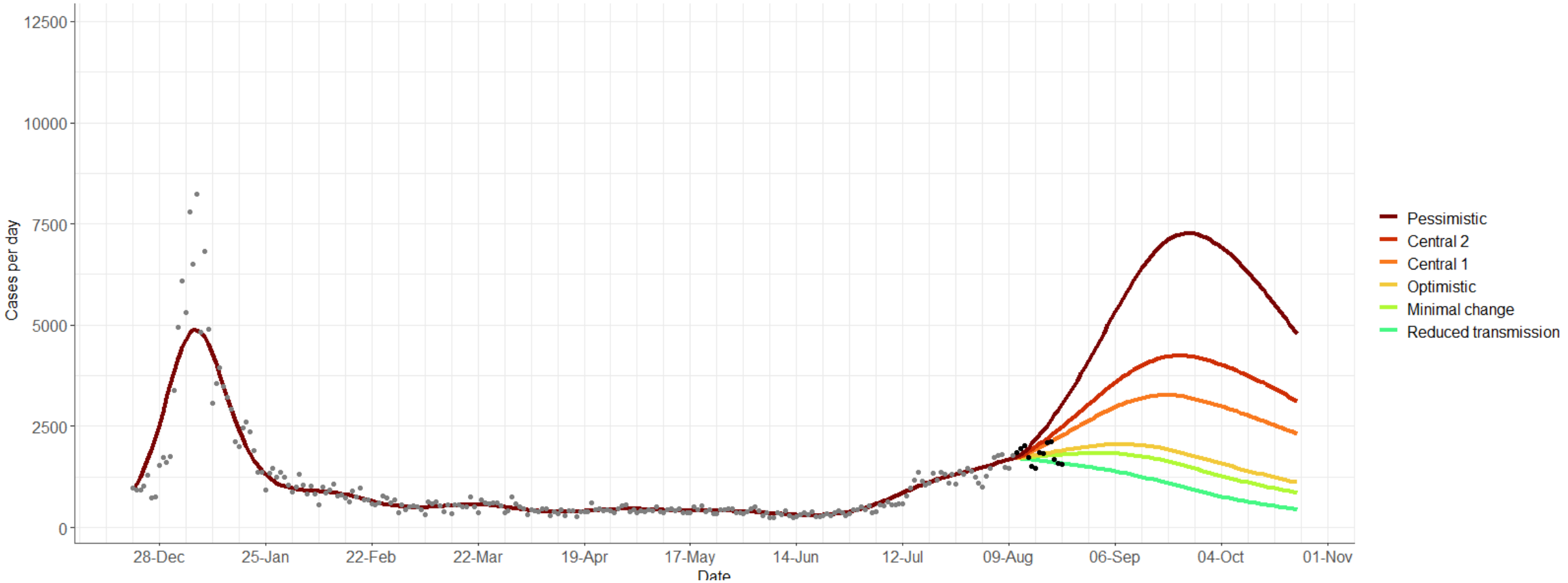

Homogeneous population SEIR model scenario estimates of new cases per day, calibrated to 11 August 2021, with a simulated 50% reduction in the susceptibility of children. Data are the mean of 1000 runs of the model with different assumptions on asymptomatic fraction, transmissibility of asymptomatic infections, latent period and duration of infectious period. Confidence intervals not shown. Delta variant replaces alpha in July 2021, accounting for 70% of transmissions by 18 July 2021. A step change in close social contact is introduced on 11 August 2021 and maintained constant thereafter. The current vaccination is included.

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Model scenarios – healthcare demand – children less susceptible

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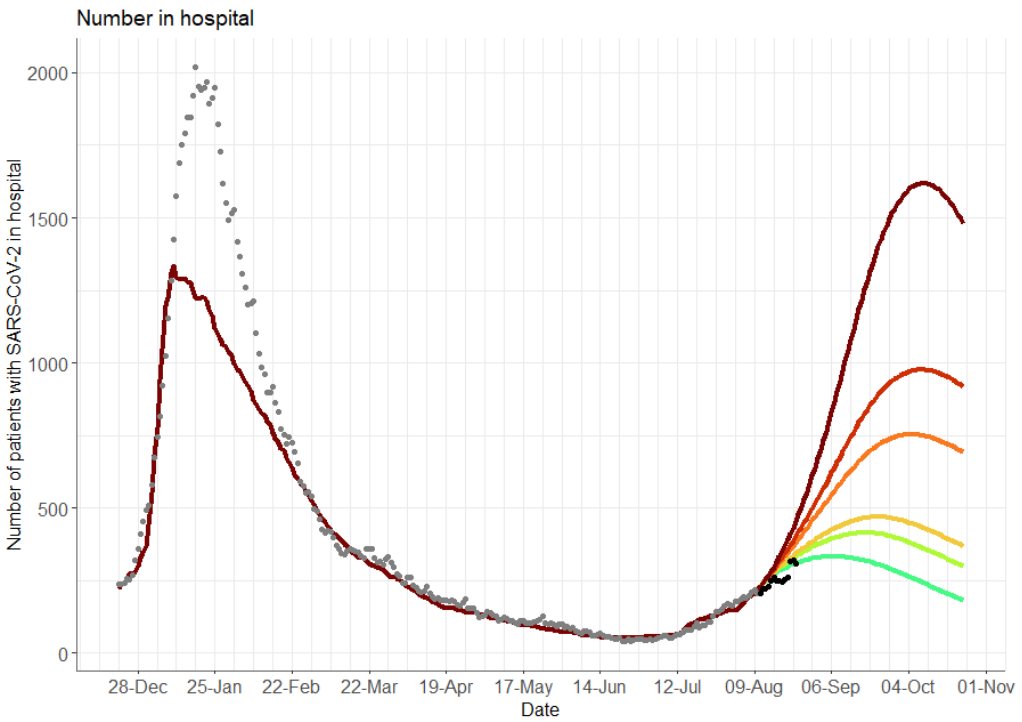

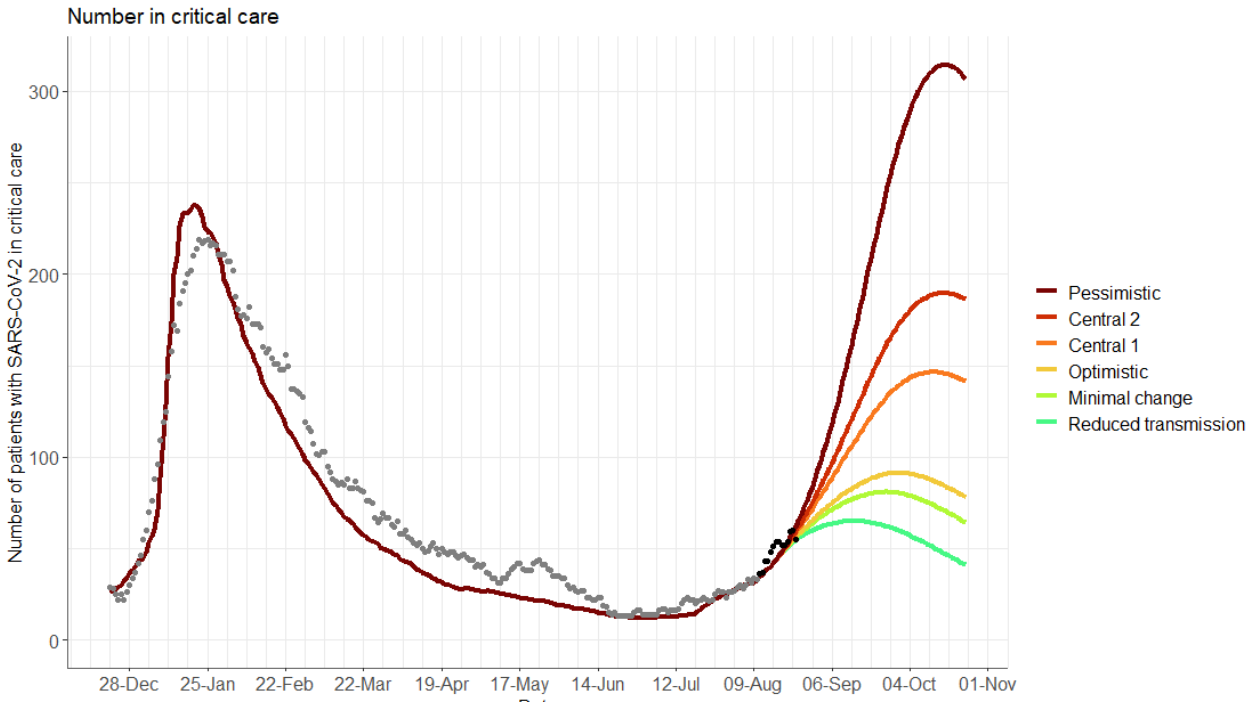

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Situation analysis 24 August 2021

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- Incidence high
  Cases (7-day average) 1822 cases per day; 14-day incidence 526 per 100,000
  - ≈ 20 admissions to hospital per 1000 cases
- Growth rate uncertain
  - Cases 0-2% per day (doubling time 35-100 days)
  - Numbers in hospital 2-4% per day (doubling time 19-33 days)
- High and increasing levels of protection by vaccination
  - 4-6 weeks to reach maximum population protection
  - > 80% of the adult population vaccinated, 70-75% protected
  - 53% of the population aged 16-29 years are vaccinated, with 40-45% protected
- Incidence may start to plateau in coming weeks
  - though we should expect at least transient increases in incidence with the with increased mobility and mixing associated with the reopening of schools and higher education
- The trajectory over the next period remains uncertain
  - any further increase in social mixing or potential for super-spreading is a significant risk

Summary

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- We have no experience of opening schools with the delta variant
- While delta is undoubtedly more transmissible
  - no evidence that the modes of transmission are any different for delta and alpha
  - reasonable to assume that mitigation measures that were effective against alpha will also be effective against delta
- Incidence in children has been lower than the population average throughout the pandemic
  - difficult to adjust for under-ascertainment
  - proportion of cases in children will increase as more adults are vaccinated
- School openings and closures to date have had minimal effect on incidence in the population as a whole and in children and adolescents of school-going age
  - in-school mitigation highly effective?
  - children less susceptible and/or less likely to transmit
- Social mixing at the point of school openings and closures may lead to significant transient increases in incidence
- A large force of infection in older adolescents and young adults is driving increased incidence in children (and vaccinated older adults)
- Modelling studies suggest, if effective social contact remains close to current levels, force of infection should start to decline from late September 2021
- We can expect at least a transient increase in incidence as schools and universities reopen

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School opening and closure

A heat map of daily incidence by single year of age shows a 'flash' of cases in those aged 17-19 years soon after the completion of the Leaving Certificate (silver arrow) and a weaker signal soon after the mid-term break at the end of October 2020 (white arrow

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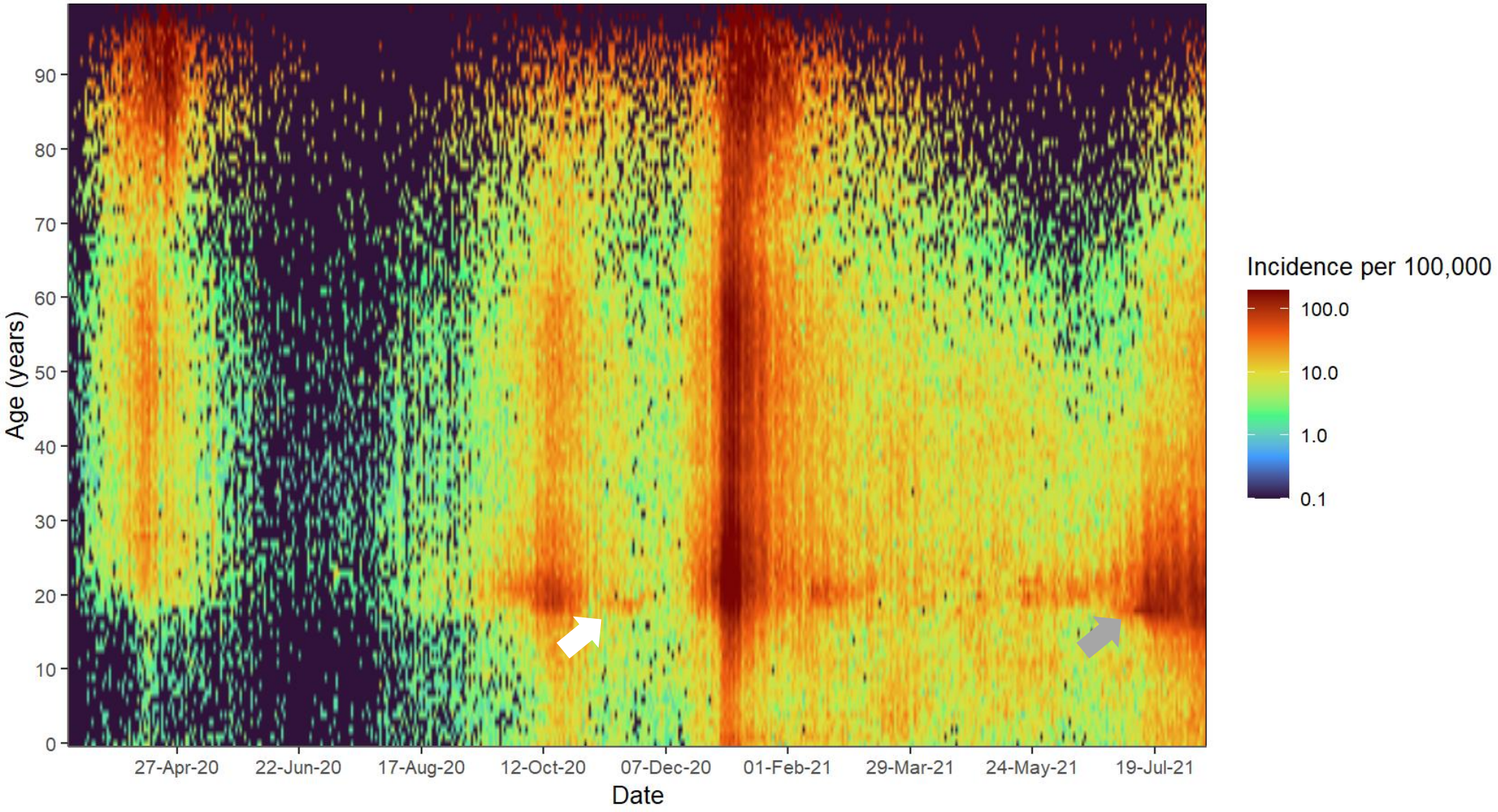

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