



# Weekly Influenza and COVID-19 Surveillance graphs

PHE publishes a weekly national influenza and COVID-19 surveillance report which summarises the information from the surveillance systems which are used to monitor influenza, COVID-19 and other seasonal respiratory viruses in England.

Additional figures based on these surveillance systems are included in this slide set.

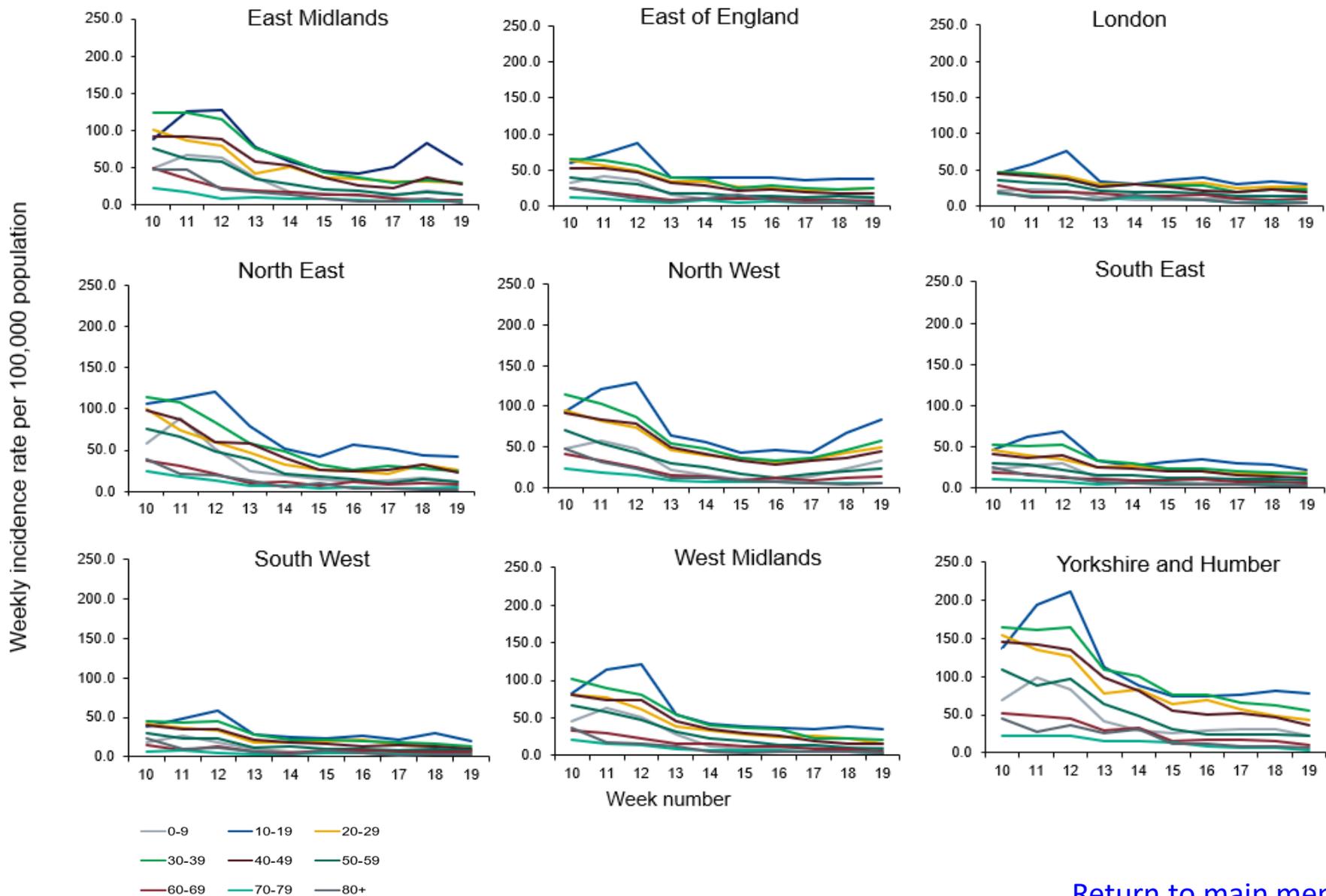
The figures presented in this slide set are based on data from week 19 (between 10 May and 16 May 2021).



# Confirmed COVID-19 cases in England

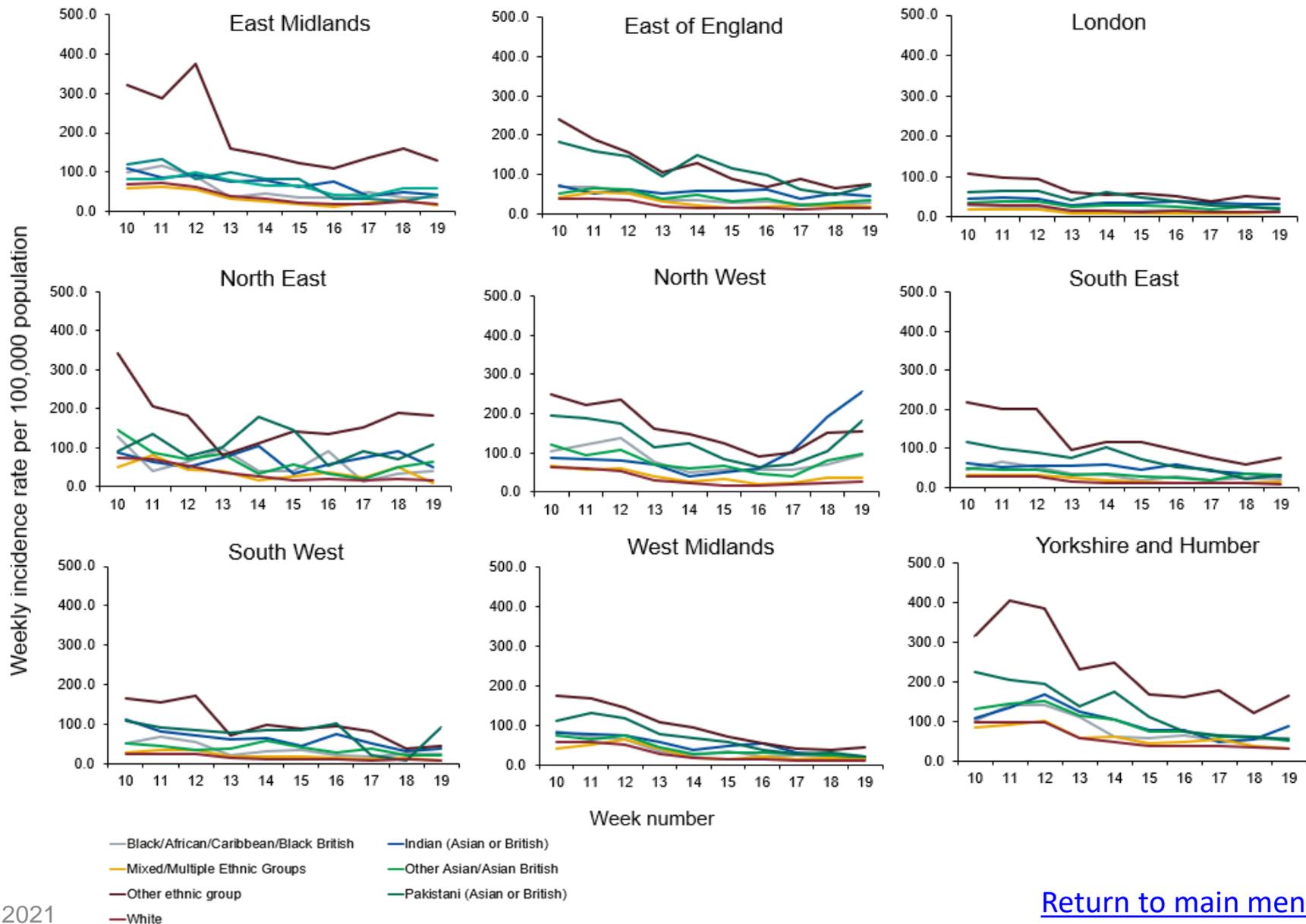


# Weekly COVID-19 incidence per 100,000 population by age group and region, weeks 10 to 19



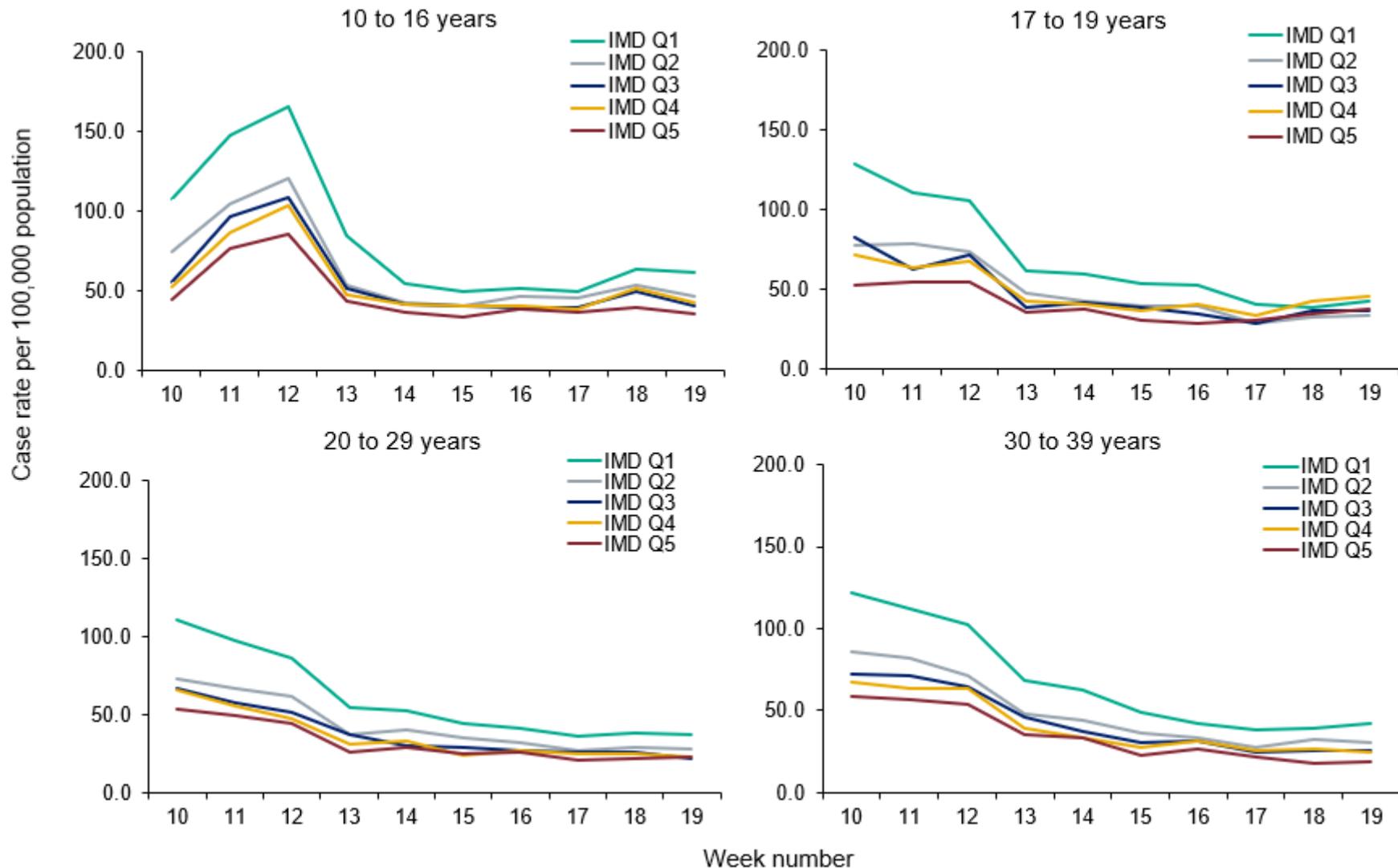


# Weekly COVID-19 incidence per 100,000 population by ethnicity and region, weeks 10 to 19



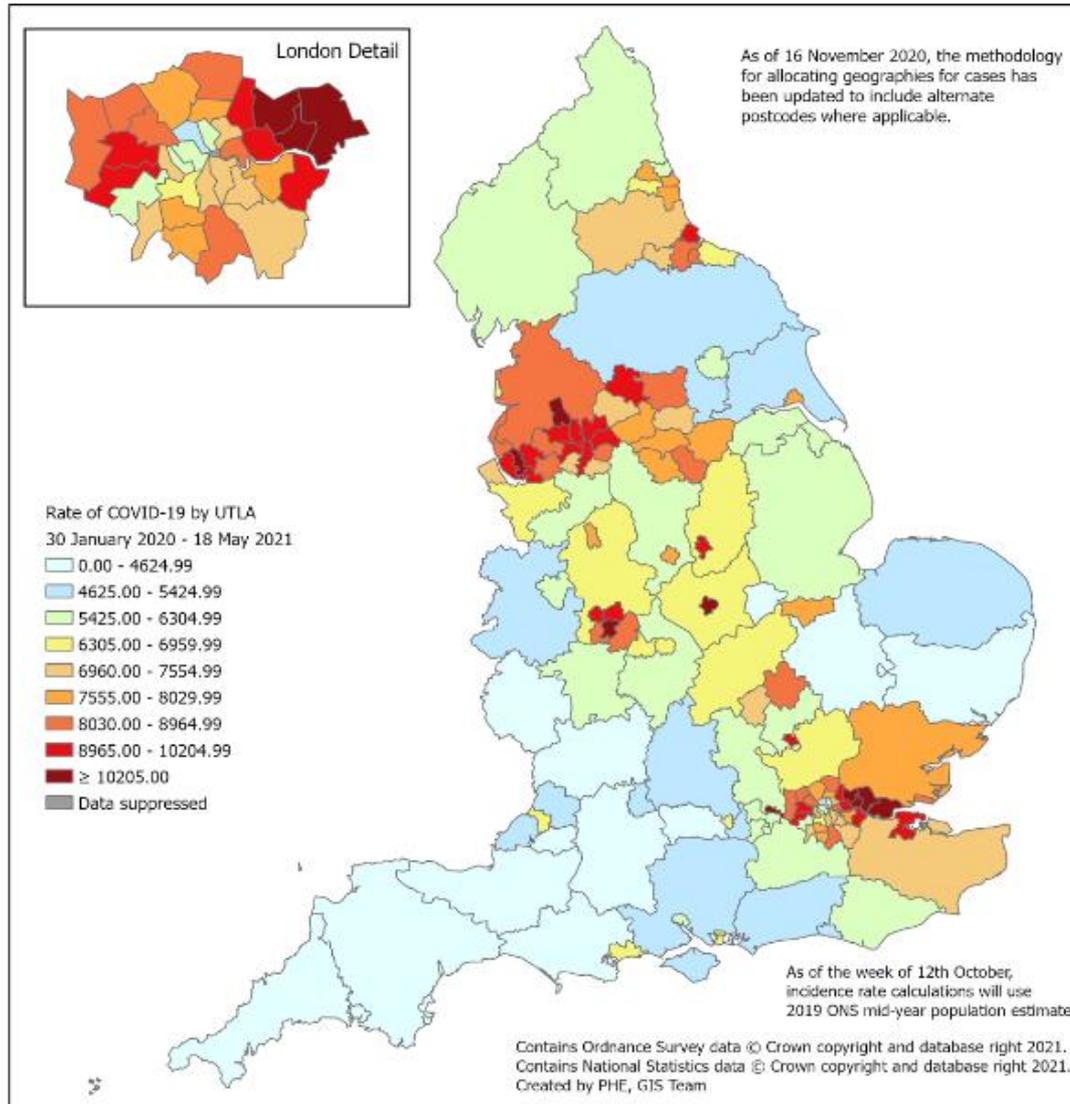


# Weekly COVID-19 rate per 100,000 population by IMD quintile (1 being the most deprived and 5 being the least deprived), weeks 10 to 19



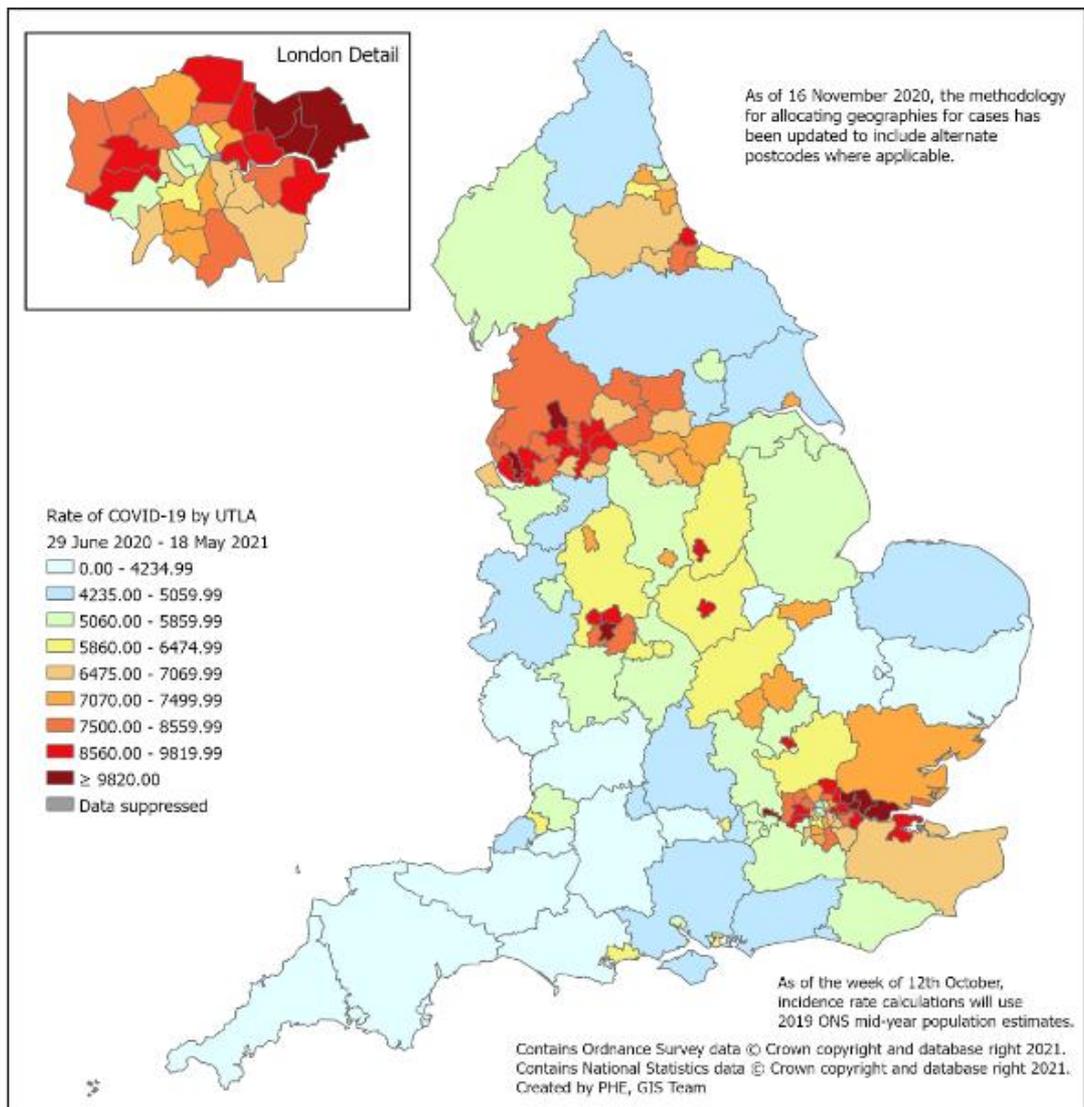


# Cumulative rate of COVID-19 cases per 100,000 population tested under Pillar 1 and 2, by upper-tier local authority, England (box shows enlarged map of London area)



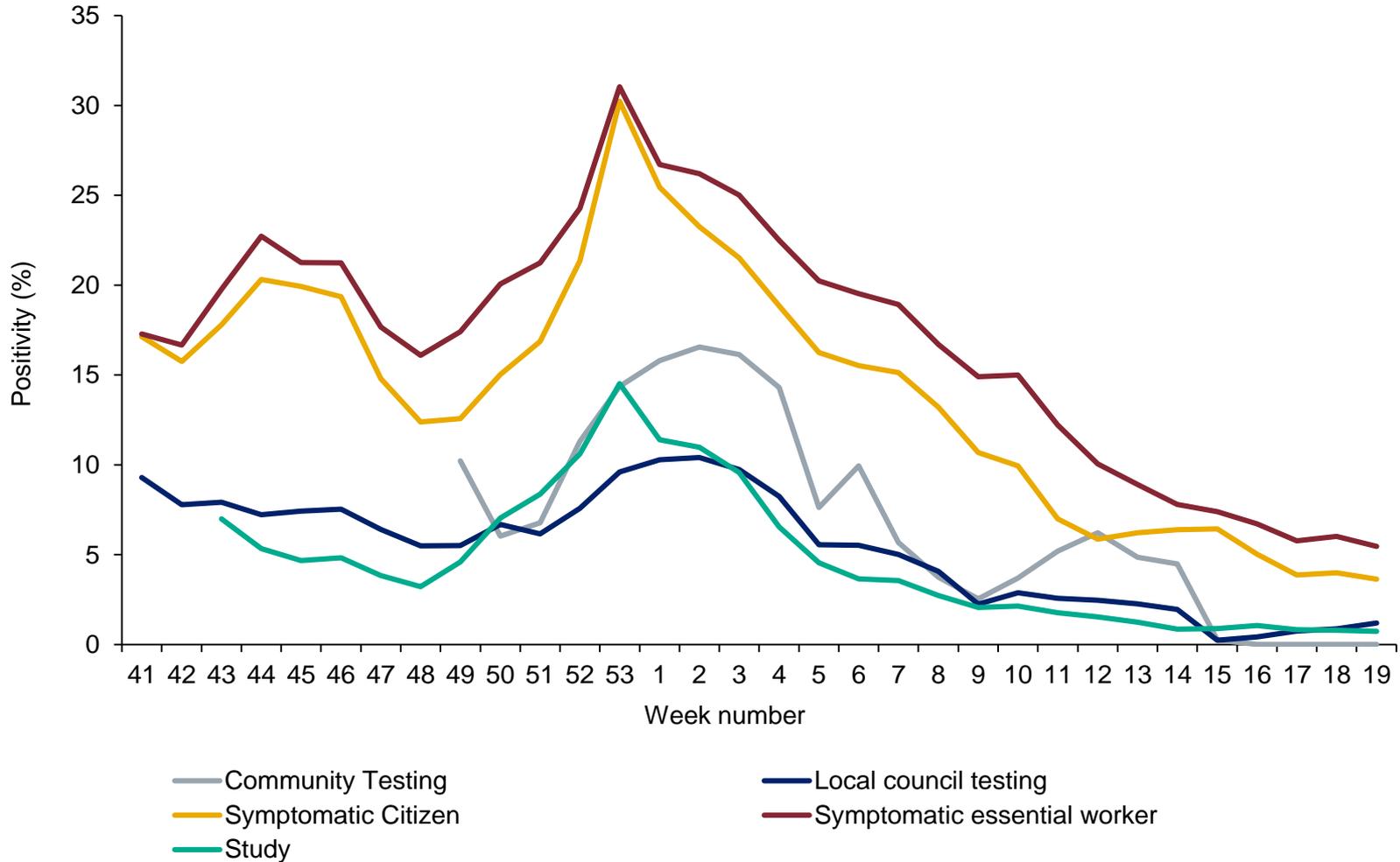


# Cumulative rate (from week 27) of COVID-19 cases per 100,000 population tested under Pillar 1 and 2, by upper-tier local authority, England (box shows enlarged map of London area)





# Weekly positivity of laboratory confirmed COVID-19 cases by reason for test, weeks 41 to 19

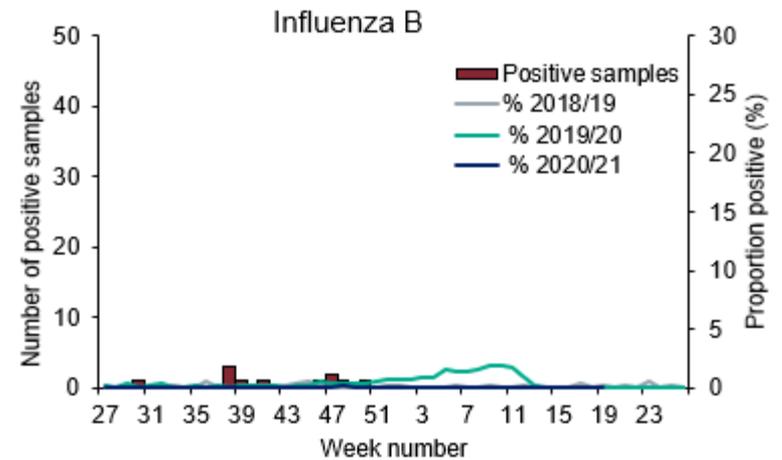
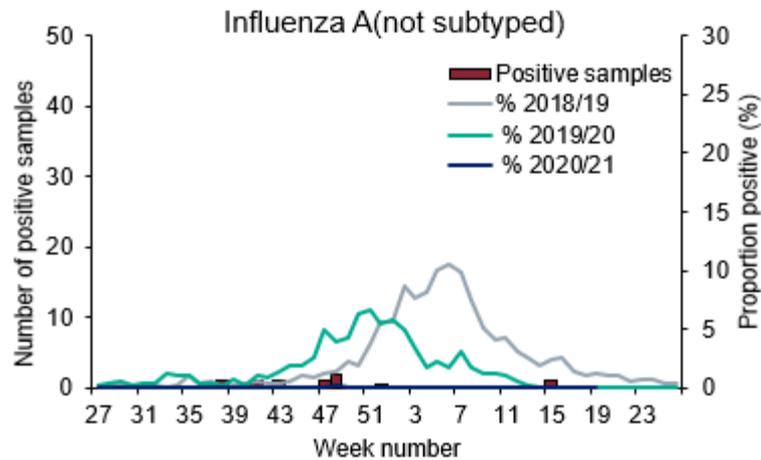
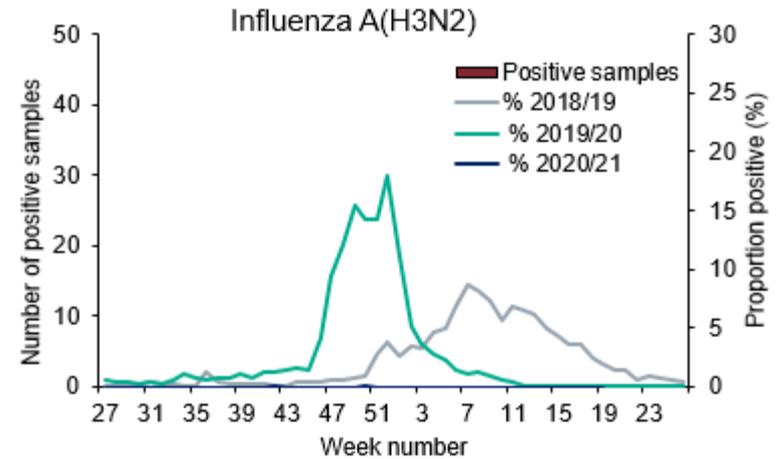
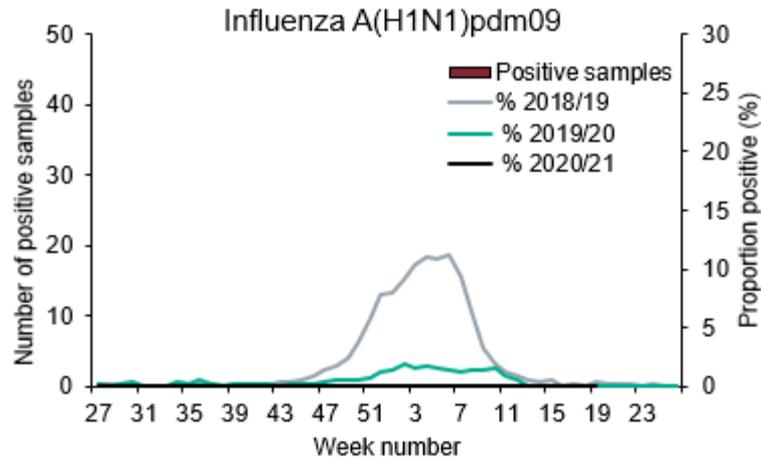


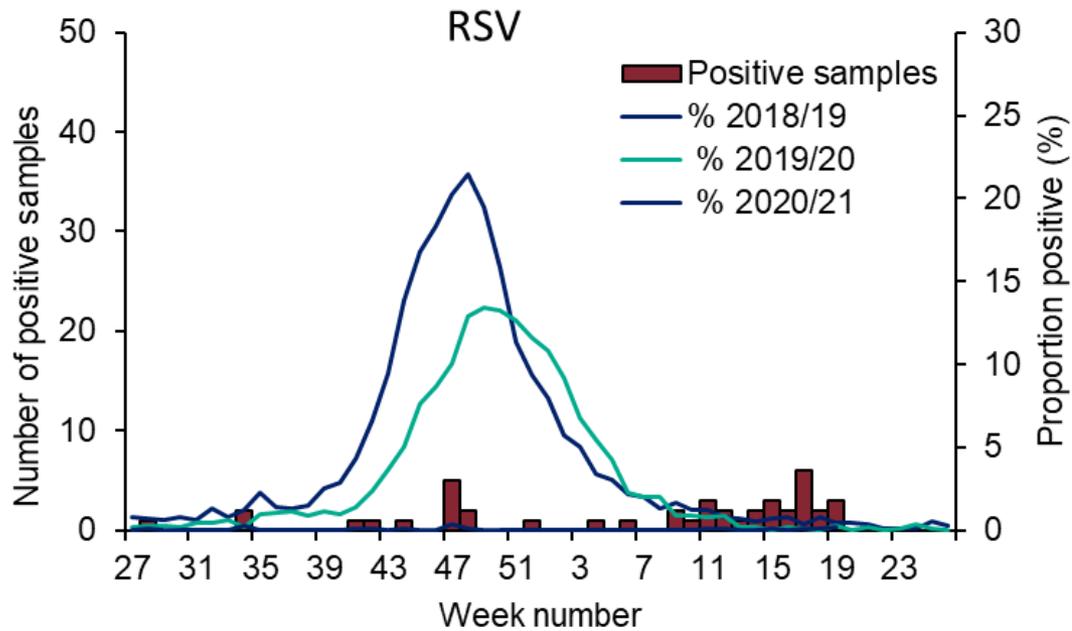


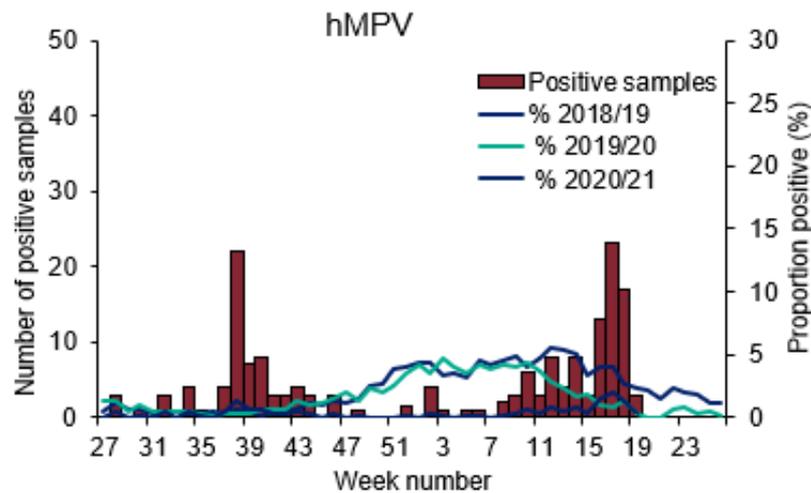
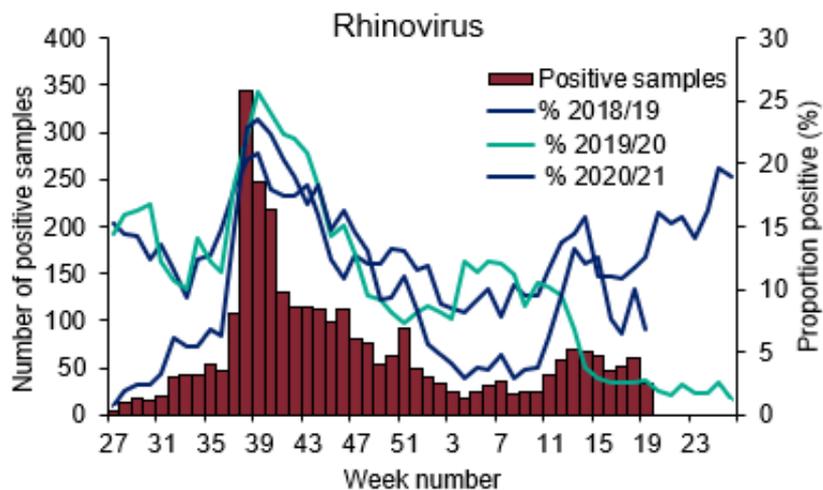
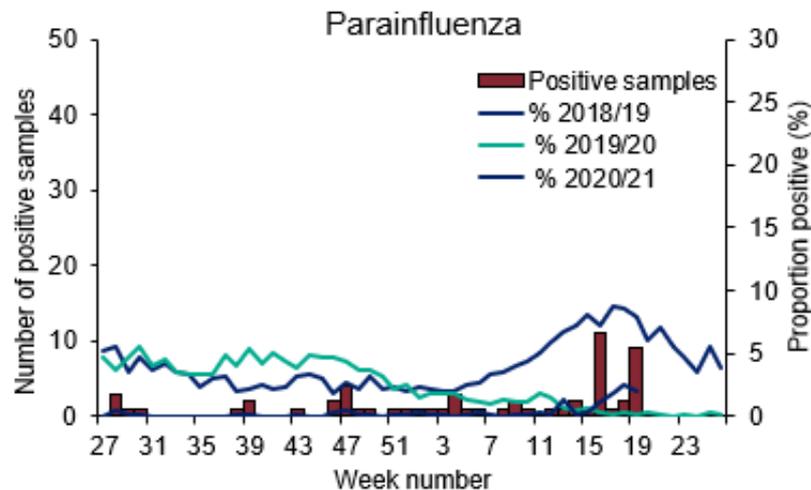
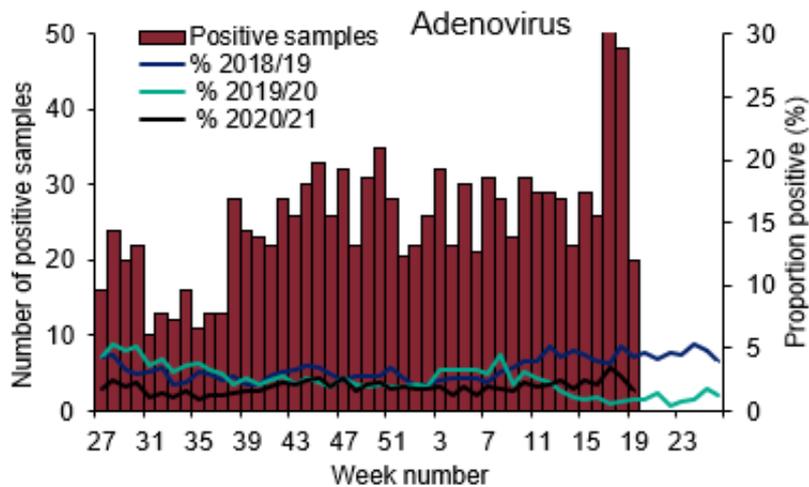
# Respiratory Datamart system (England)



# Respiratory DataMart – Influenza subtypes









# Community surveillance



## Data Information

- We report on new acute respiratory infection (ARI) incidents reported to Health Protection Teams (HPTs) and entered on HPZone in the previous reporting week in educational settings by locality
- Individual case notes are reviewed by an epidemiologist and an assessment made about whether the criteria for a confirmed COVID-19 cluster or outbreak are met. See definitions below.
- The incidents captured on HPZone represent a subset of all ongoing clusters and outbreaks in England. A variety of arrangements are in place with local authorities and other stakeholders supporting HPTs, however, data may not routinely be documented on HPZone. As a result, the number of outbreaks reported for some of the regions are underestimates

## Caveats

- A national school helpline started operating on 17 September 2020 and a Universities helpline started operating on 7 October schools in England were closed for half-term during weeks 43 or/ and 44.
- From Week 1 2021 the third national lockdown came into effect and schools were closed with the exception of vulnerable children and children of key workers. Early years settings have remained open.

## Definitions

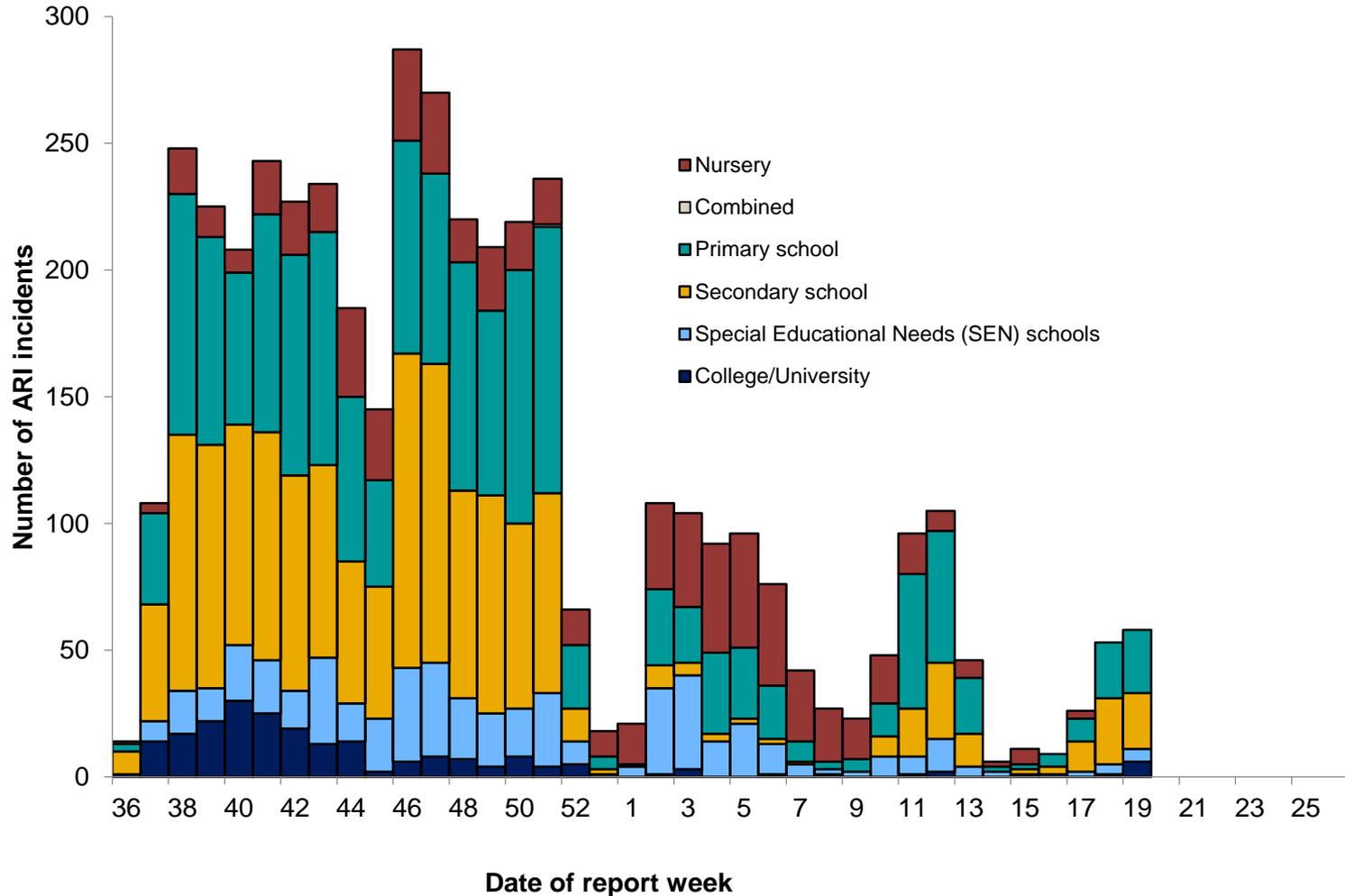
**Cluster:** two or more test-confirmed cases of COVID-19 among individuals associated with a specific non-residential setting with illness onset dates within a 14-day period (in the absence of detailed information about the type of contact between the cases).

**Outbreak:** two or more test-confirmed cases of COVID-19 among individuals associated with a specific non-residential setting with illness onset dates within 14 days, and one of:

- Identified direct exposure between at least 2 of the test-confirmed cases in that setting (for example under one metre face to face, or spending more than 15 minutes within 2 metres) during the infectious period of one of the cases.
- When there is no sustained local community transmission - absence of an alternative source of infection outside the setting for the initially identified cases



# Number of COVID-19 confirmed clusters or outbreaks by type of educational setting, England





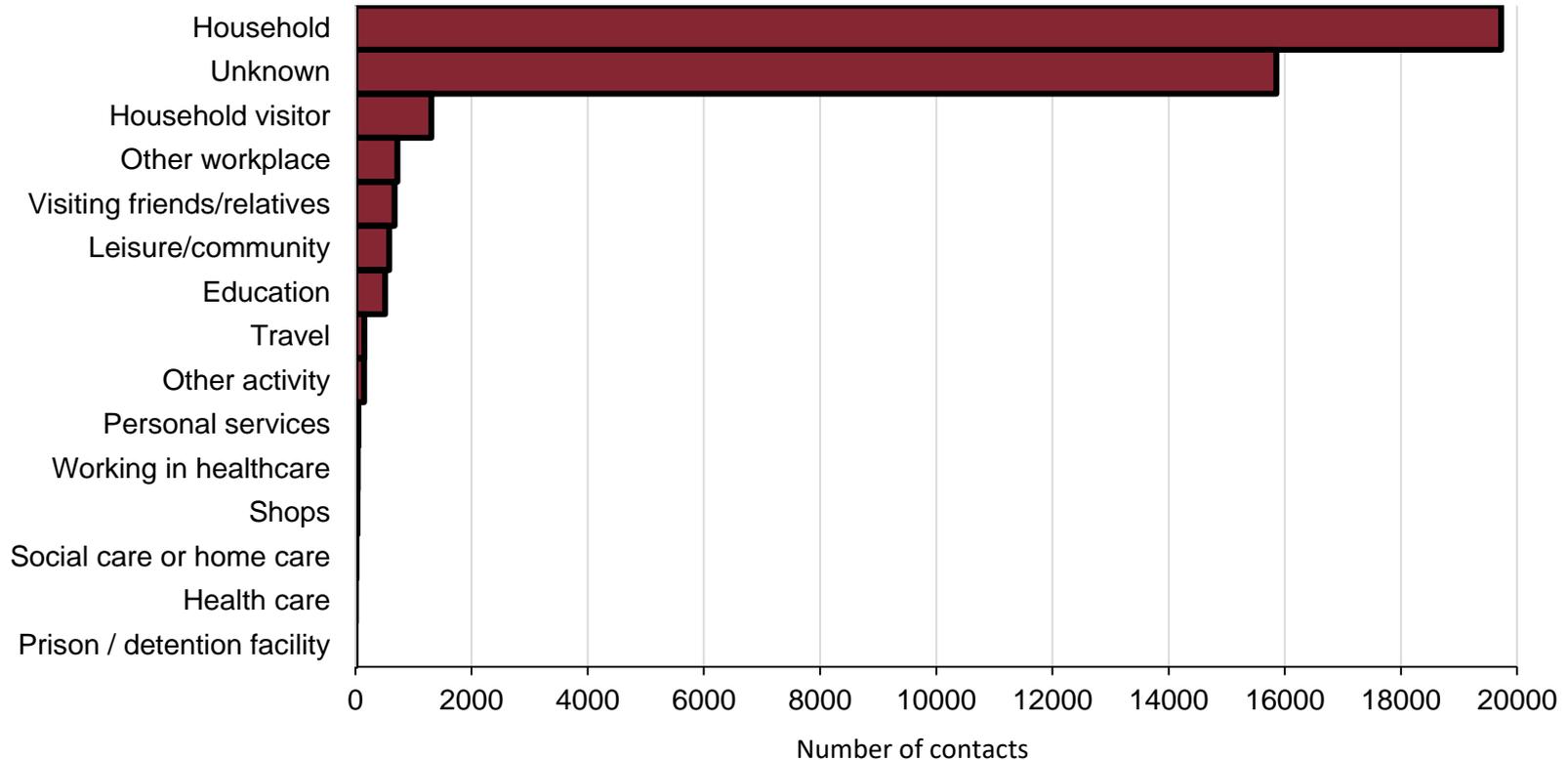
## Cumulative number of confirmed COVID-19 clusters or outbreaks by type of educational setting and PHE Centre since week 36, England

PHE Centres	Nursery	Primary School	Secondary School	Combined	Special Educational Needs (SEN) schools	College University	Total
East of England	8 (0)	20 (1)	44 (0)	0 (0)	9 (0)	14 (0)	95 (1)
East Midlands	103 (0)	178 (2)	120 (3)	1 (0)	61 (0)	23 (0)	486 (5)
London	122 (0)	357 (6)	368 (3)	1 (0)	58 (1)	44 (2)	950 (12)
North East	1 (0)	23 (0)	24 (0)	0 (0)	10 (1)	6 (0)	64 (1)
North West	37 (0)	84 (1)	101 (4)	0 (0)	55 (1)	15 (3)	292 (9)
South East	155 (0)	284 (1)	323 (4)	1 (0)	113 (0)	36 (0)	912 (5)
South West	36 (0)	99 (2)	98 (1)	1 (0)	58 (0)	26 (0)	318 (3)
West Midlands	106 (0)	284 (10)	208 (3)	2 (0)	78 (1)	25 (1)	703 (15)
Yorkshire and Hur	112 (0)	231 (2)	146 (4)	1 (0)	79 (1)	26 (0)	595 (7)
<b>Total</b>	680 (0)	1560 (25)	1432 (22)	7 (0)	521 (5)	215 (6)	4415 (58)

\*Number of outbreaks for Week 19 in brackets



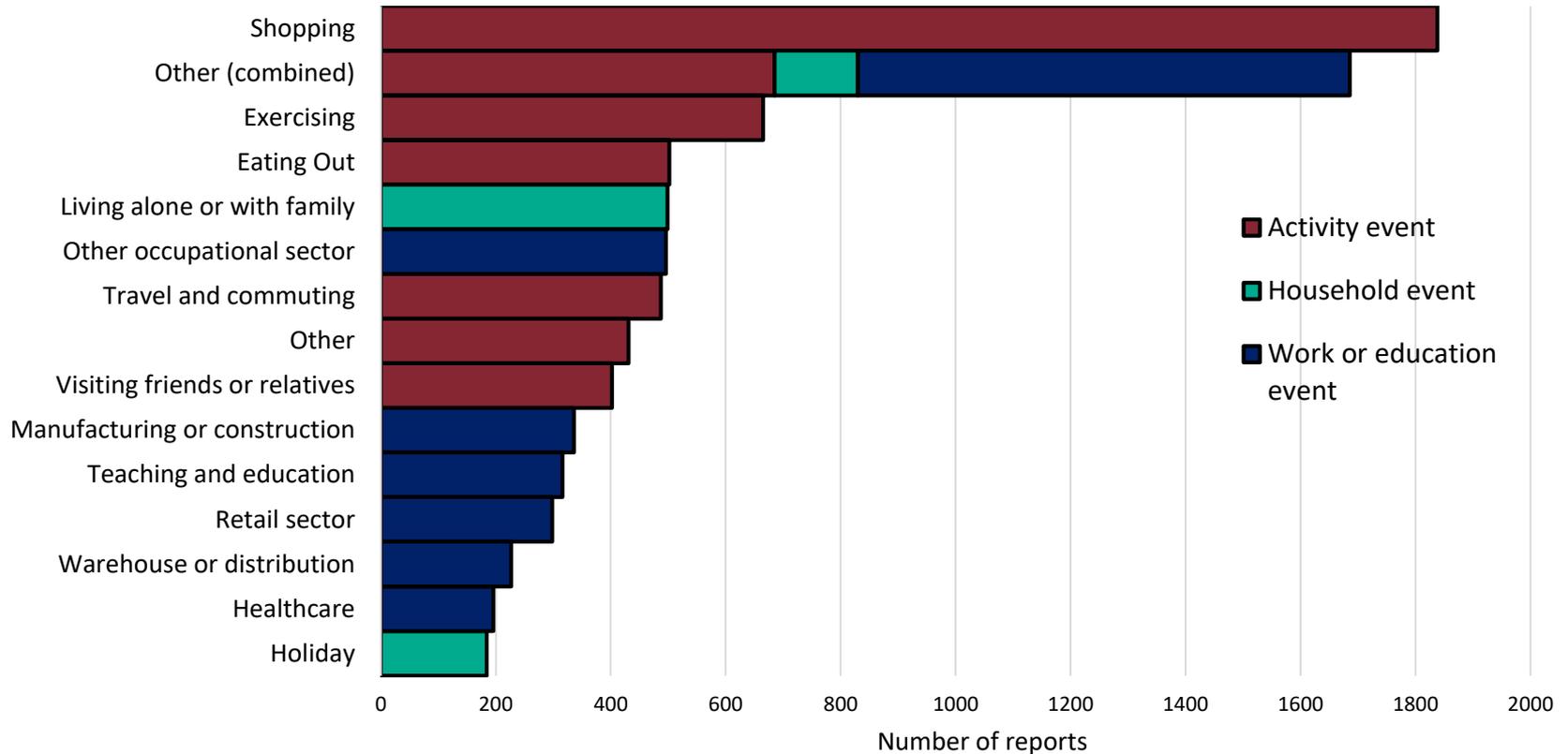
# Contacts by exposure/activity setting in week 19, England (Data source: NHS Test and Trace)



Note: categories have been grouped as follows: leisure / community includes eating out, attending events and celebrations, exercising, worship, arts, entertainment or recreation, community activities and attending play groups or organised trips; other workplace includes: retail, manufacturing or construction, hospitality, transport, emergency services or border force, food production and agriculture, prison, financial services, civil service or local government, information and communication, military, critical national infrastructure.  
Personal services include hairdressers, barbers, tattooists and nail bars.



# Events and activities reported by people testing positive, prior to symptom onset in week 19, England (Data source: NHS Test and Trace)



Note: 'Other' includes a wide range of different activities and settings, each of which has small numbers of individuals, as well as activities which did not fit any specific category and were added as Other by the case. This includes: all within 'activities': Arts, entertainment or recreation; Civil service or government; Close contact services; Community and charity activities; Critical national infrastructure; Emergency services; Financial services; Food production; Hospitality; Immigration border services; Information and communication; Military; Personal care; Prison; Private events and celebrations; Public events and mass gathering; event within a shared household; Sport events; Supported living; Teaching and education; Transport; 'Other (combined)' includes all exposure group types that have small counts such as "went to church", "went to the zoo" within that event type.



# Surveillance in 'educational-age' cohorts



- Data source: SGSS Pillar 1 (NHS and PHE testing) and Pillar 2 (community testing) – England
- Educational-age cohorts have been calculated using dates of birth that correspond to a particular year group. School year groups run from 1 September to 31 of August of the following calendar year.
- We include all cases regardless of whether or not they attended an educational setting or whether or not the educational setting was open during the reporting period
- Data for the most recent week are provisional and likely to be an underestimate
- From early December 2020 a mass testing programme has been rolled out in Higher Education Institutions using Lateral Flow Devices ahead of students returning home for the Christmas break. This will impact testing trends and positivity data during this period.
- From January 2021 a mass testing programme using Lateral Flow Devices has been gradually rolled out among teachers and secondary school students ahead of students returning to school on the 8 March. This has impacted testing trends and positivity data reported from the end of February onwards, particularly in the secondary school-aged cohorts.

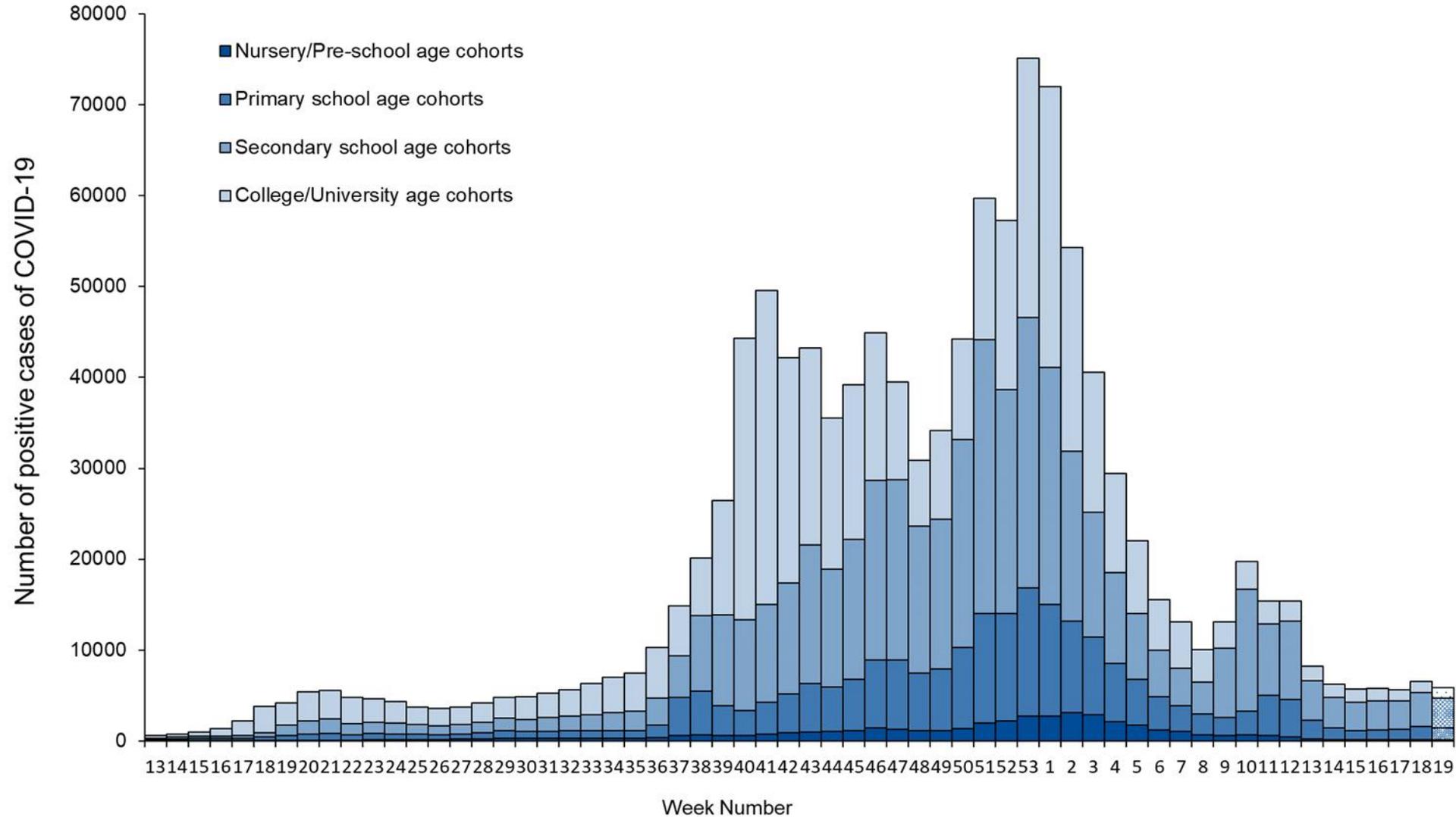


- The table aside represents the birth cohorts for each year group

Birth cohort			Year group
01/09/1998	to	31/08/1999	Uni Year 4
01/09/1999	to	31/08/2000	Uni Year 3
01/09/2000	to	31/08/2001	Uni Year 2
01/09/2001	to	31/08/2002	Uni Year 1
01/09/2002	to	31/08/2003	Year 13
01/09/2003	to	31/08/2004	Year 12
01/09/2004	to	31/08/2005	Year 11
01/09/2005	to	31/08/2006	Year 10
01/09/2006	to	31/08/2007	Year 9
01/09/2007	to	31/08/2008	Year 8
01/09/2008	to	31/08/2009	Year 7
01/09/2009	to	31/08/2010	Year 6
01/09/2010	to	31/08/2011	Year 5
01/09/2011	to	31/08/2012	Year 4
01/09/2012	to	31/08/2013	Year 3
01/09/2013	to	31/08/2014	Year 2
01/09/2014	to	31/08/2015	Year 1
01/09/2015	to	31/08/2016	Reception
01/09/2016	to	31/08/2017	Pre-school
01/09/2017	to	31/08/2018	Nursery

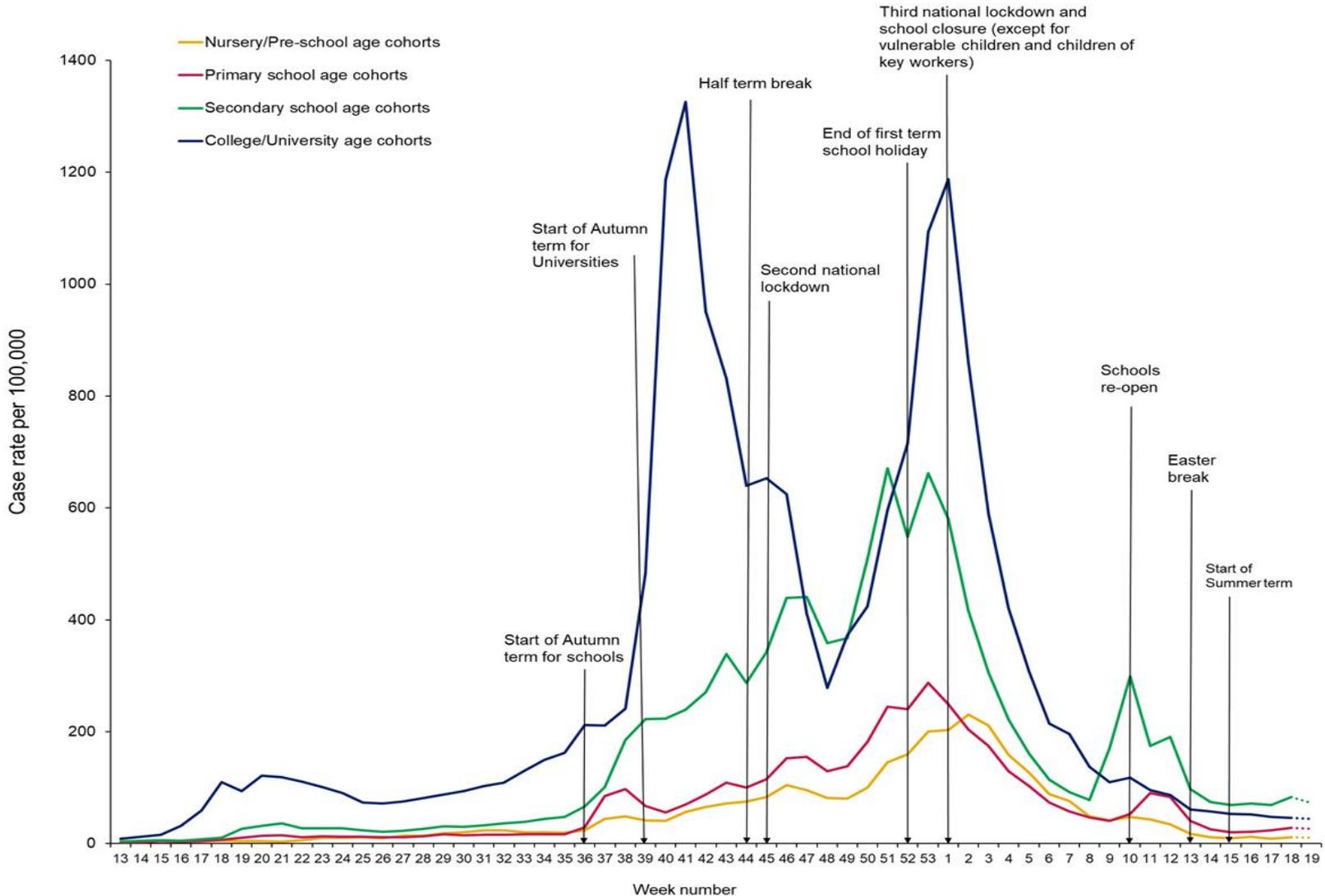


# Weekly number of laboratory confirmed COVID-19 cases in nursery/preschool, primary, secondary and college/university age cohorts



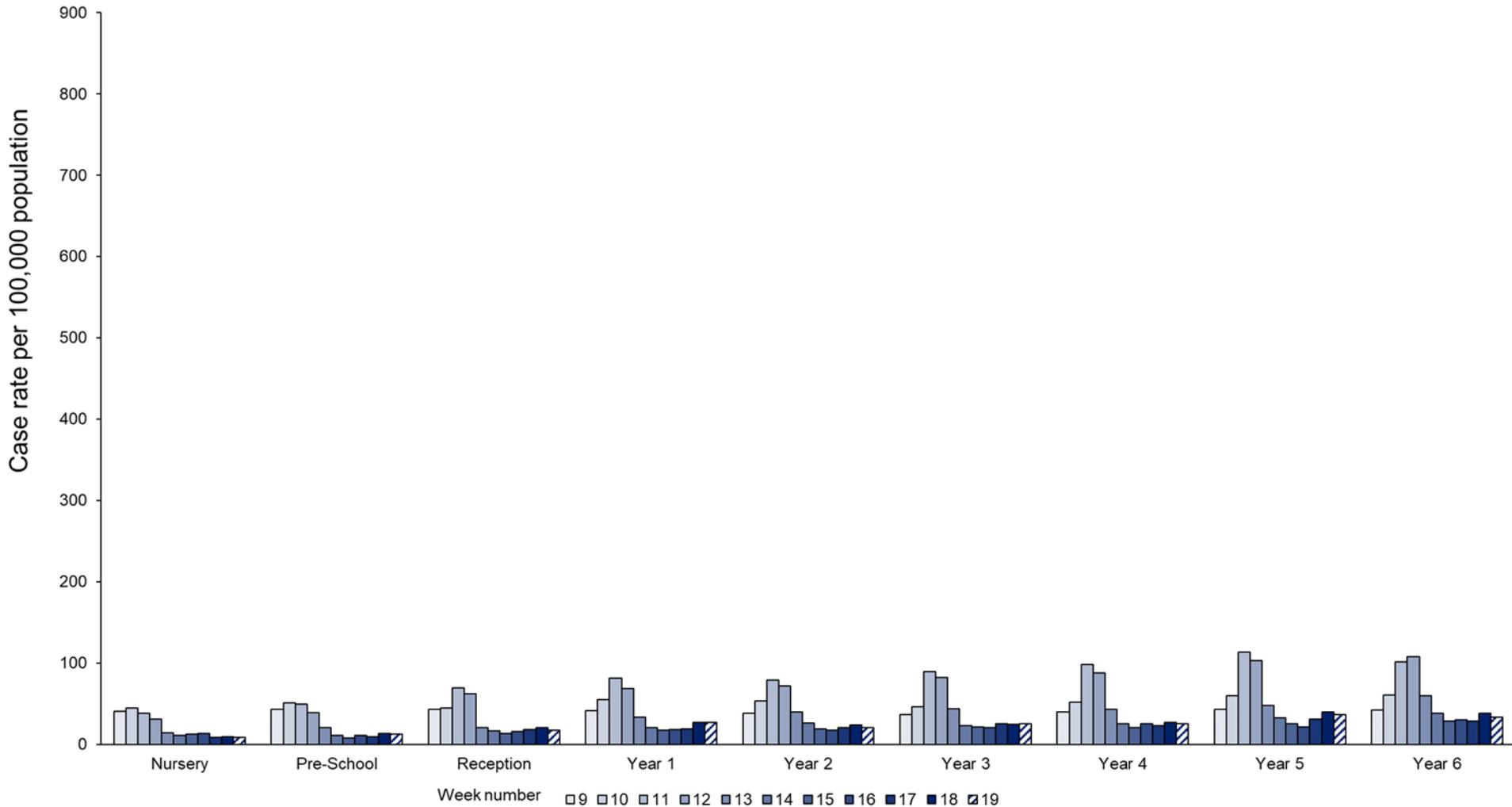


# Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population in nursery/preschool, primary school, secondary school and college/university age cohorts



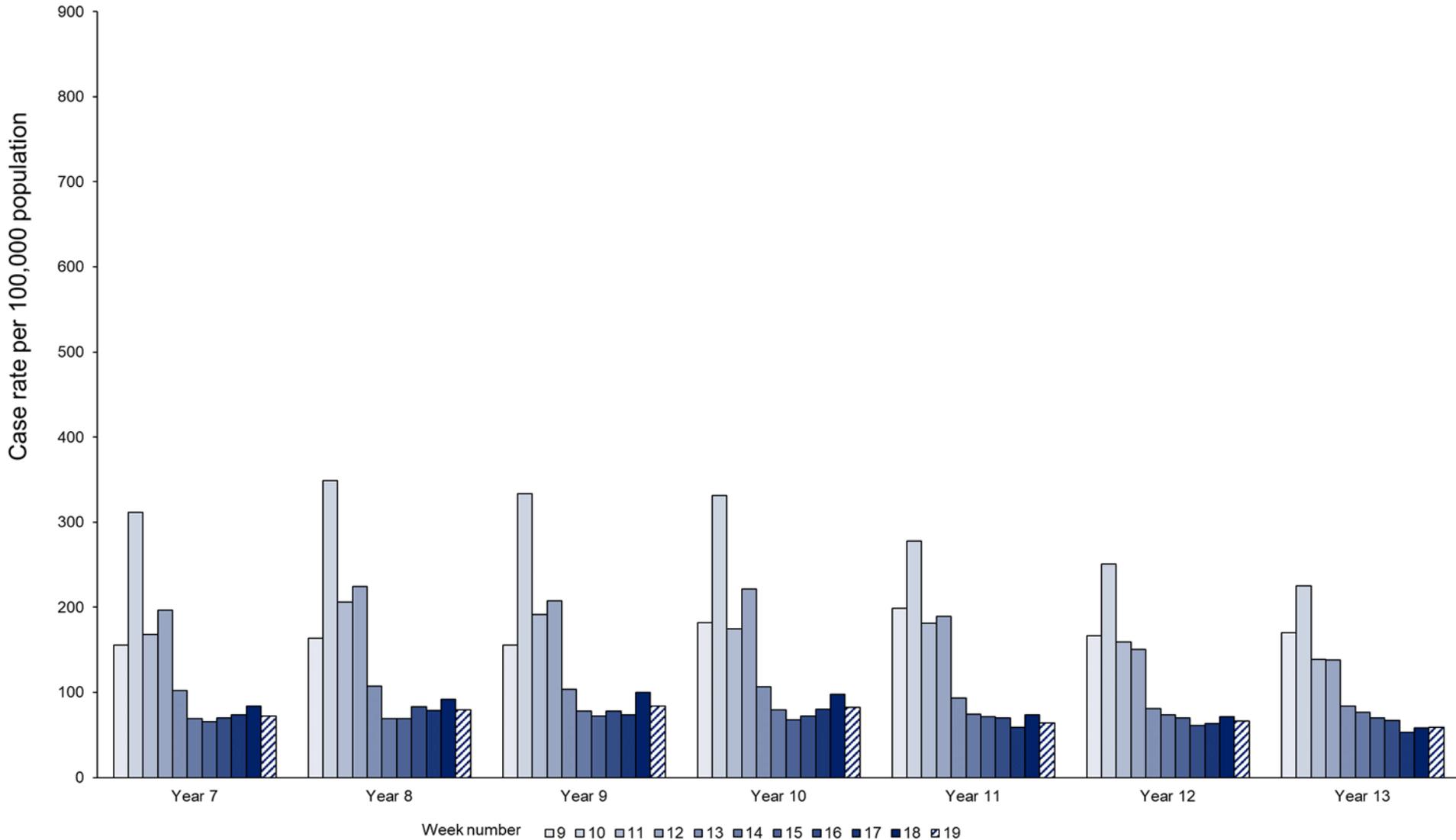


# Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population in educational age cohorts presented by Year group, from nursery to Year 6, weeks 9 to 19



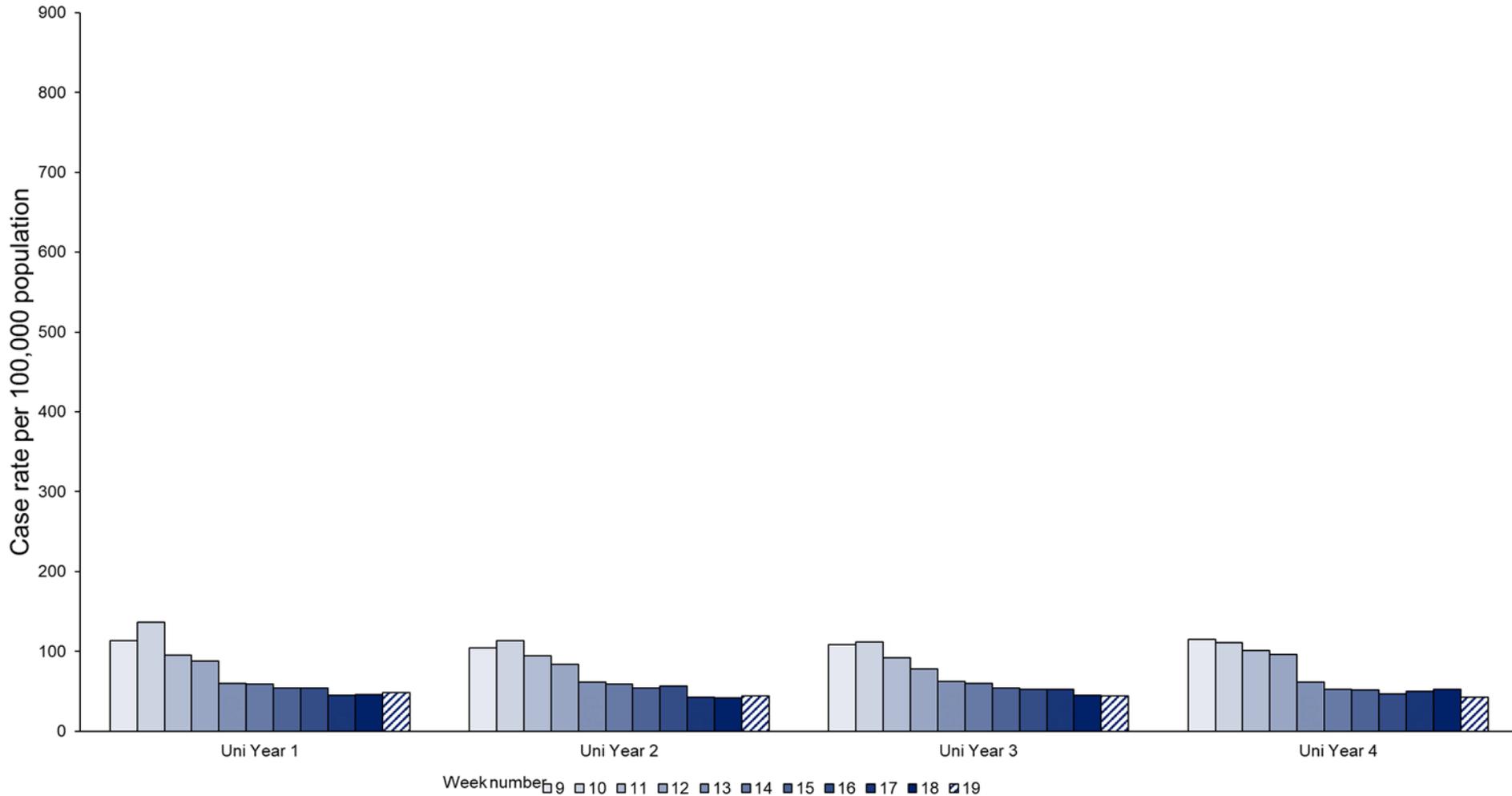


# Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population in educational age groups presented by secondary school year groups (Year 7 to Year 13), weeks 9 to 19





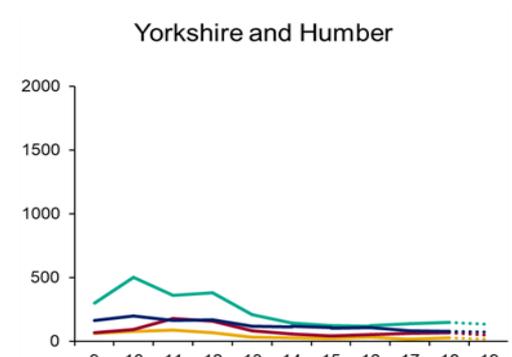
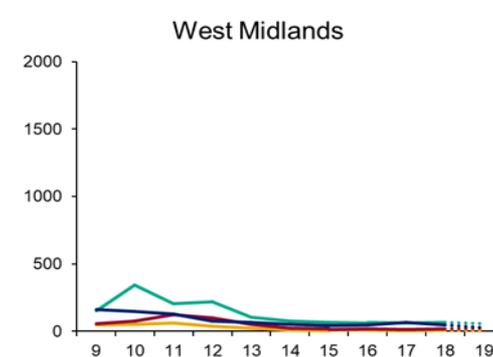
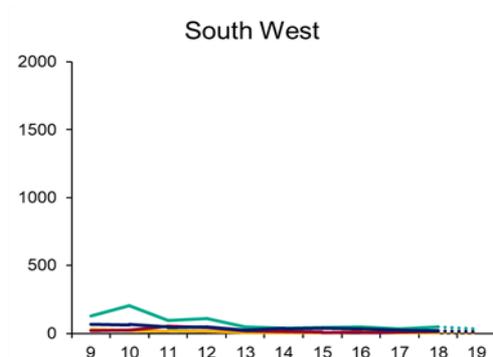
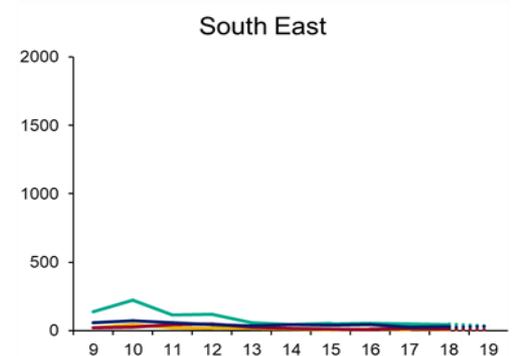
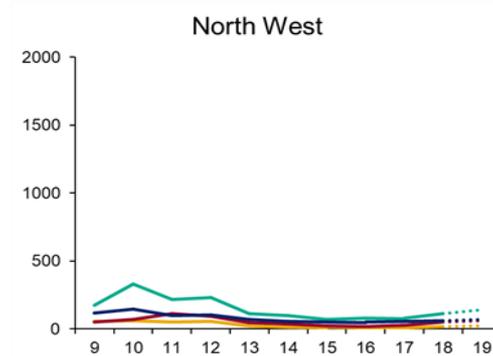
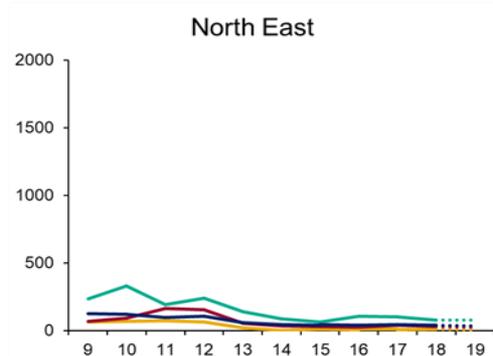
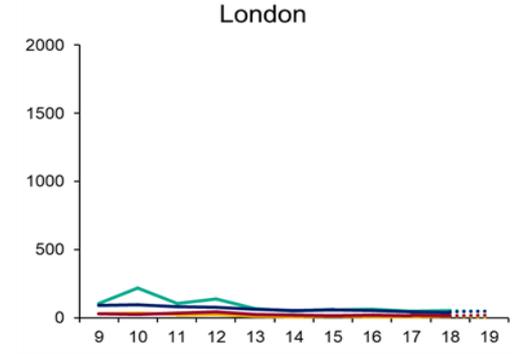
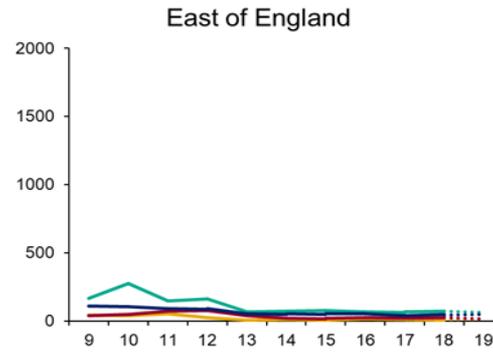
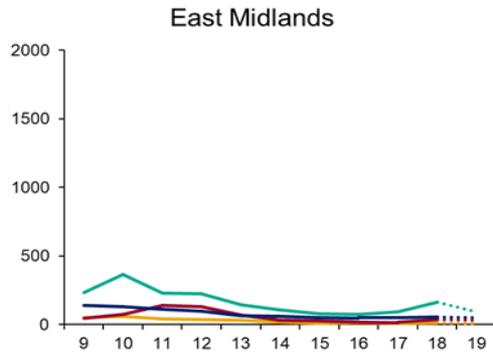
# Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population in educational age cohorts corresponding to university/college year groups, weeks 9 to 19





# Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population by educational age cohorts and PHE region, weeks 9 to 19

Case rate per 100,000 population

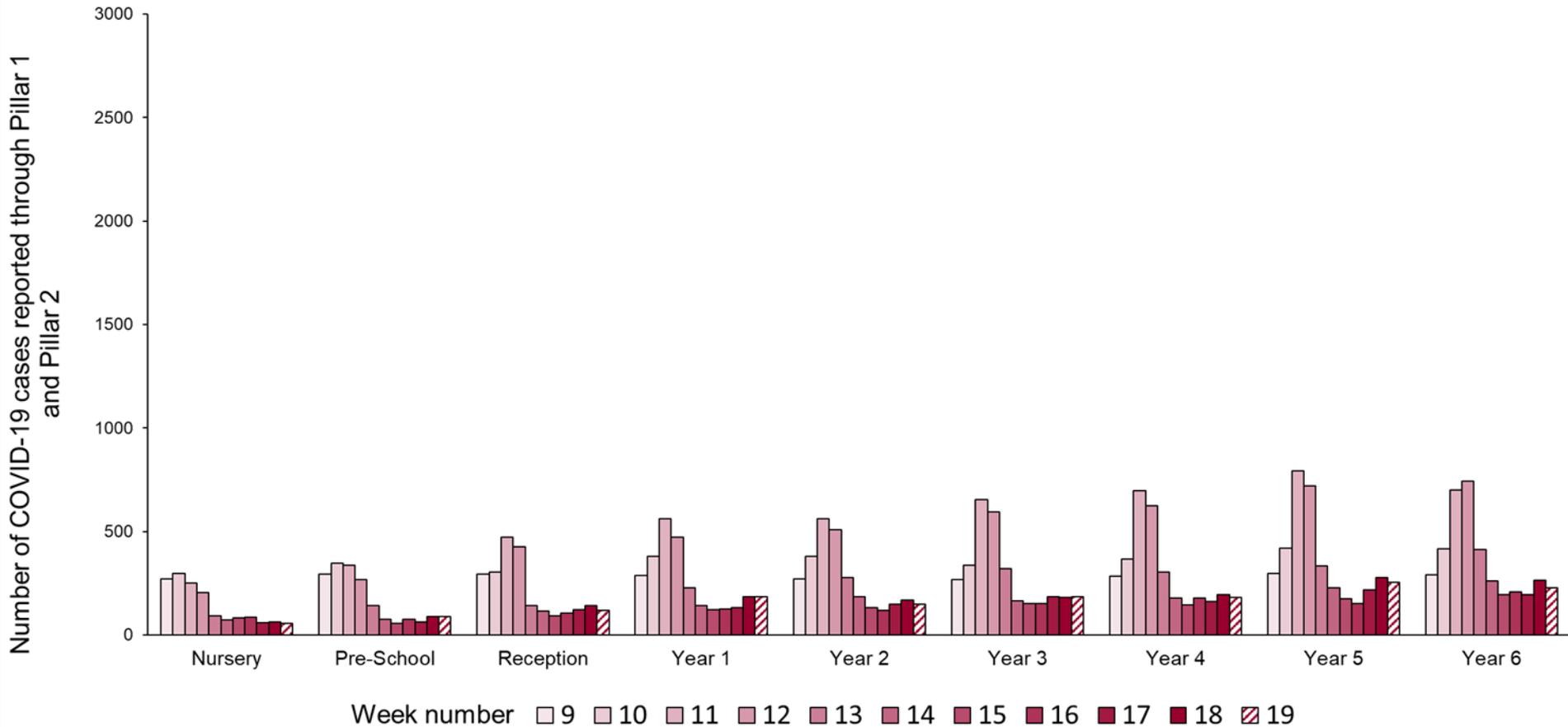


— Nursery/Pre-school age cohorts — Primary school age cohorts — Secondary school age cohorts — College/University age cohorts

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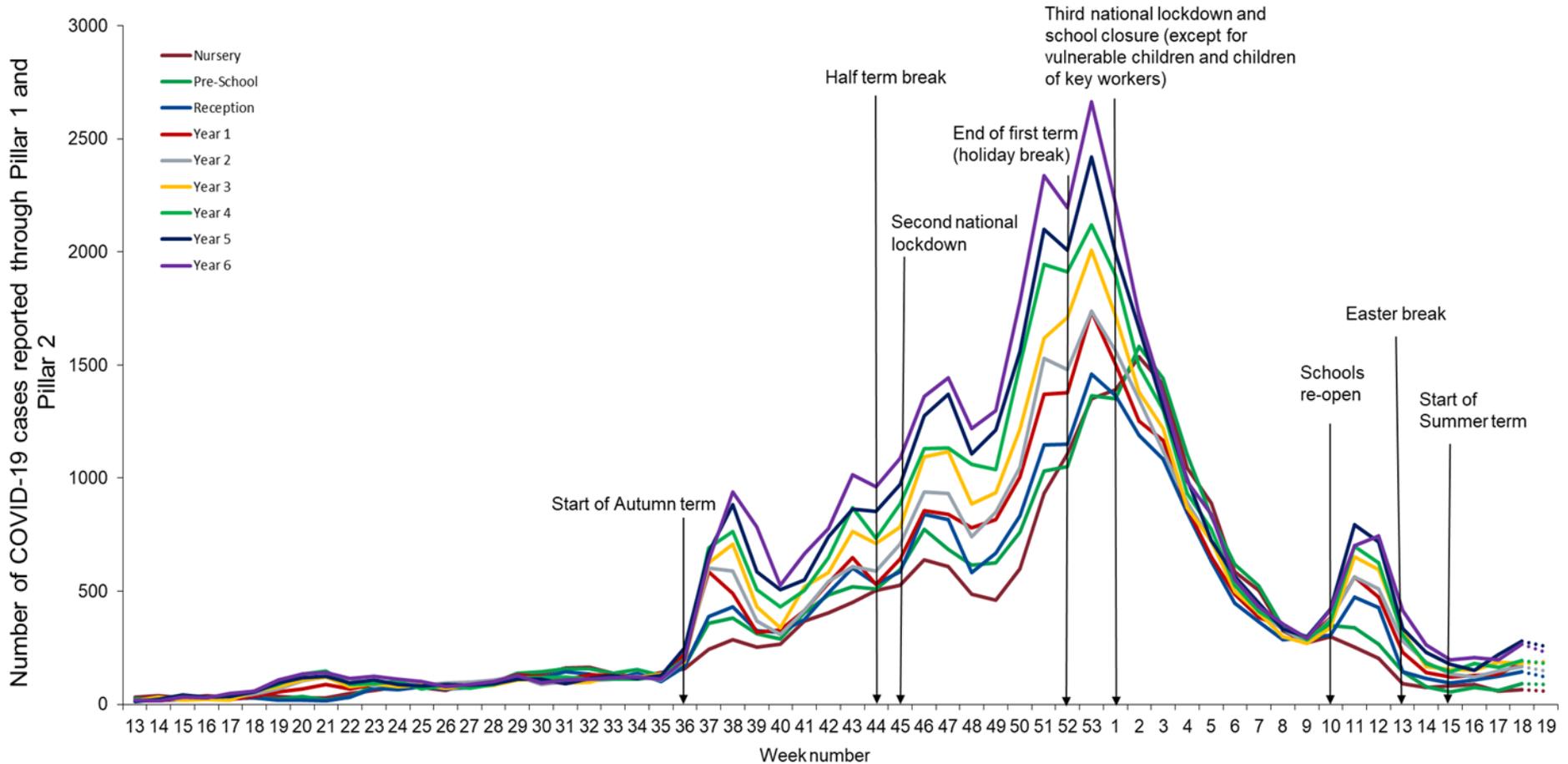


# Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts presented by Year group, from nursery to Year 6, weeks 9 to 19



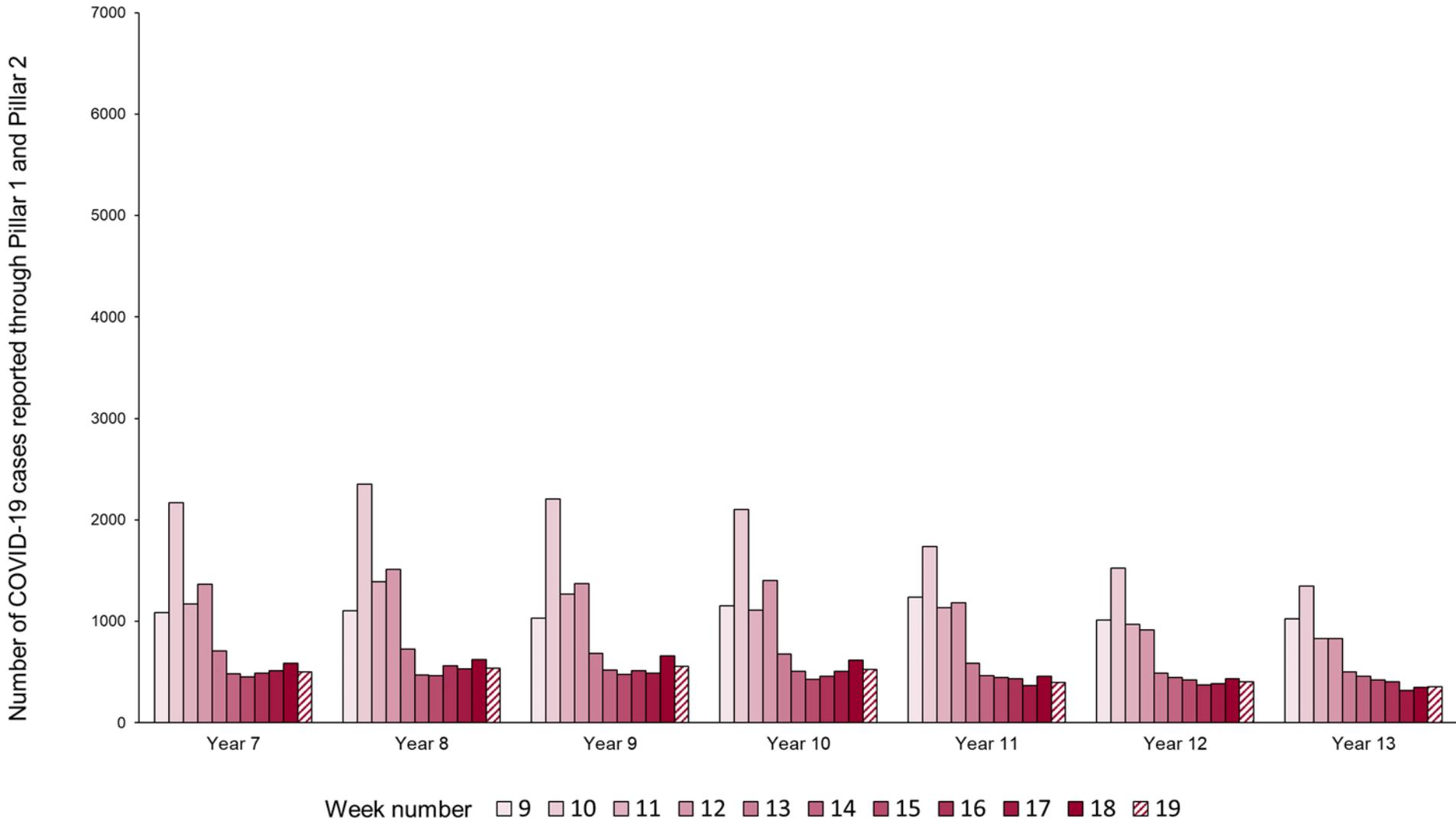


# Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts presented by Year group, from nursery to Year 6





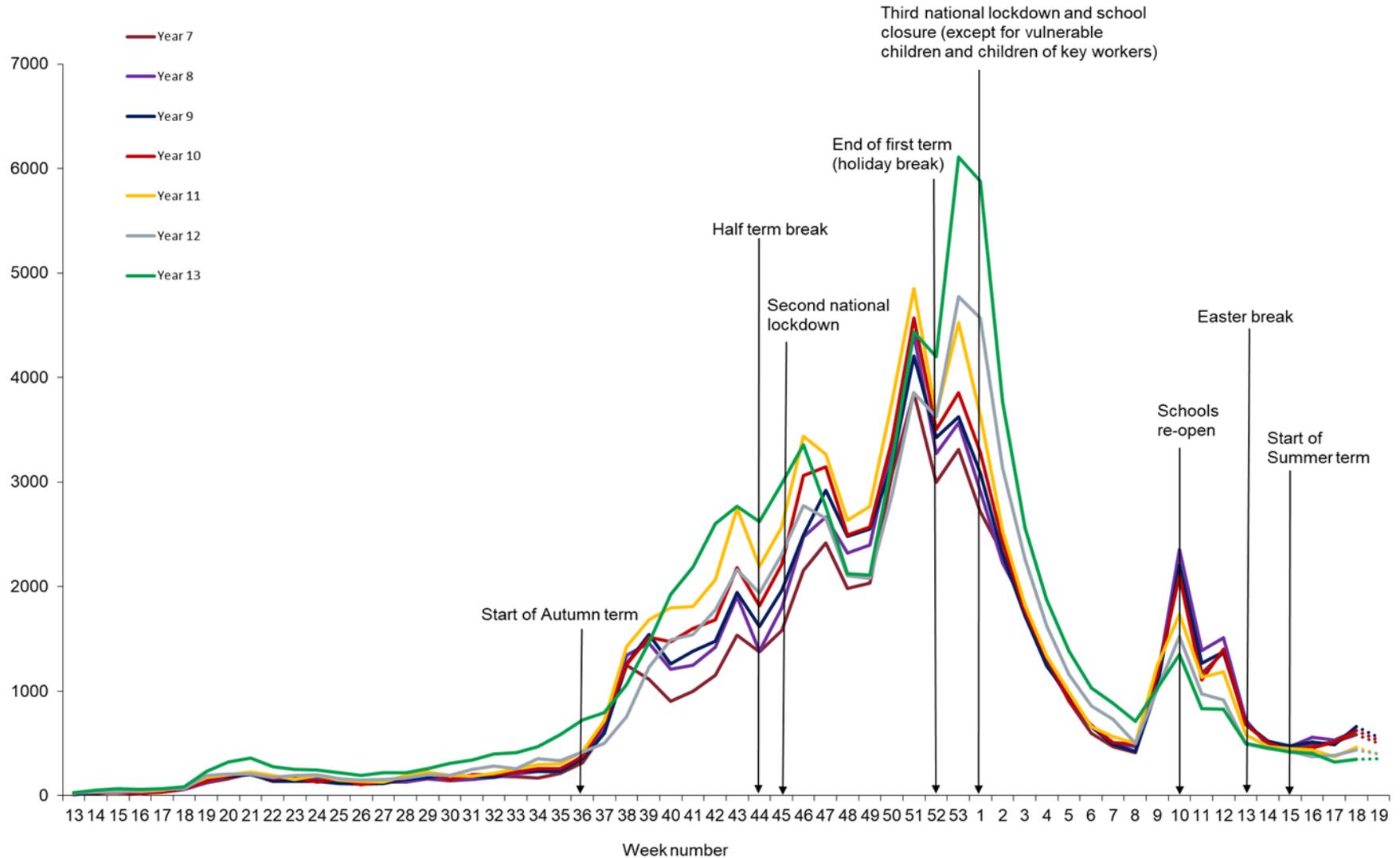
# Weekly number of new laboratory confirmed COVID-19 cases in educational age groups presented by secondary school year groups (Year 7 to Year 13), weeks 9 to 19





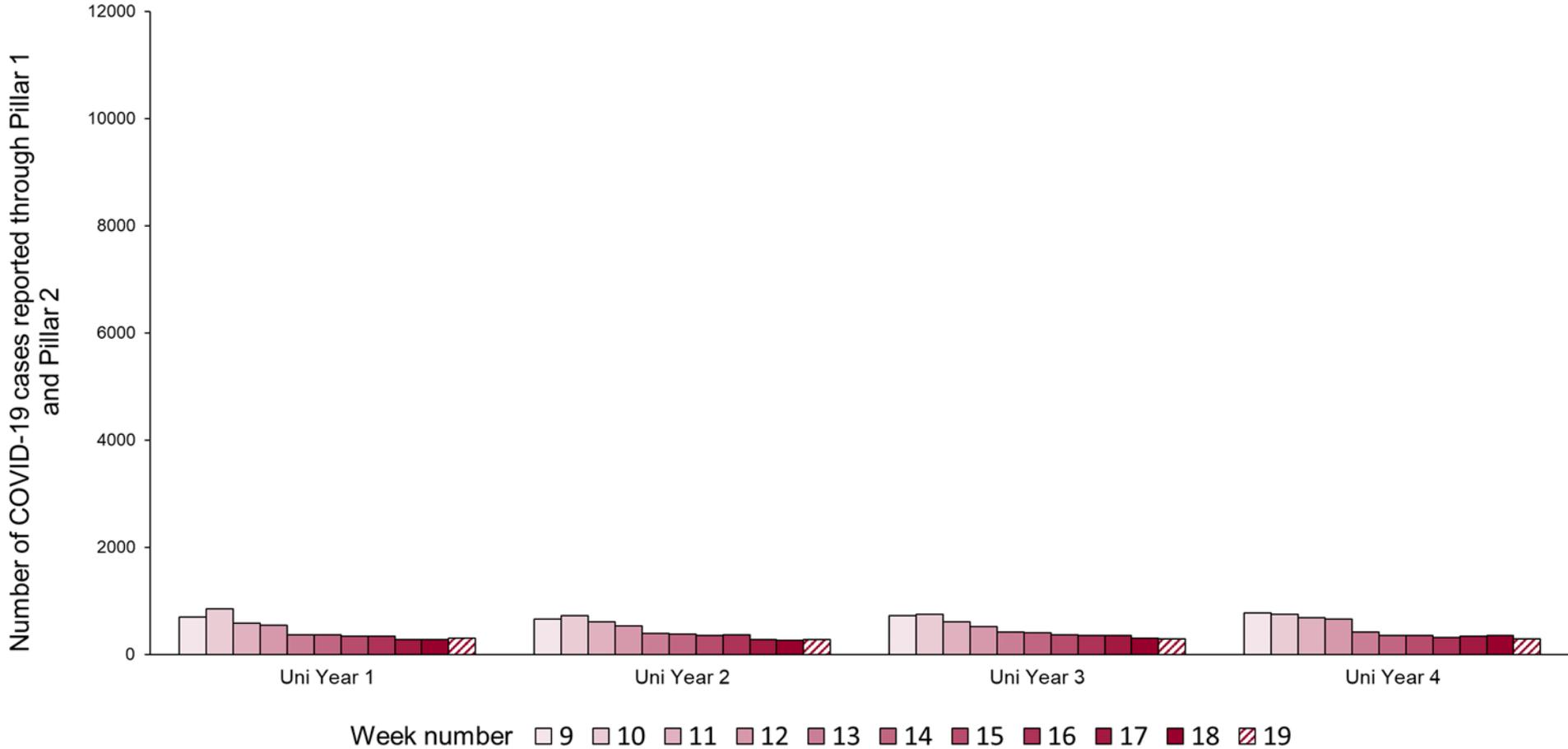
# Weekly number of new laboratory confirmed COVID-19 cases in educational age groups presented by secondary school year groups (Year 7 to Year 13)

Number of COVID-19 cases reported through Pillar 1 and Pillar 2



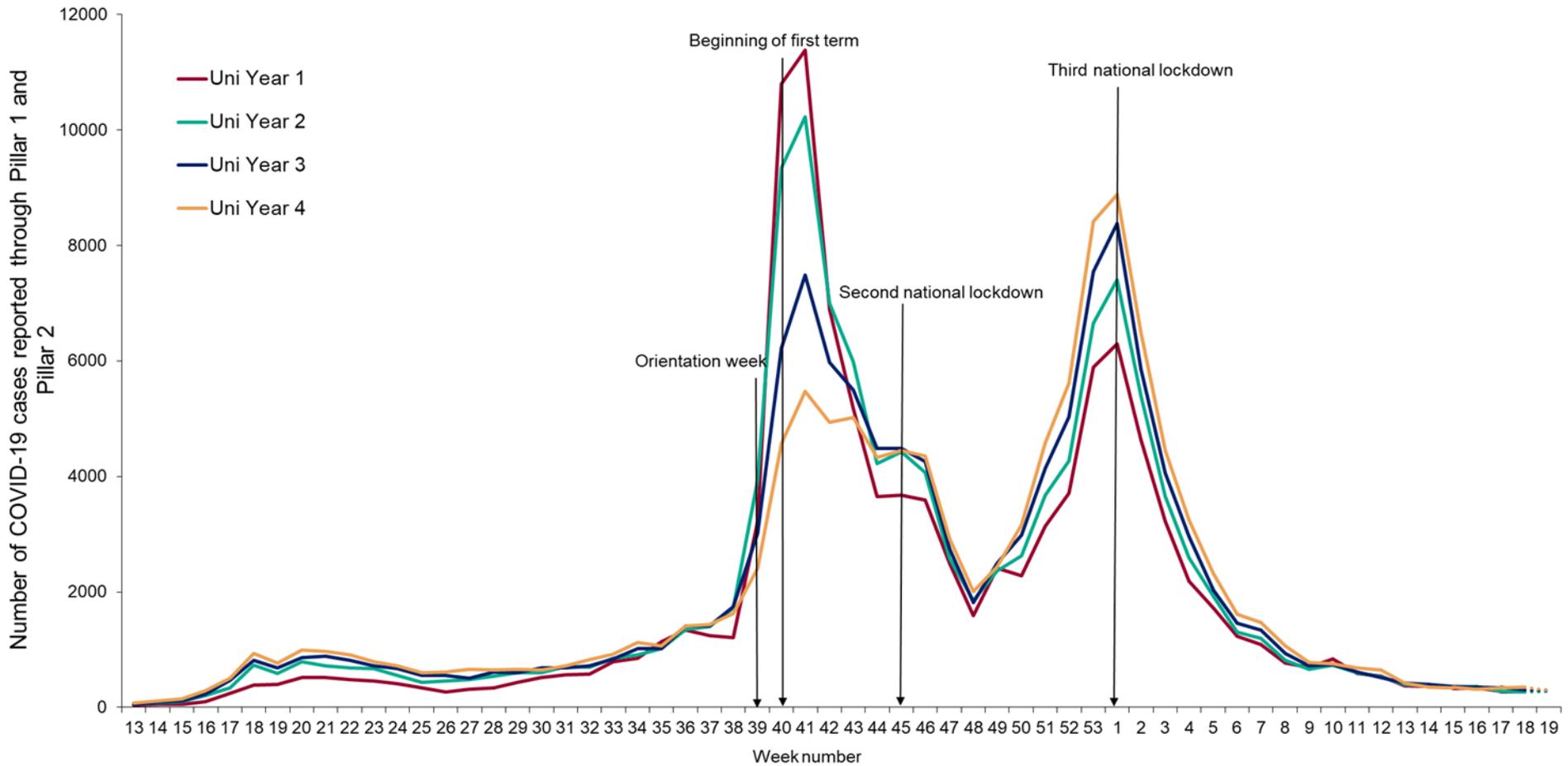


# Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts corresponding to university/college year groups, weeks 9 to 19



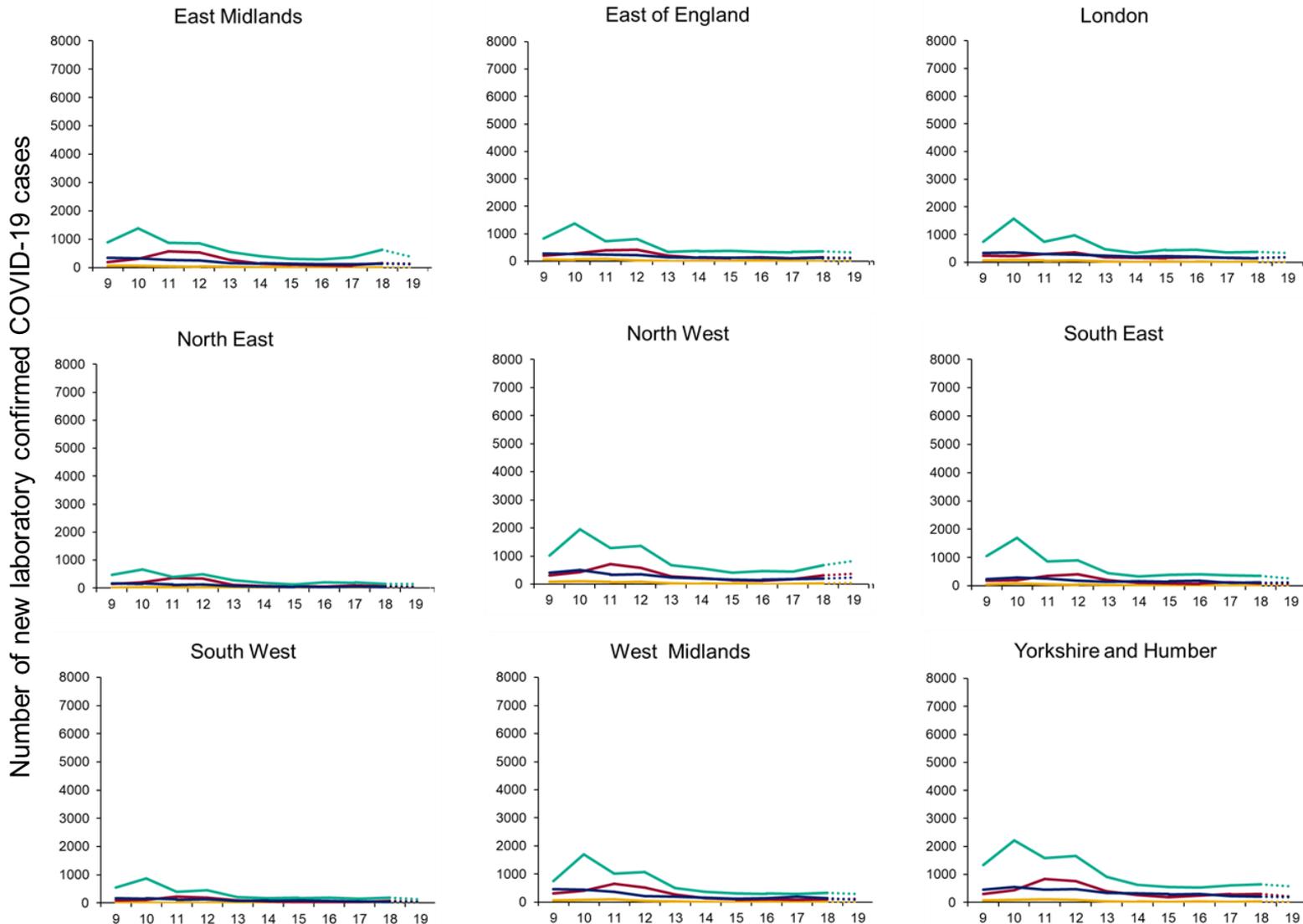


# Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts corresponding to university/college year groups





# Weekly number of new laboratory confirmed COVID-19 cases by educational age cohorts and PHE region, weeks 9 to 19

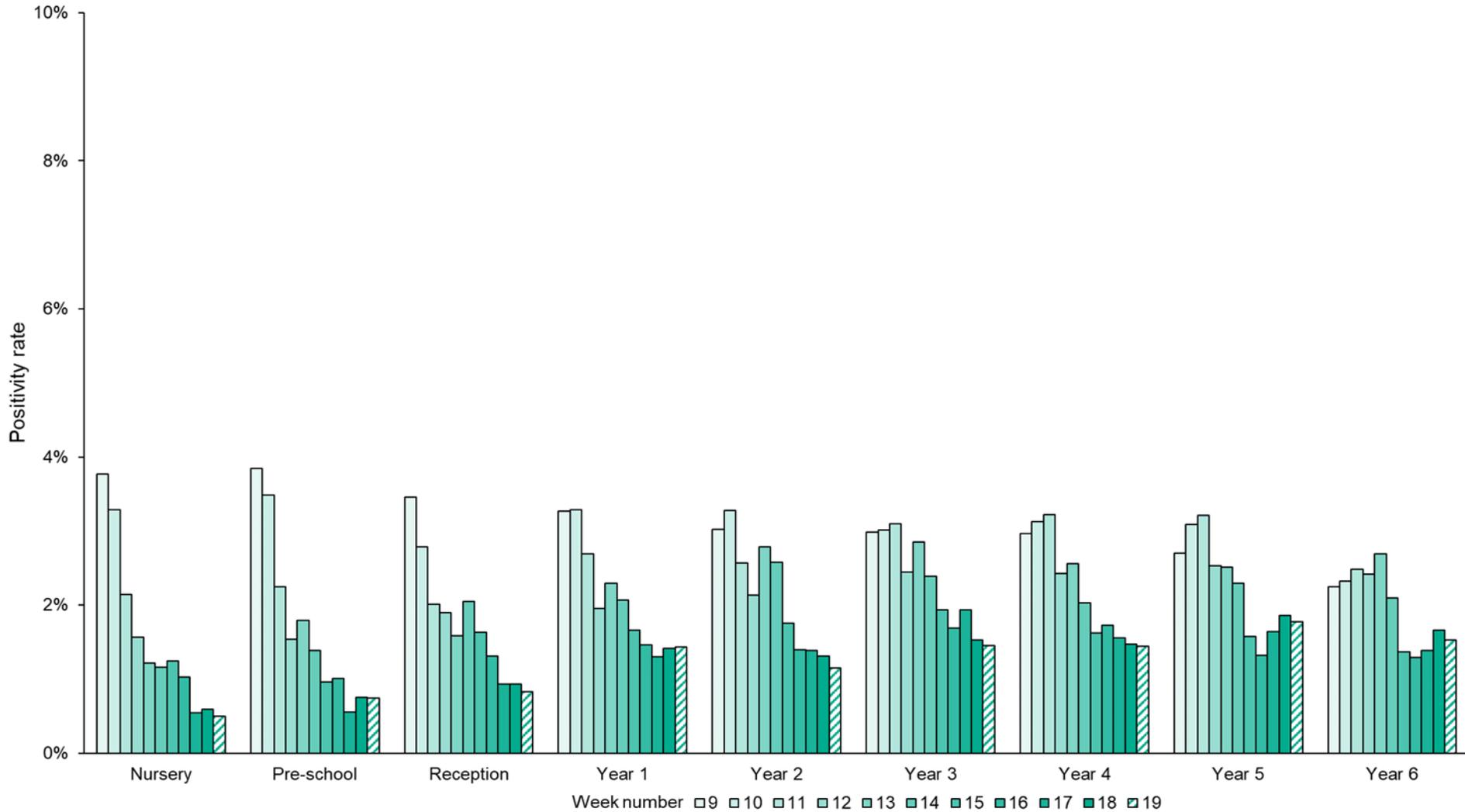


— Nursery/Pre-school age cohorts — Primary school age cohorts — Secondary school age cohorts — College/University age cohorts

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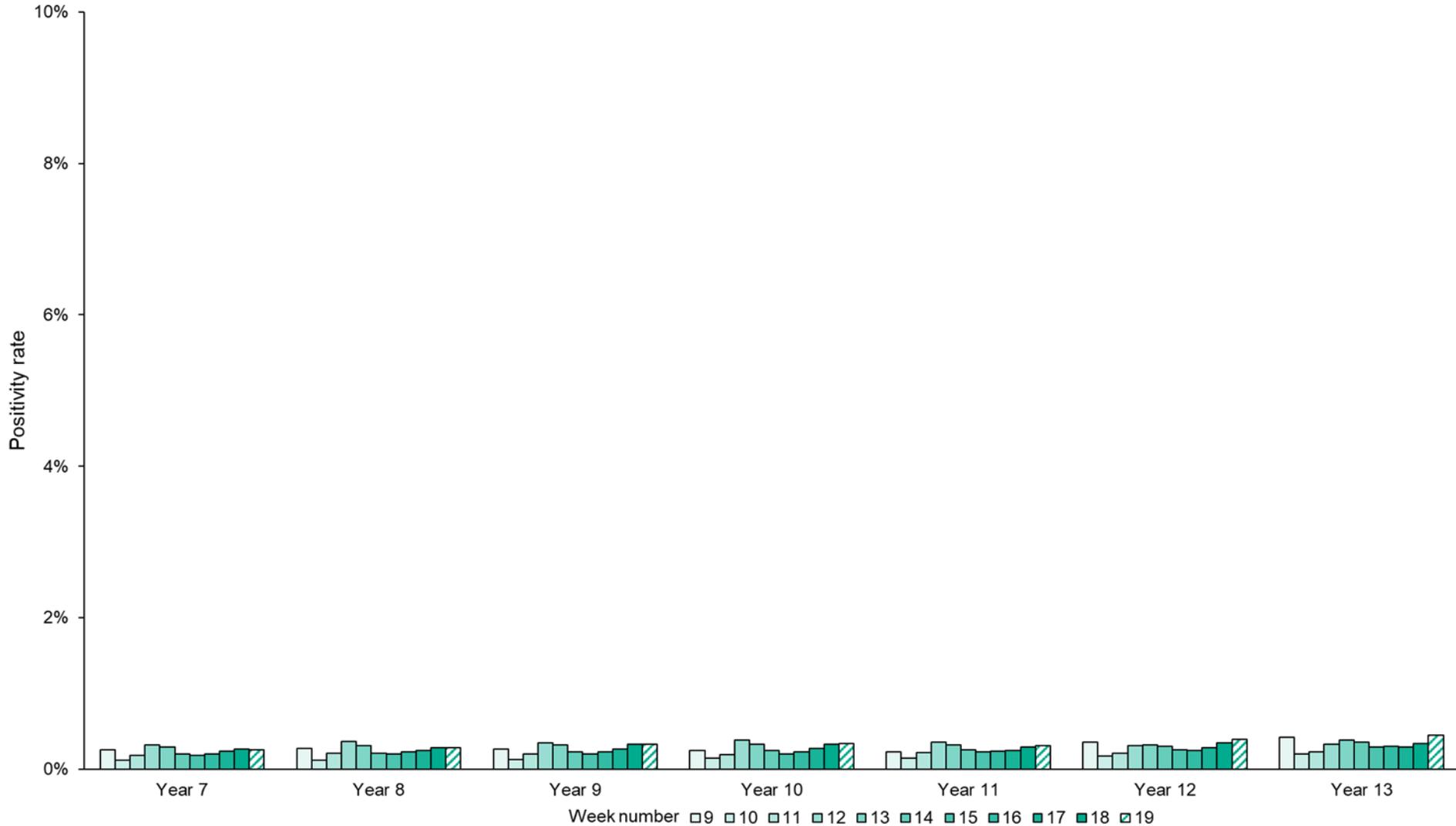


# Weekly positivity rates of confirmed COVID-19 cases in educational age cohorts presented by Year group, from nursery to Year 6, weeks 9 to 19



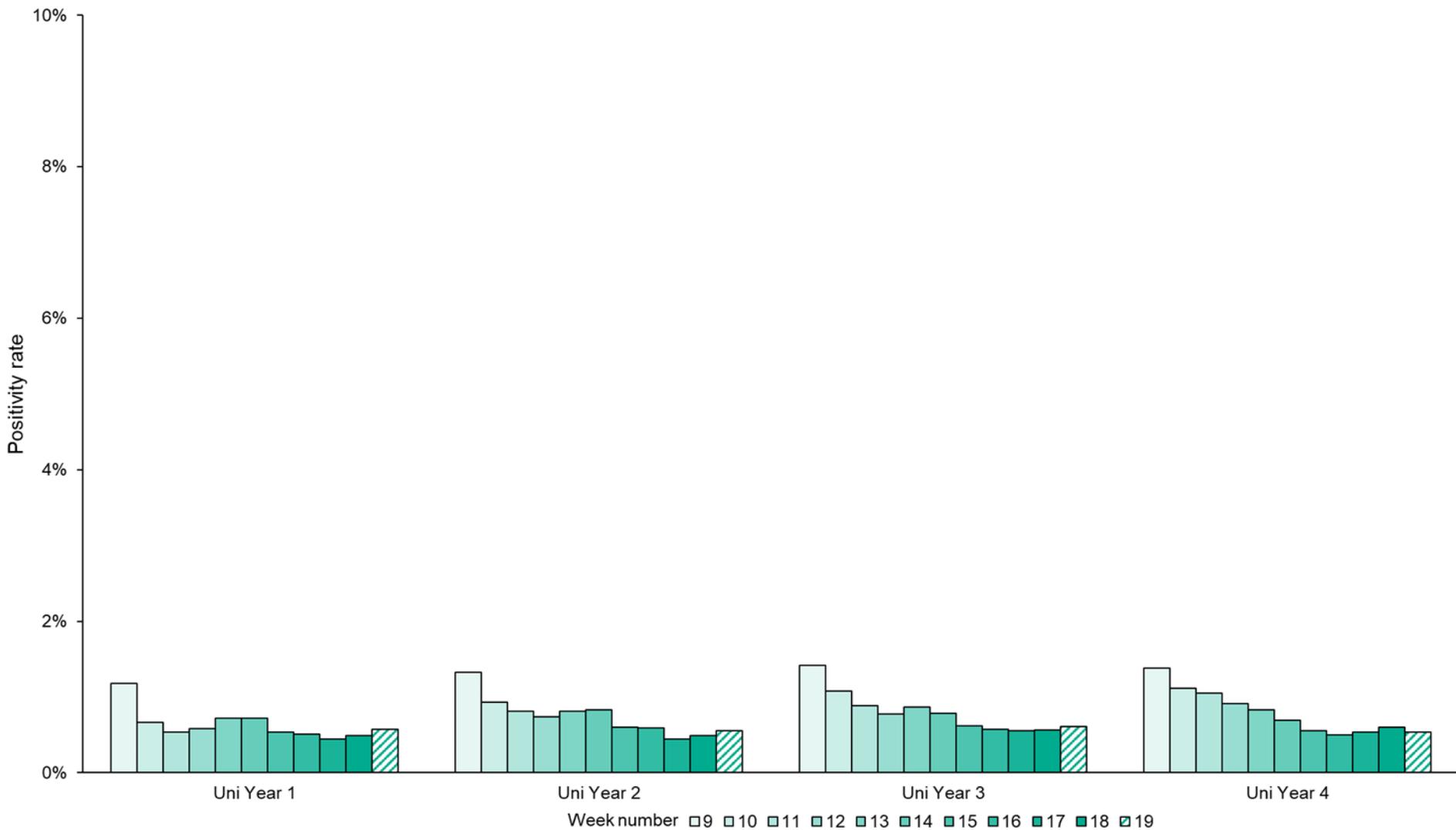


# Weekly positivity rates of confirmed COVID-19 cases in educational age cohorts presented by secondary school year group (Year 7 to Year 13), weeks 9 to 19



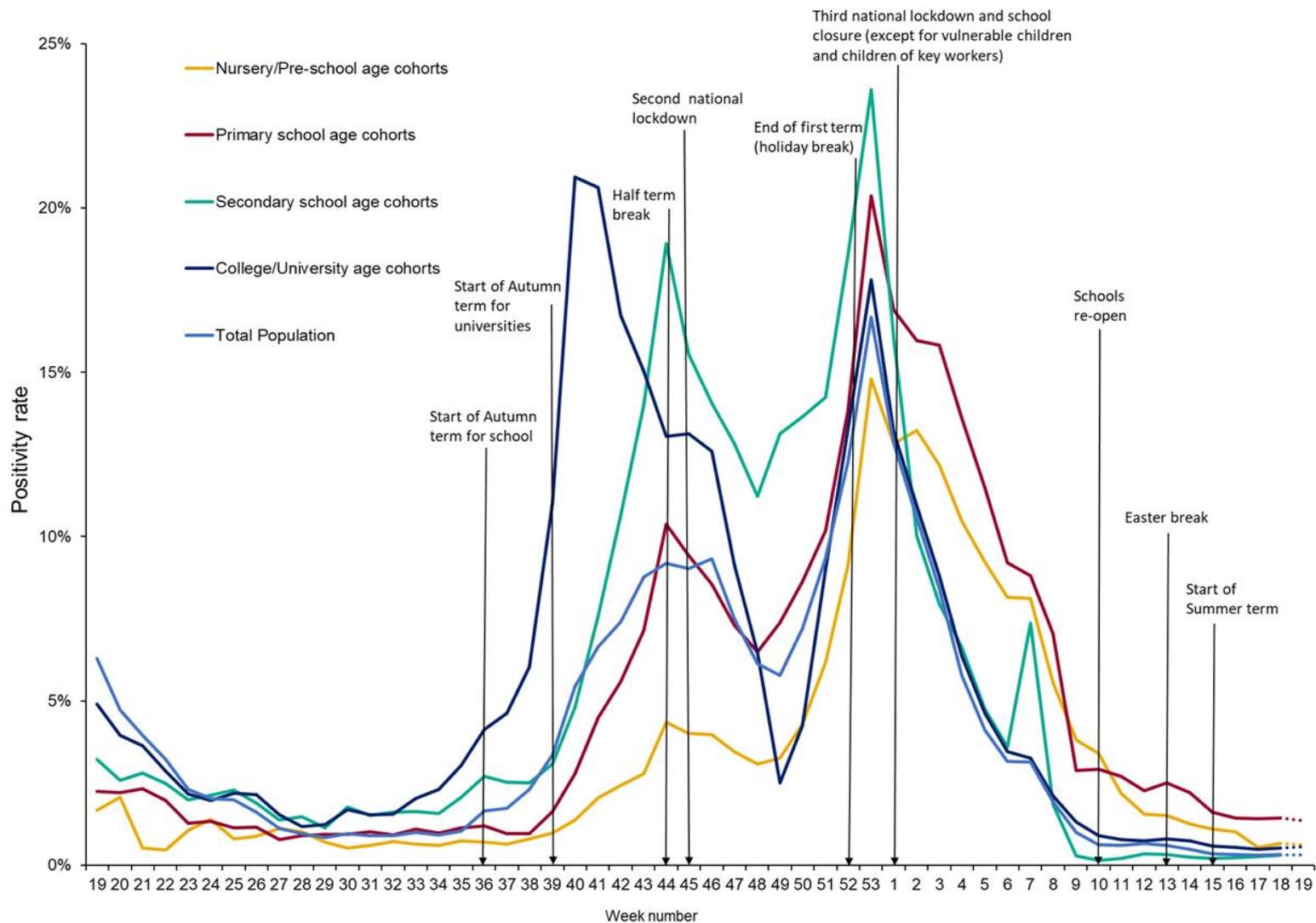


# Weekly positivity rates of confirmed COVID-19 cases in educational age cohorts corresponding to university/college year groups, weeks 9 to 19





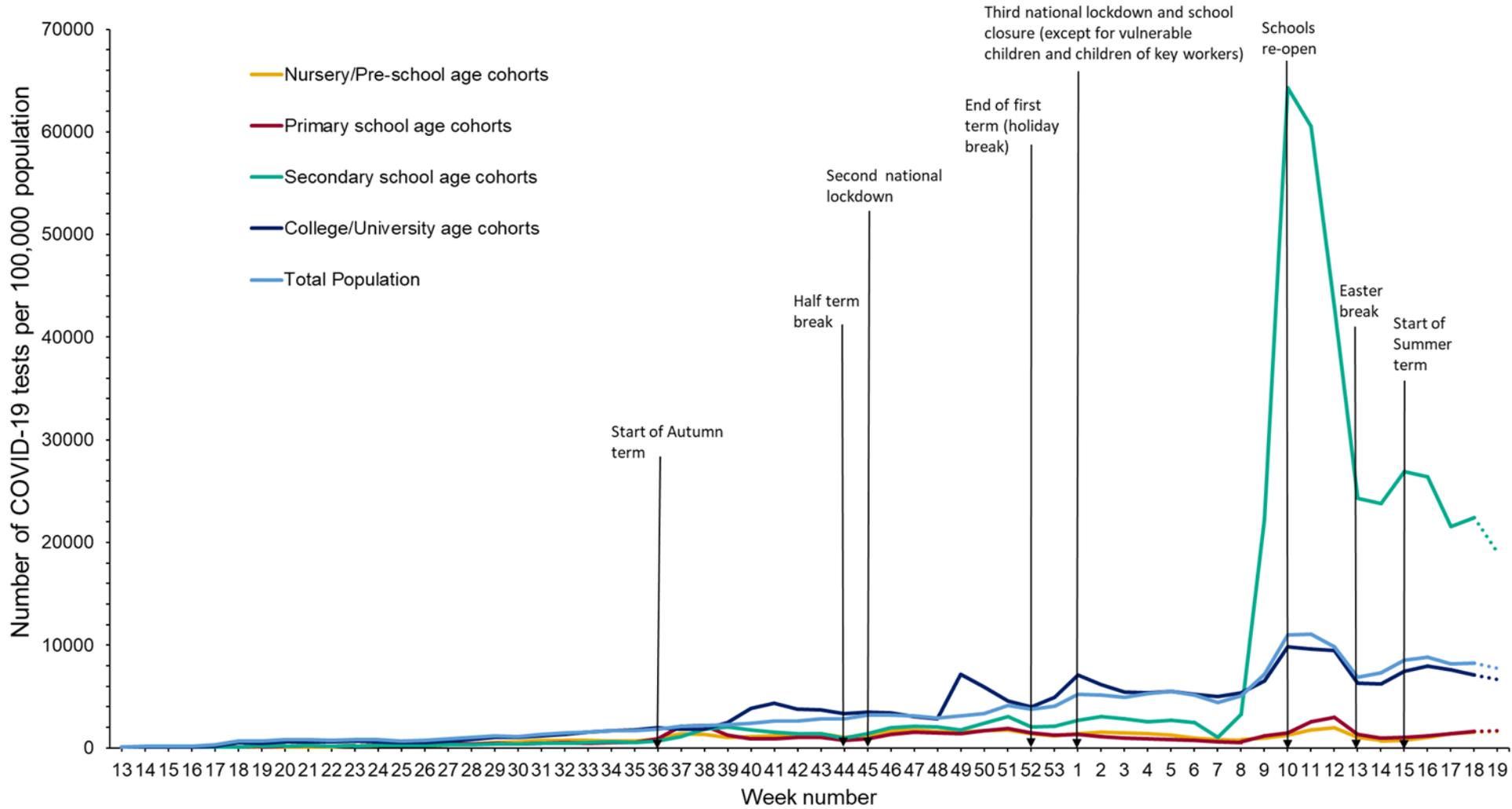
# Weekly positivity rates of confirmed COVID-19 cases, in nursery/preschool, primary school, secondary school and college/University age cohorts



- From January 2021 a programme of rapid asymptomatic testing was rolled out to students in the secondary school aged cohorts attending these settings during lockdown. We note a drop in the number of tests conducted in these cohorts and an increase in positivity during week 7 which coincides with half term break.
- Lateral flow device testing of secondary aged pupils in a supervised environment from week 8



# Weekly rate of new COVID-19 tests performed per 100,000 population in nursery/preschool, primary school, secondary school and college/University age cohorts



- From January 2021 a programme of rapid asymptomatic testing was rolled out to students in the secondary school aged cohorts attending these settings during lockdown. We note a drop in the number of tests conducted in these cohorts and an increase in positivity during week 7 which coincides with half term break.
- Lateral flow device testing of secondary aged pupils in a supervised environment from week 8

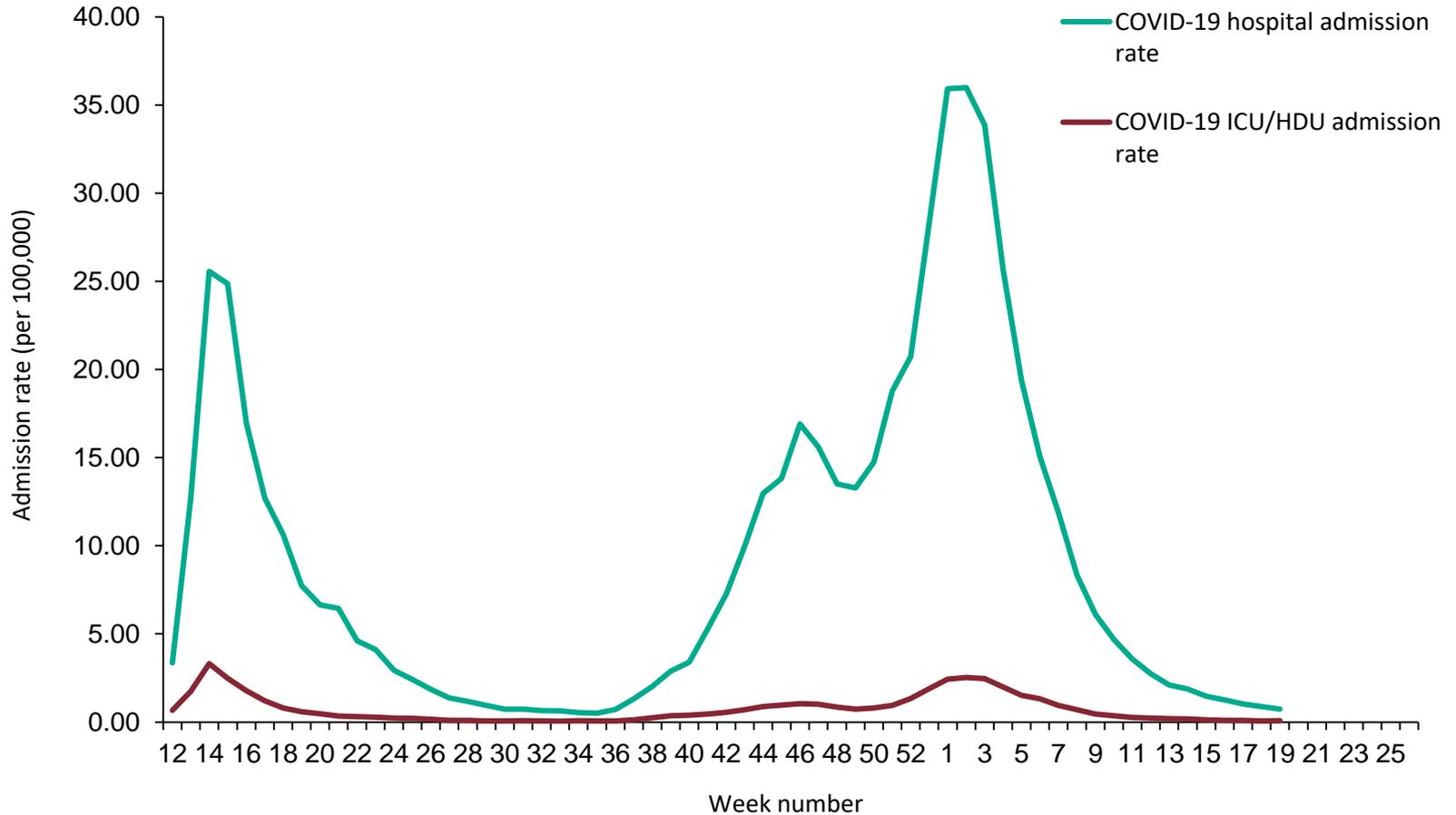
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# Secondary Care surveillance

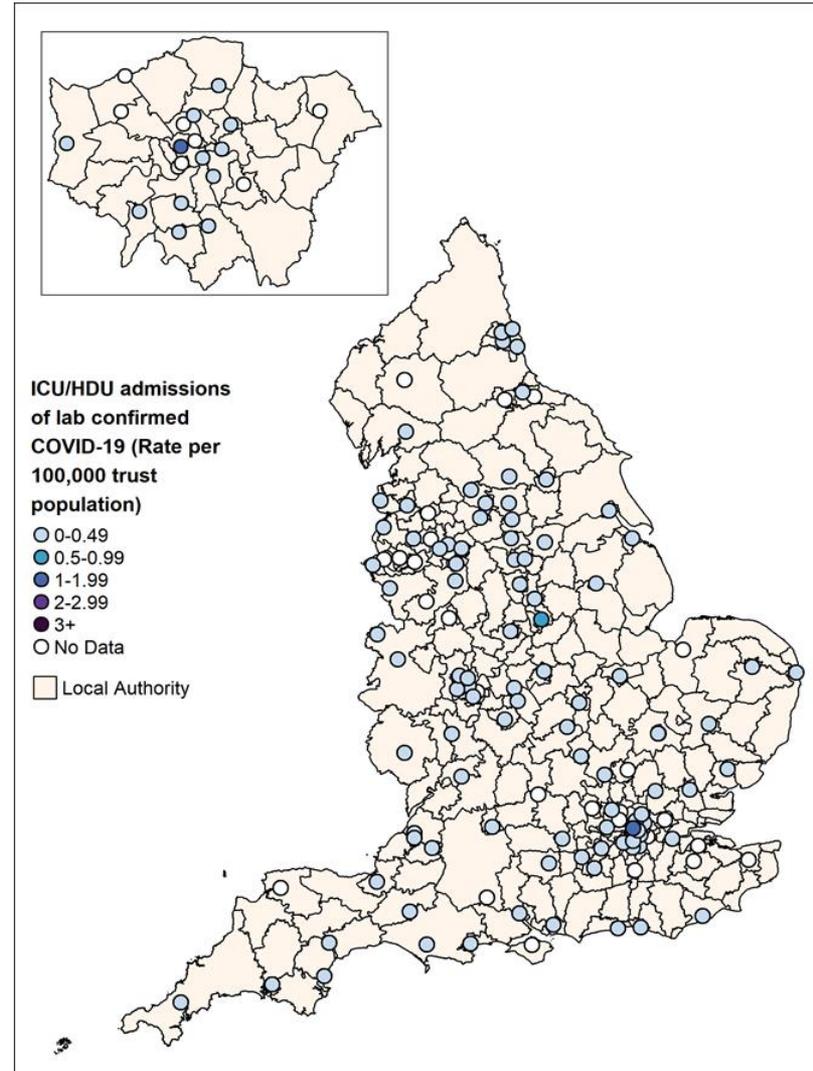
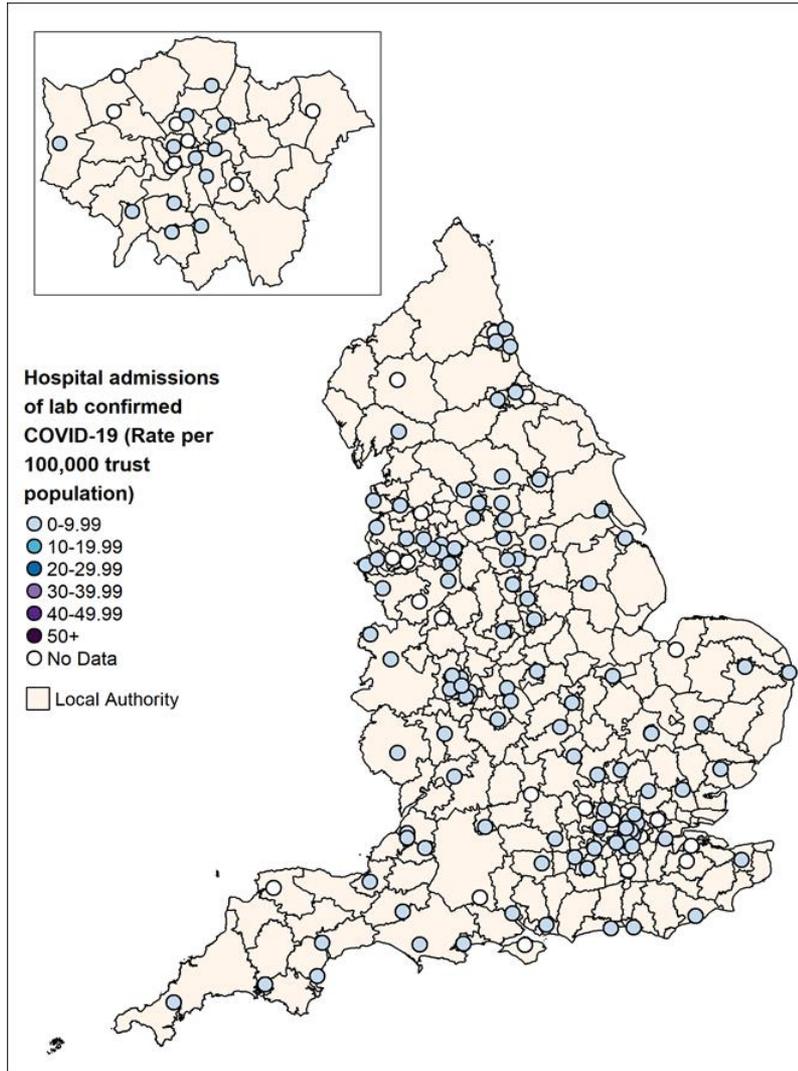


# Weekly overall hospital and ICU/HDU admission rates per 100,000 of new COVID-19 positive cases reported through SARI Watch, England since week 12 2020





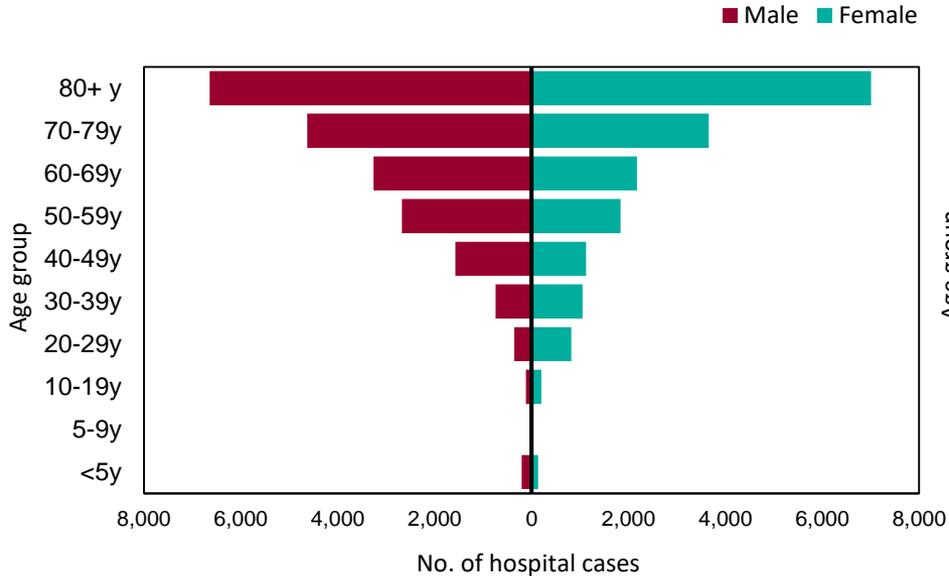
# Weekly admission rates for hospital and ICU/HDU laboratory confirmed COVID-19 cases reported through SARI Watch, week 19



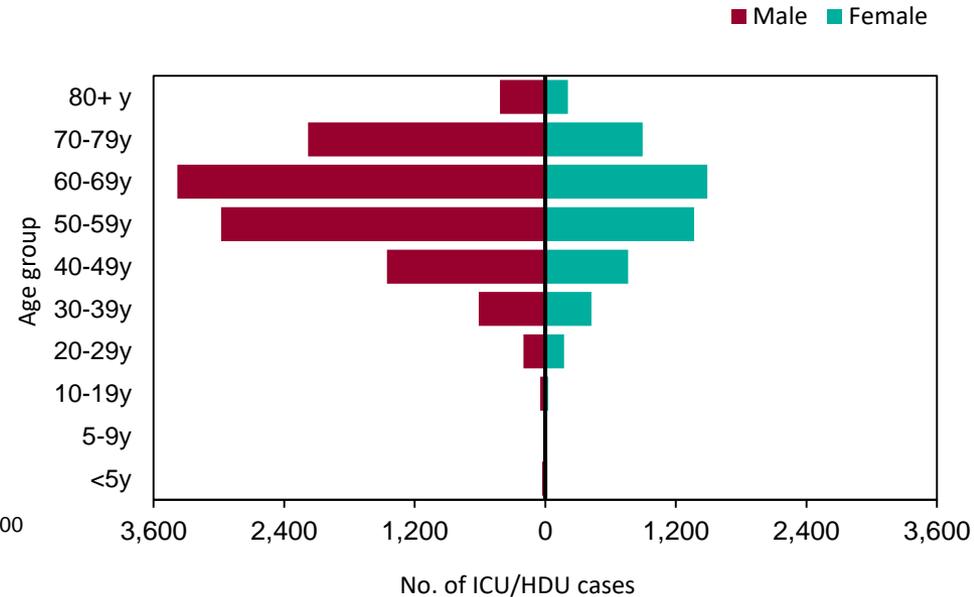
Due to the decreasing incidence of COVID-19, hospitalisation rates are now low and majority fall in the lowest rate bands. Small variation is expected from week to week although close monitoring of trusts continues.

# Age/sex pyramid of new (a) hospital (lower level of care) (n=38,286) and (b) ICU/HDU (n=16,676) COVID-19 cases reported through SARI Watch, England

(a)



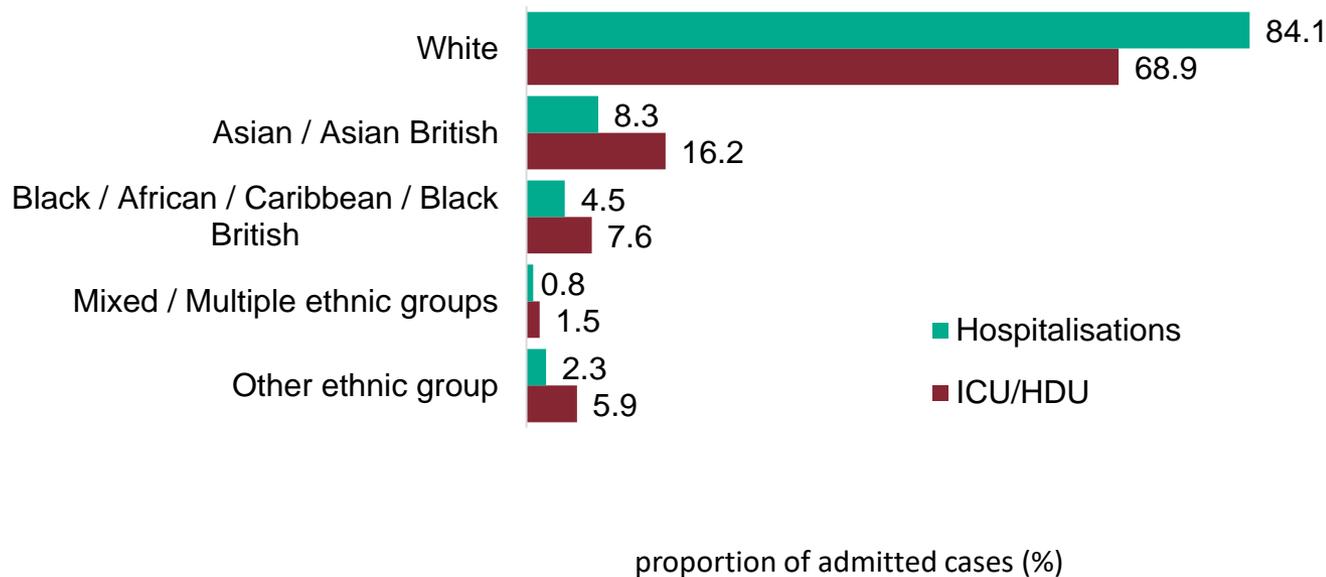
(b)



This figure is based on individual patient level data which are provided to SARI Watch from a subset of NHS Acute Trusts, therefore the data should be interpreted with caution as the distribution of age, sex and ethnic group may not be representative of all hospitalised patients.



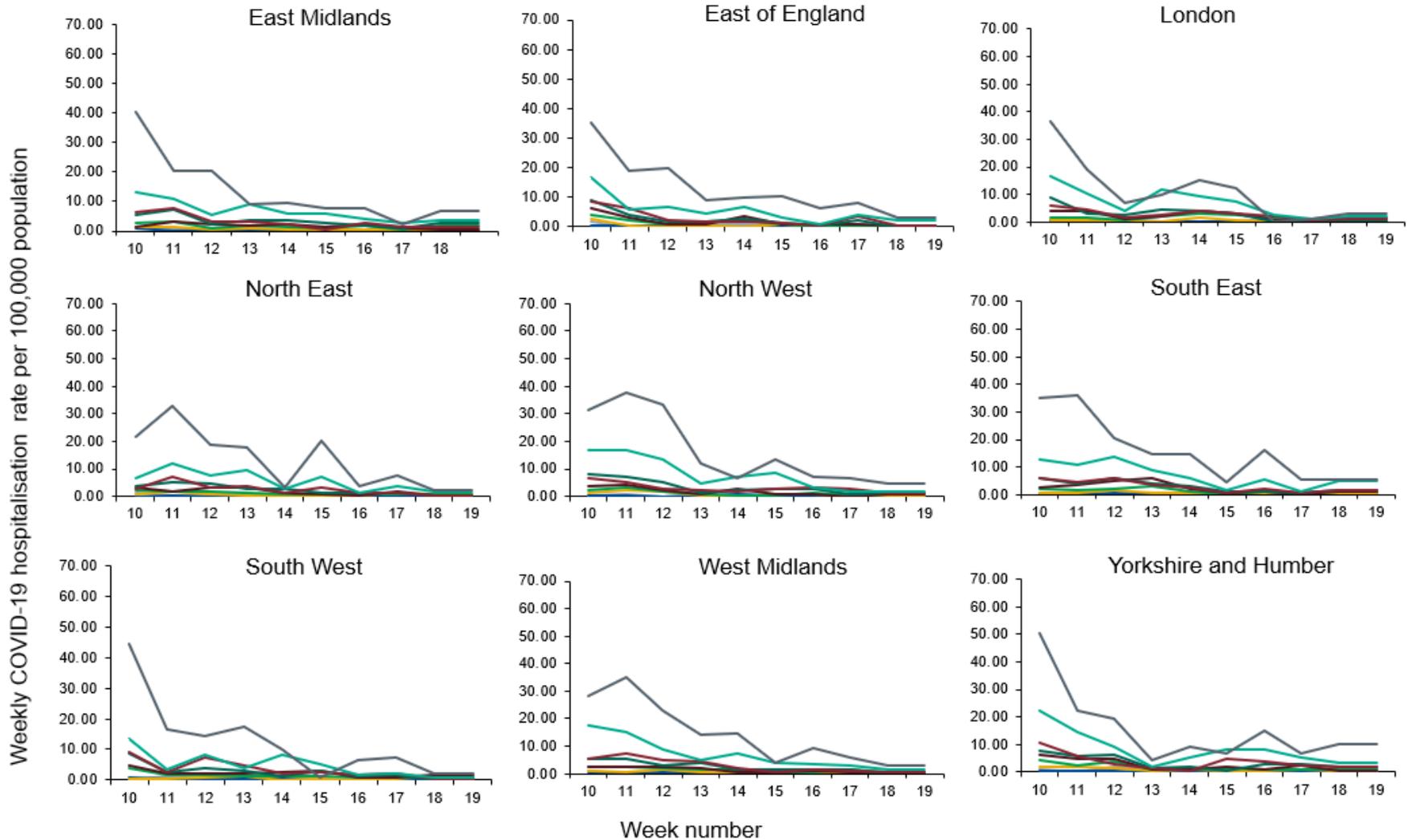
# Ethnic group of new hospitalisations (lower level of care) (n=36,912) and ICU/HDU (n=15,525) COVID-19 cases reported through SARI Watch, England



This figure is based on individual patient level data which are provided to SARI Watch from a subset of NHS Acute Trusts, therefore the data should be interpreted with caution as the distribution of age, sex and ethnic group may not be representative of all hospitalised patients.



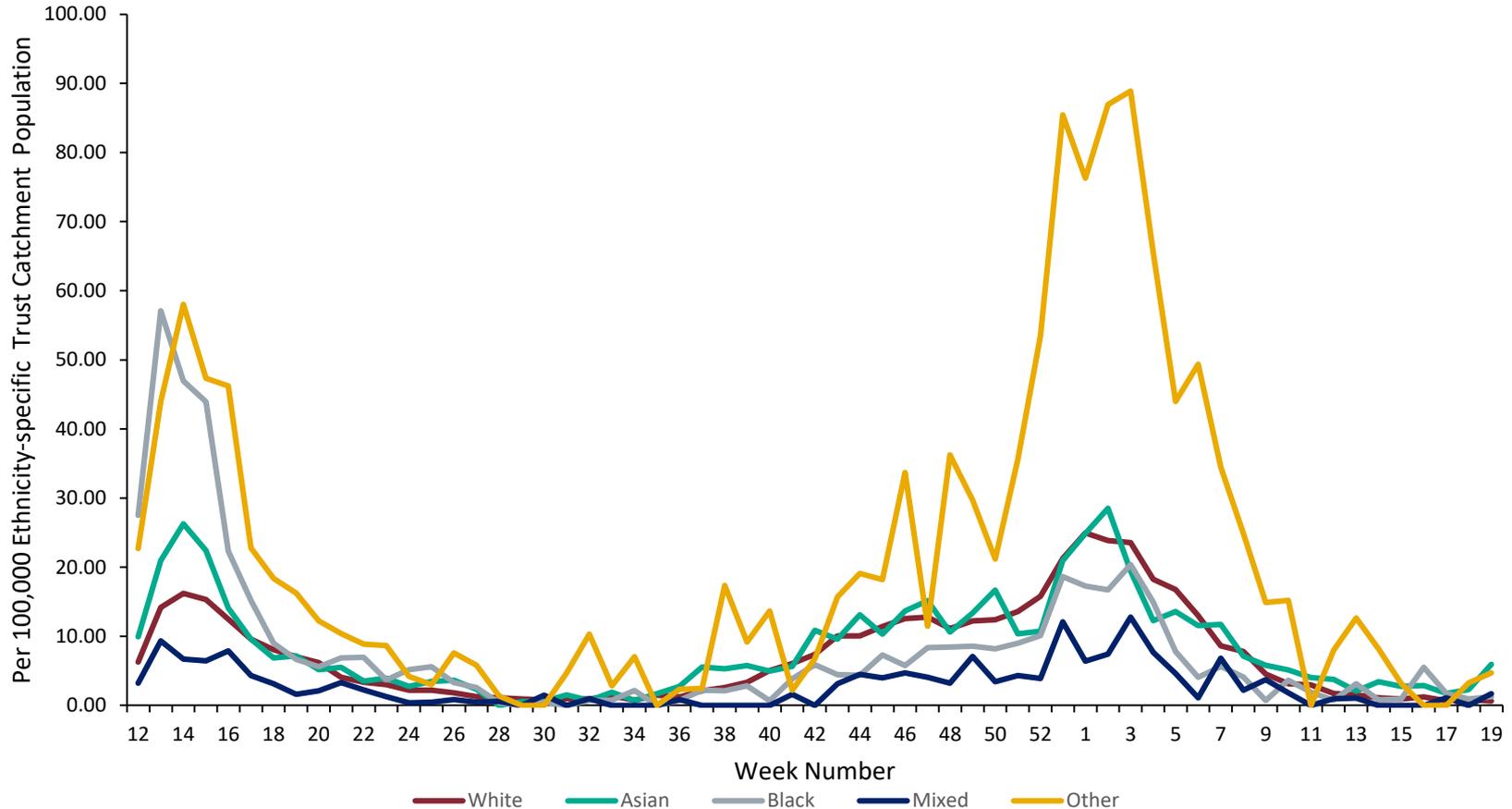
# Weekly COVID-19 hospitalisation rate per 100,000 trust catchment population by age group and region, weeks 10 to 19



— 0 to 4	— 5 to 14	— 15 to 24
— 25 to 44	— 45 to 54	— 55 to 64
— 65 to 74	— 75 to 84	— 85+



# Hospital admission rate (excluding ICU/HDU) by ethnicity per 100,000 trust catchment population

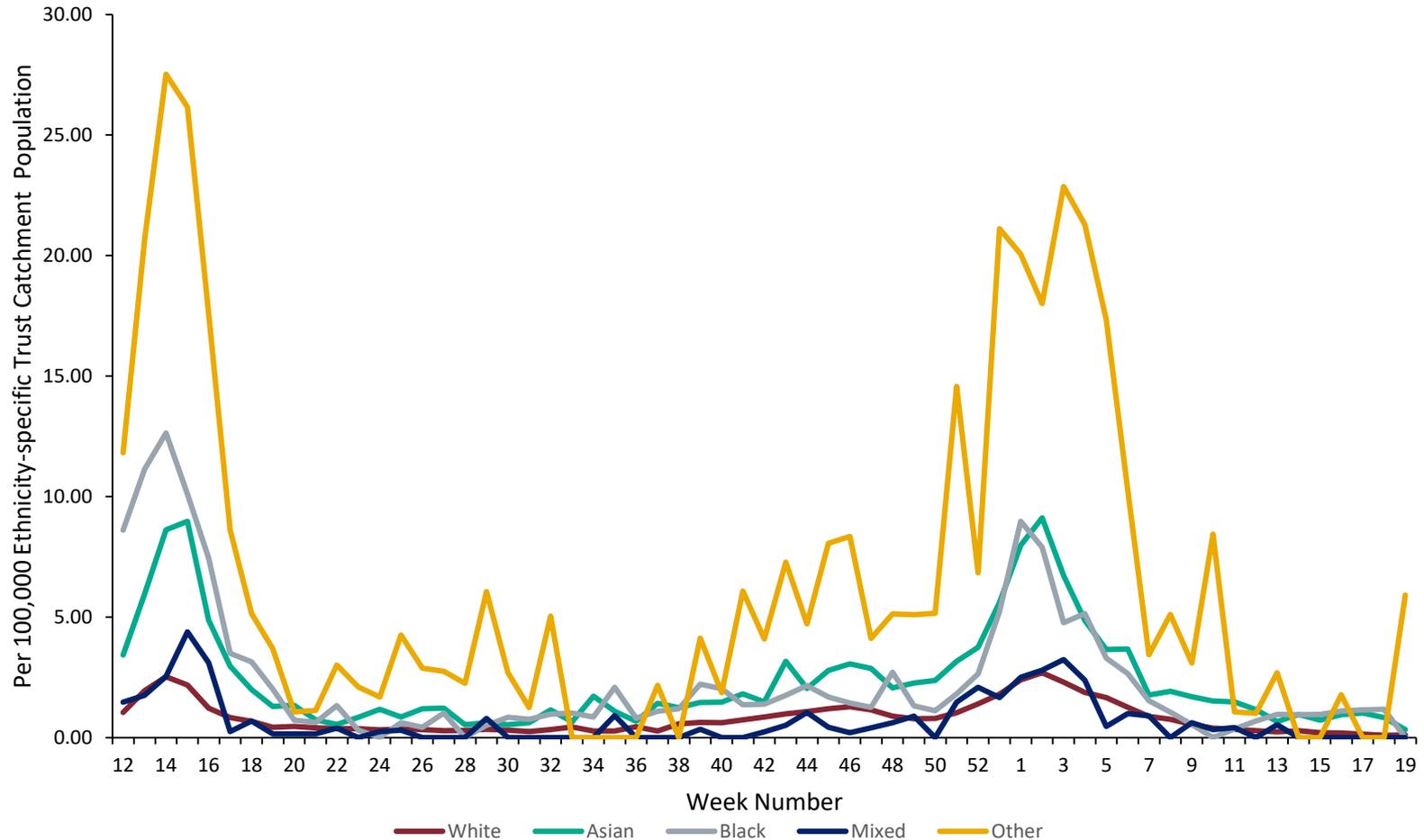


Caveat: Ethnicity was obtained through linkage to hospital activity data and determined by the ethnicity stated in the most recent record. There are several limitations with this approach. Ethnicity is supposed to be self-reported by the patient in hospital records, but this may not always be the case. Patients may also report different ethnicities in different episodes of care. The Other ethnic group may include people who do not self-identify with any of the more explicitly-defined ethnicity categories, or people who have been assigned to the group by data reporters. In addition, people from certain ethnic backgrounds may be less likely to have complete records with which to complete the linkage to hospital data. Previous analysis has shown higher population-based diagnoses and death rates in the Other ethnic group due to a mismatch between ethnicity assigned in the population data and hospital records ([see disparities report](#)). However, further work is ongoing to improve the allocation of ethnicity to COVID-19 data.

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# Rate of admission to ICU/HDU by ethnicity, per 100,000 trust catchment population



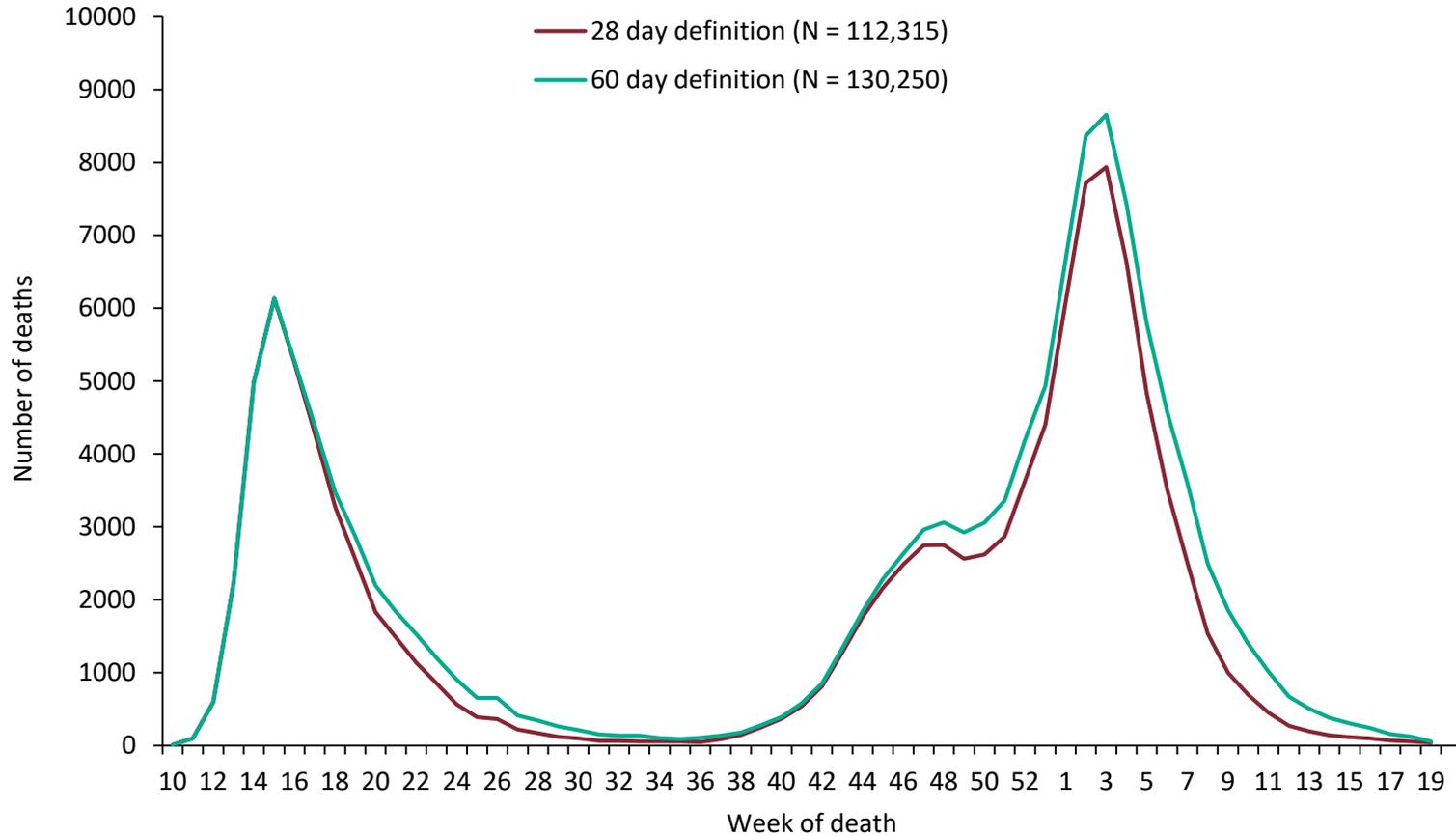
Caveat: Ethnicity was obtained through linkage to hospital activity data and determined by the ethnicity stated in the most recent record. There are several limitations with this approach. Ethnicity is supposed to be self-reported by the patient in hospital records, but this may not always be the case. Patients may also report different ethnicities in different episodes of care. The Other ethnic group may include people who do not self-identify with any of the more explicitly-defined ethnicity categories, or people who have been assigned to the group by data reporters. In addition, people from certain ethnic backgrounds may be less likely to have complete records with which to complete the linkage to hospital data. Previous analysis has shown higher population-based diagnoses and death rates in the Other ethnic group due to a mismatch between ethnicity assigned in the population data and hospital records ([see disparities report](#)). However, further work is ongoing to improve the allocation of ethnicity to COVID-19 data.



# Mortality surveillance



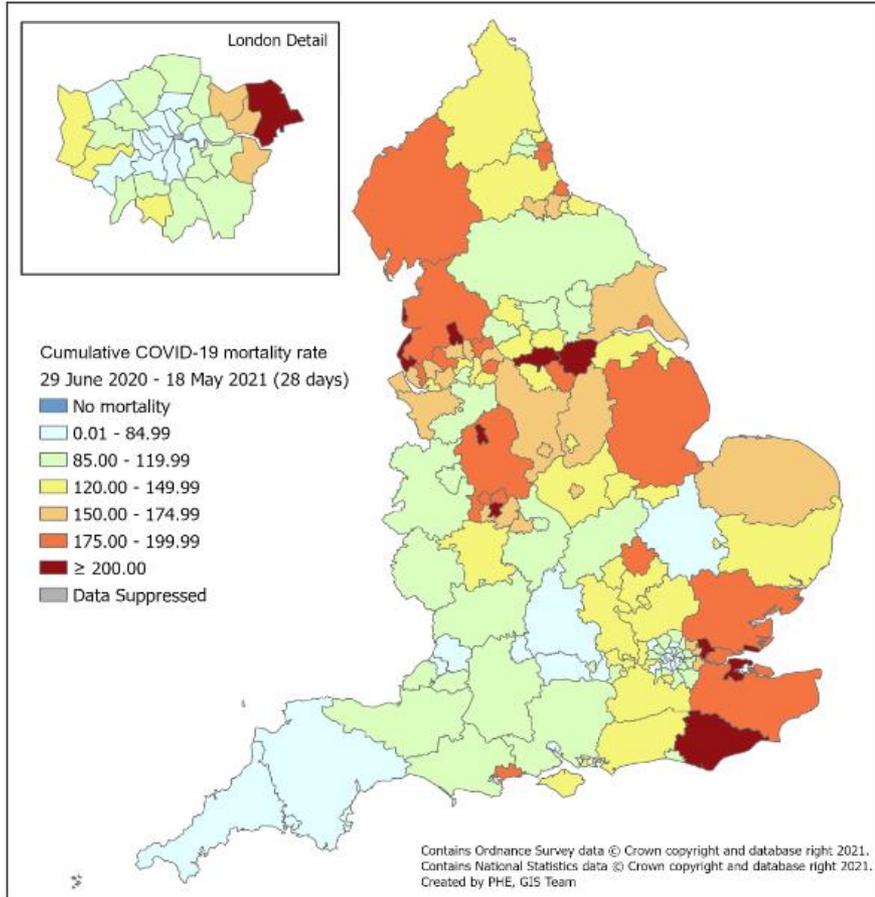
# Number of deaths since week 10 2020 by week of death and time since laboratory confirmation of COVID-19, England



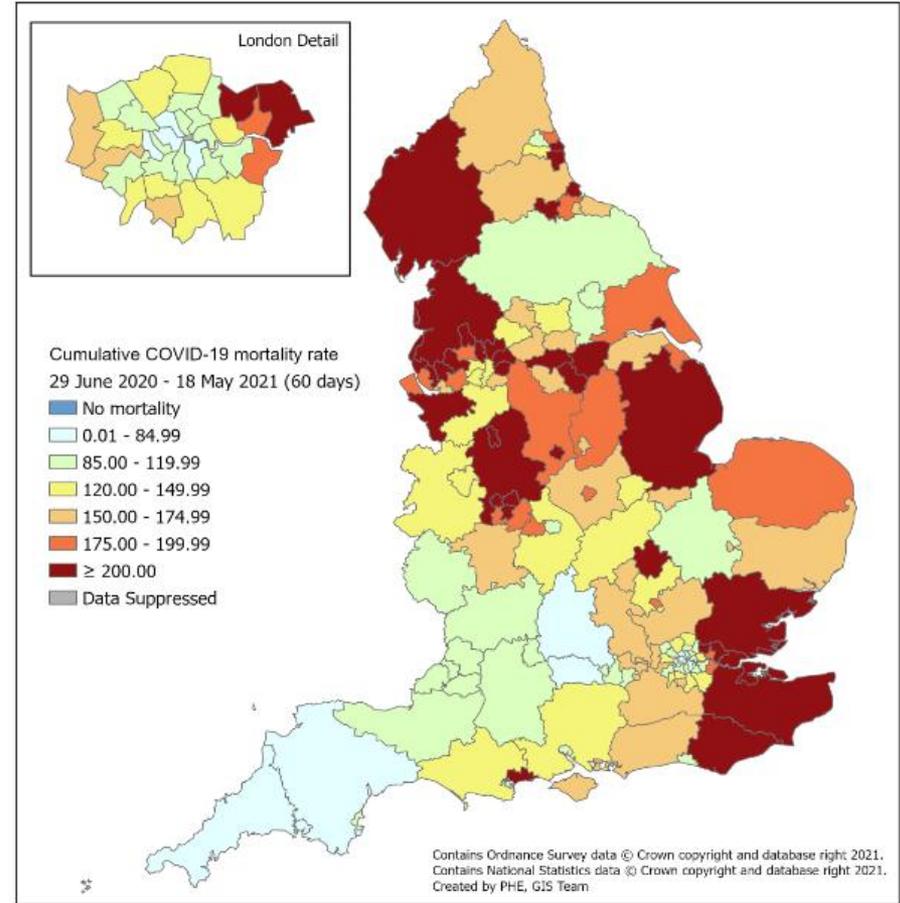


# Cumulative mortality rate of COVID-19 cases per 100,000 population tested under Pillar 1 and 2 since week 27 by (a) 28 day definition and (b) 60 day definition

(a)

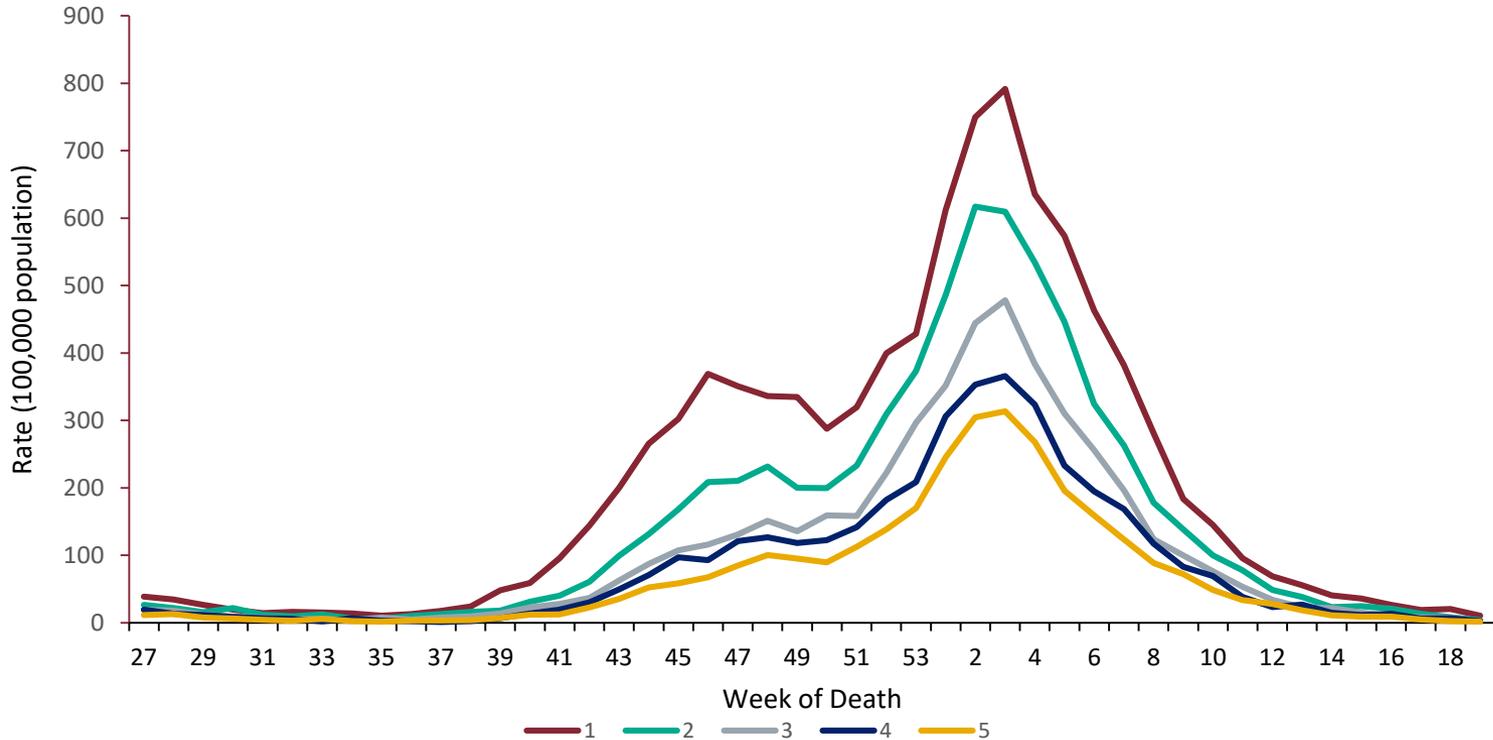


(b)





# Age-adjusted mortality rate\*\* (per 100,000 population) in laboratory-confirmed cases of COVID-19 by IMD quintile, from week 27 onwards, by week using the 60 day definition



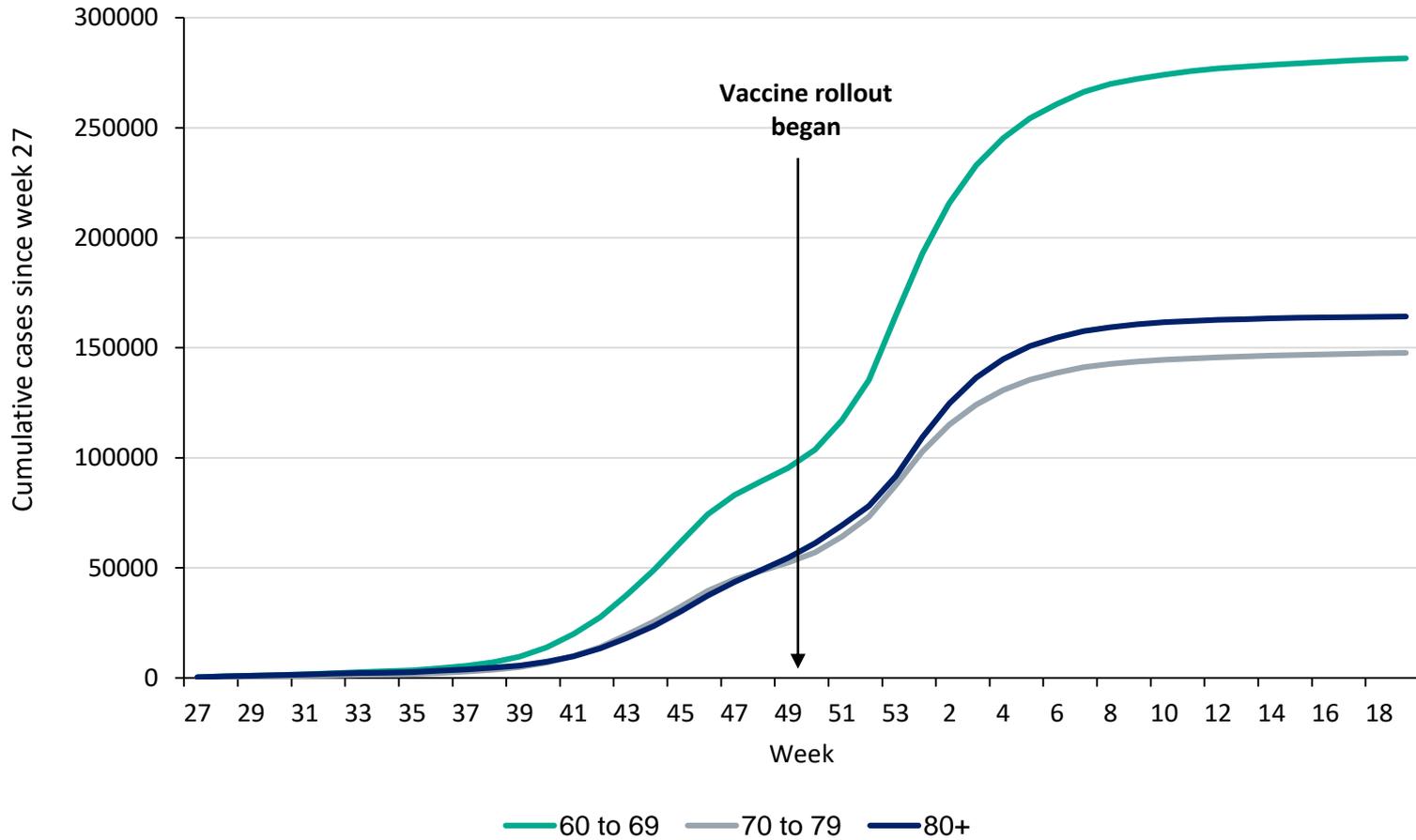
\*\*Rates are time-adjusted: a weekly population denominator has been used to calculate the mortality rate



# COVID-19 Vaccine Impact on Surveillance Indicators

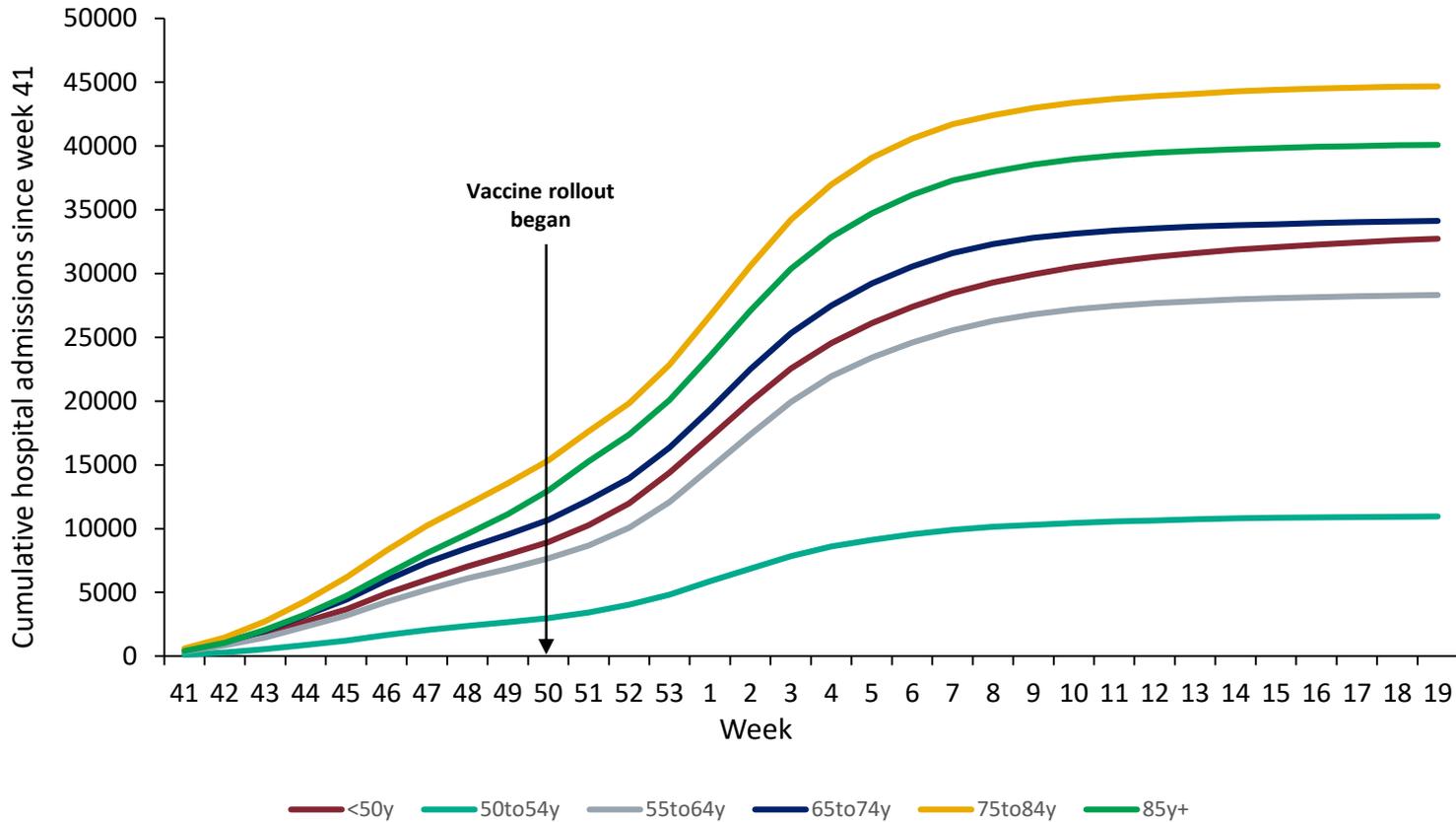


# Cumulative number of confirmed COVID-19 cases since week 27, by age group



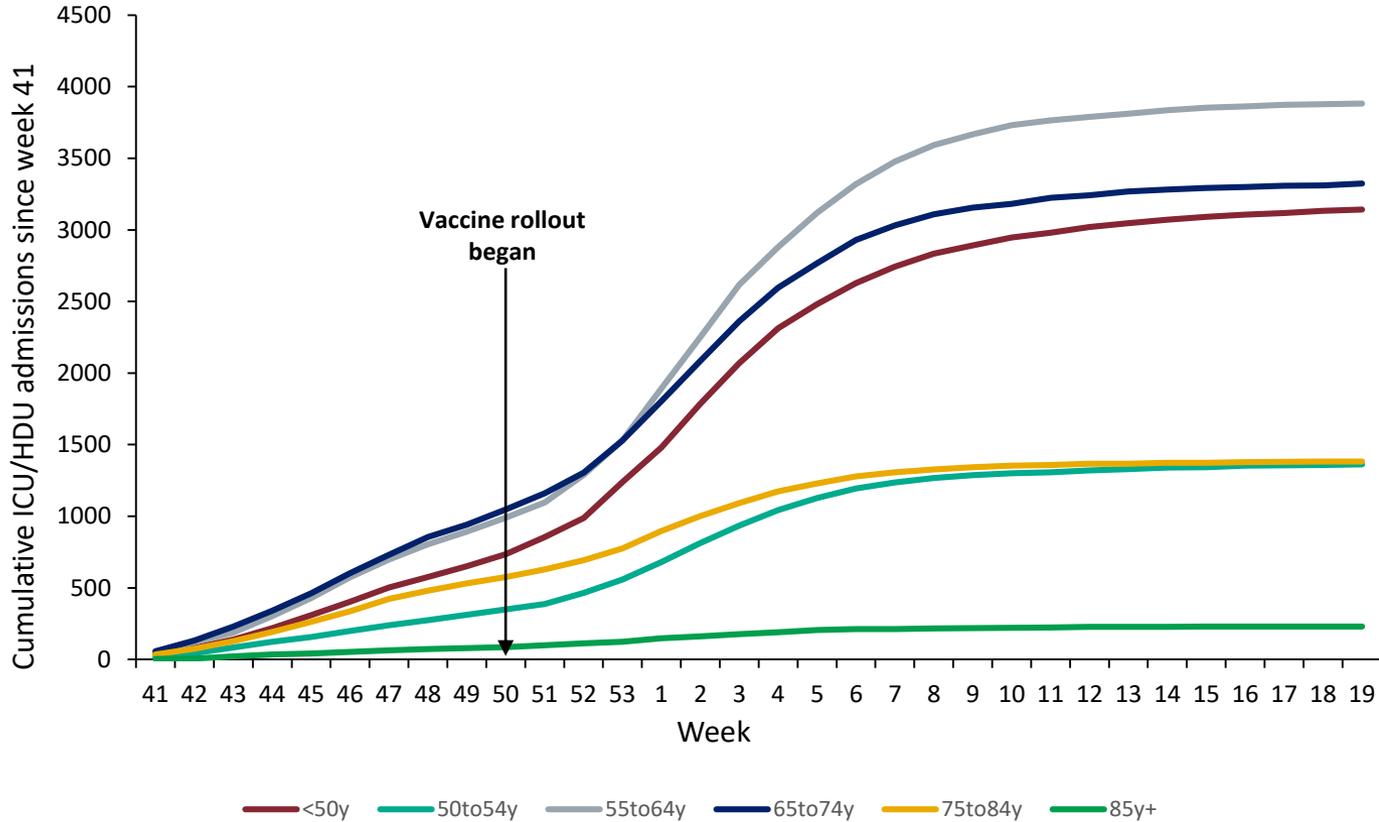


# Cumulative number of hospitalisations for lab confirmed COVID-19 since week 41, by age group



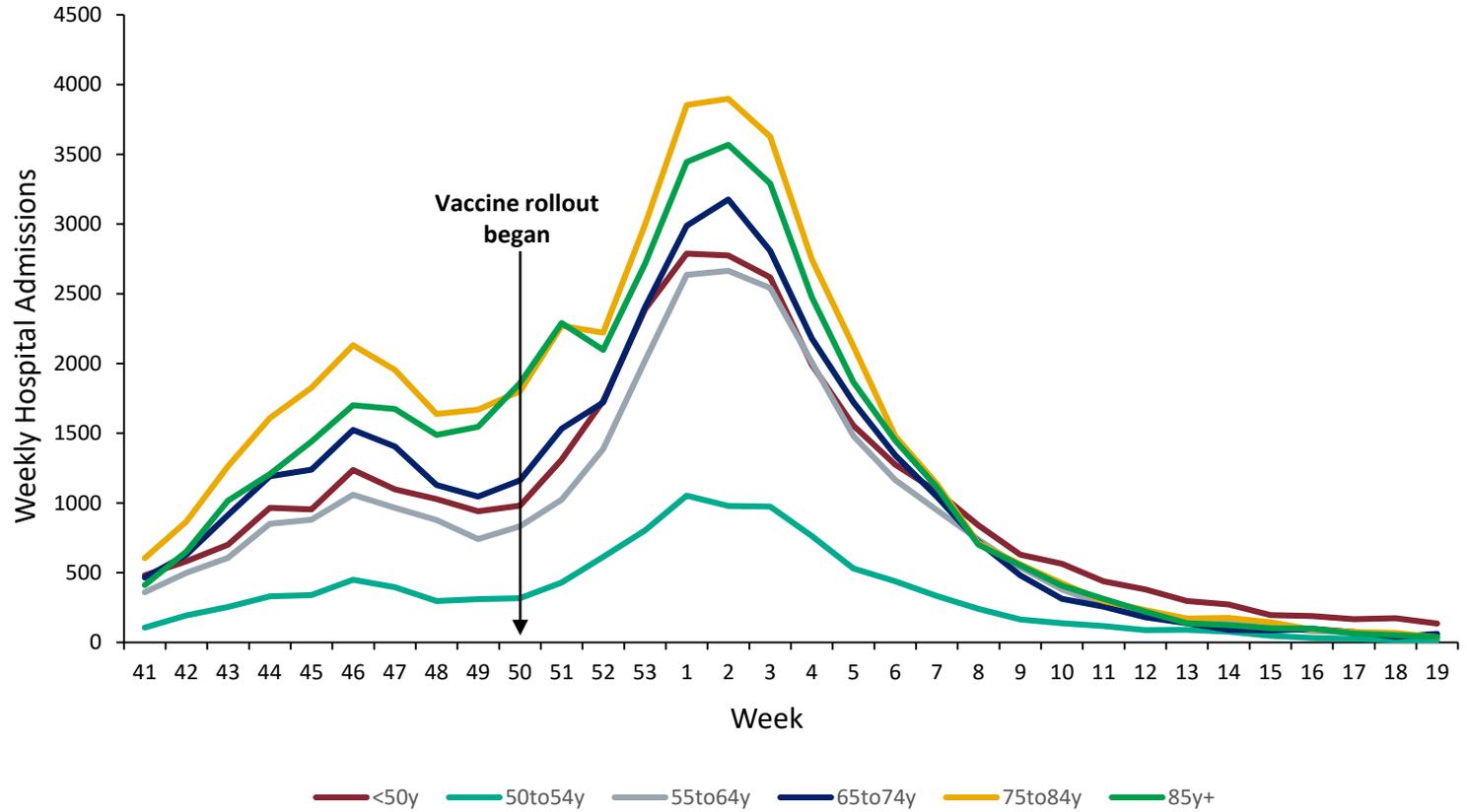


# Cumulative number of ICU/HDU admissions for lab confirmed COVID-19 since week 41, by age group



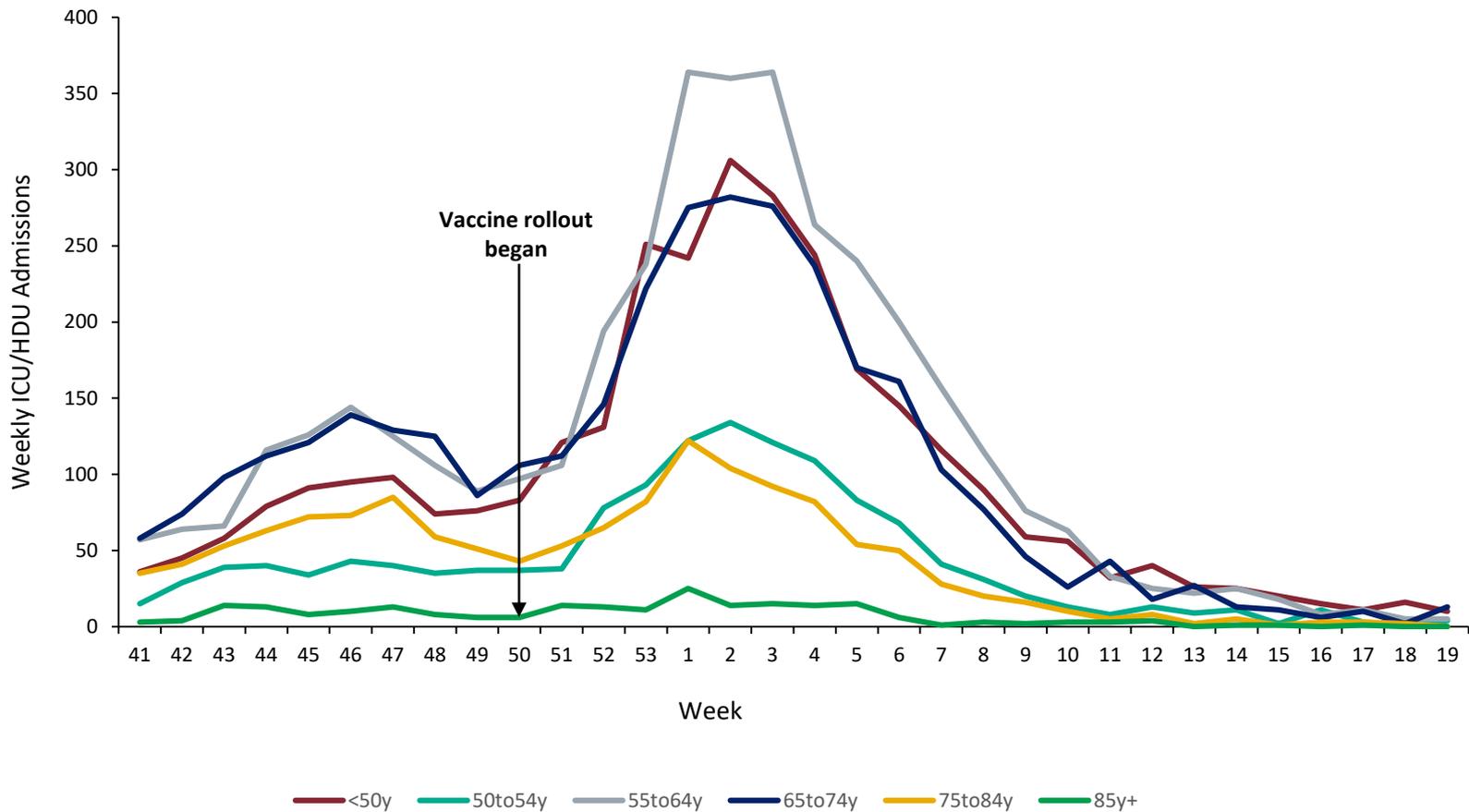


# Weekly number of hospitalisations for lab confirmed COVID-19, by age group



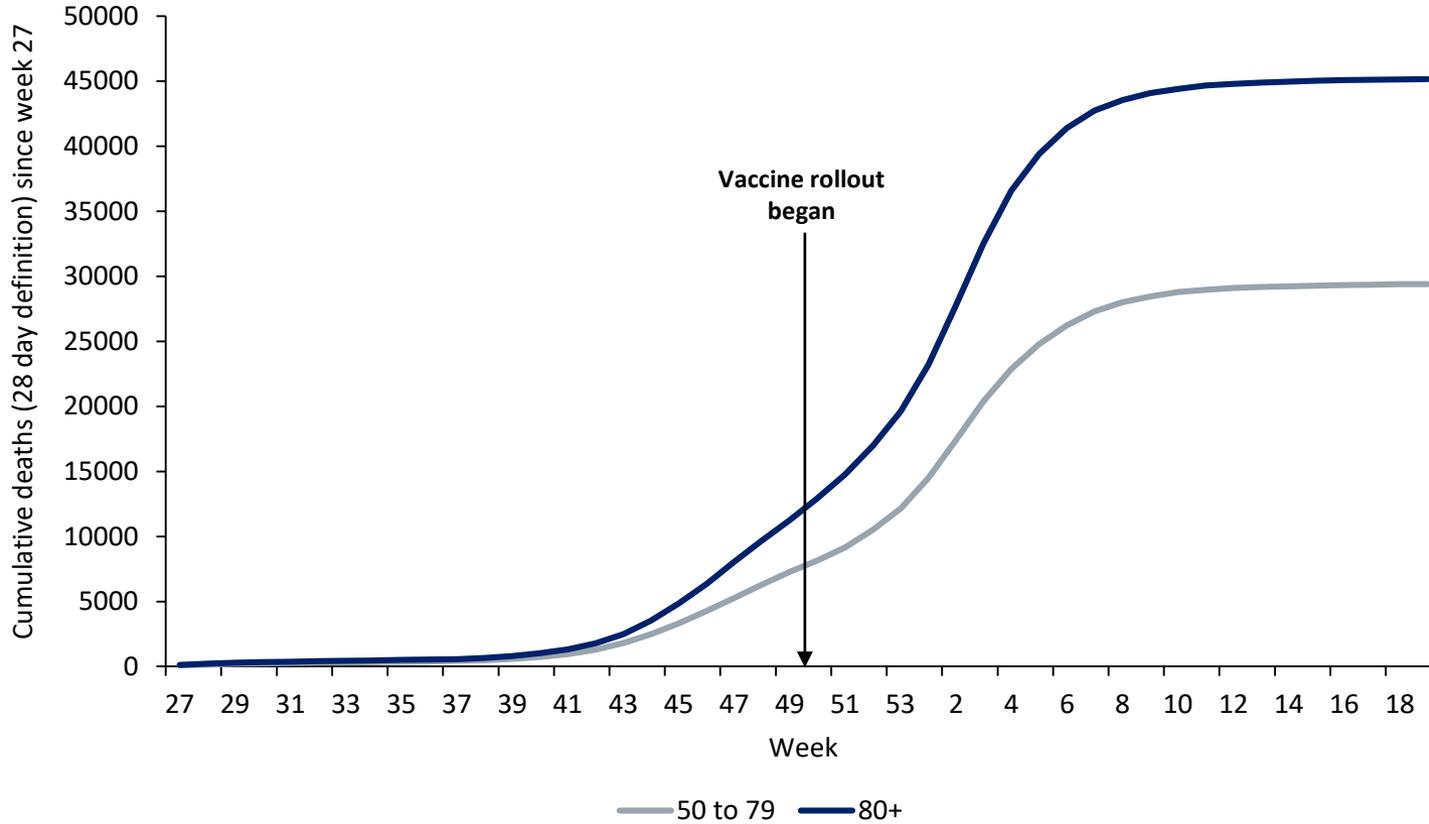


# Weekly number of admissions to ICU/HDU for lab confirmed COVID-19, by age group





# Cumulative number of COVID-19 deaths since week 27 (28 day definition), by age group





# COVID-19 antibody test results NHS & Commercial Laboratories



## Seropositivity among individuals tested for COVID-19 antibodies

Seropositivity is now being reported using the results of COVID-19 antibody tests (IgG or total (IgM and IgG combined) lab-based immune -assay) undertaken in NHS and commercial laboratories (Thrive) contracted by NHS Test and Trace (TT) as part of the national testing strategy. Assays used by laboratories test for antibody responses to SARS-CoV2, where the nucleoprotein (N) assays can only detect post-infection antibodies, while the spike (S) assays are expected to detect both post-infection antibodies and vaccine induced antibodies.

Antibody testing has been offered exclusively to healthcare and social care professionals in England, and other key worker groups across the Devolved Administrations. NHS antibody testing was also made available to some patients following recovery from acute disease.

NHS laboratories introduced antibody testing, which requires a venous blood sample, in May 2020 for all NHS staff and patients, with an extension of the test offer to wider health and social care staff from July 2020. Multiple manufacturers provide the antibody testing platforms in the NHS. The possible variability of antibody assays being used within NHS laboratories means differentiating antibody detection due to a past infection rather than vaccine is currently difficult post the introduction of the vaccine.

The NHS TT home-sampling tests, provided by Thrive, which uses a capillary blood sample analysed in a laboratory became routinely available in mid-September 2020 (week 38). Initially an additional testing offer for social care staff, the NHS TT kit is now the main antibody test offered to social care staff and is also available to those working in healthcare. Thrive currently use a Roche antibody test for the SARS-CoV N protein only identifying those with a past infection.

Overall, the cohort breakdown of NHS testing between May and December of 2020 as reported by NHS E\*, 25% were patients, 72% NHS staff and 3% social care staff . The proportions have changed over time in 2020 but are now stable: Of the 366,784 and 65,603 tests conducted through NHS testing in July and December respectively, the proportion of tests performed in patients increased from 26% in July to 56% in December; where the proportion of tests in NHS staff decreased from 72% in July to 43% in December; and the highest proportion of social care staff tested were tested in August (12%) and September (16%).

For TT testing overall at the beginning of 2021, 52.5% reported their industry as social care and 47.5% reported their industry as health. However, the weekly number of TT tests is variable and will be dependent on a range of factors including changes in demand for the service.

The graphs that follow show the number of SARS-CoV-2 antibodies (Ab) tests among individuals and the percentage positive (Ab test positivity) for TT testing by week, region and age. Although NHS laboratories continue to provide antibody testing, data are only presented for TT due to the potential inconsistencies with antibody levels in the data received from NHS laboratories following the vaccine rollout.

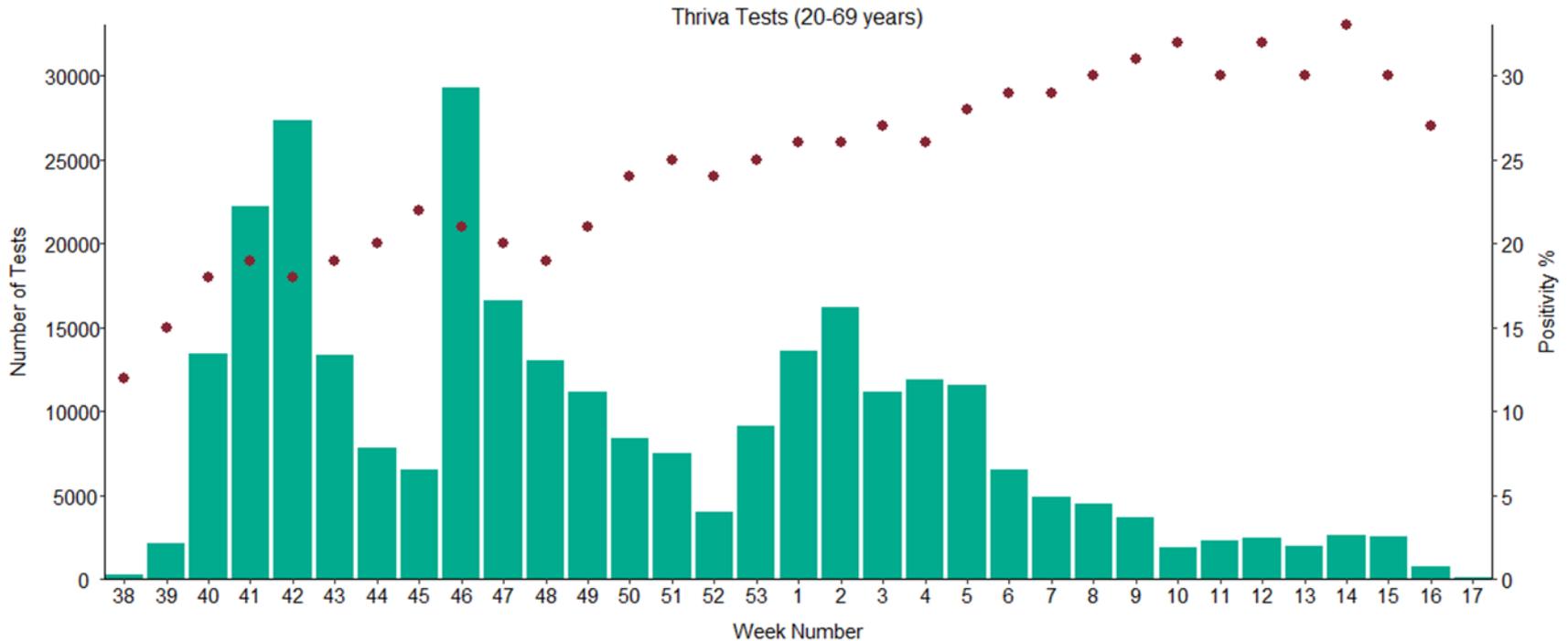
As antibody testing is largely occurring in health and social care staff (and some patients who have recovered from COVID-19), who are likely to have higher COVID-19 exposures than the general population, these antibody test results are not generalisable to the general population.

\* The cohort breakdown of testing through NHS laboratories was reported from NHS E, these data may differ from those reported from PHE SGSS.



## Seropositivity among individuals tested for COVID-19 antibodies by week

Following the introduction of TT testing in week 38, 291,057 tests have been carried out, with a transient increase between weeks 40-42 of 2020 following the initial introduction of TT testing. The proportion of positive tests for TT tests increases overtime consistent with the blood donor seroprevalence data and reflecting previous SARS-CoV2 infection. By the end of 2020, 25% of tests conducted by TT were positive for SARS-CoV2, with the proportion positive in week 16 of 2021 for TT increasing to 27%. The higher positivity from TT antibody testing, when compared to population weighted seroprevalence surveys, is to be expected given that these tests largely represent health and social care staff who are more likely to be exposed to SARS-CoV-2. Seropositivity is likely to reflect transmission occurring in the previous 2-3 weeks or more.

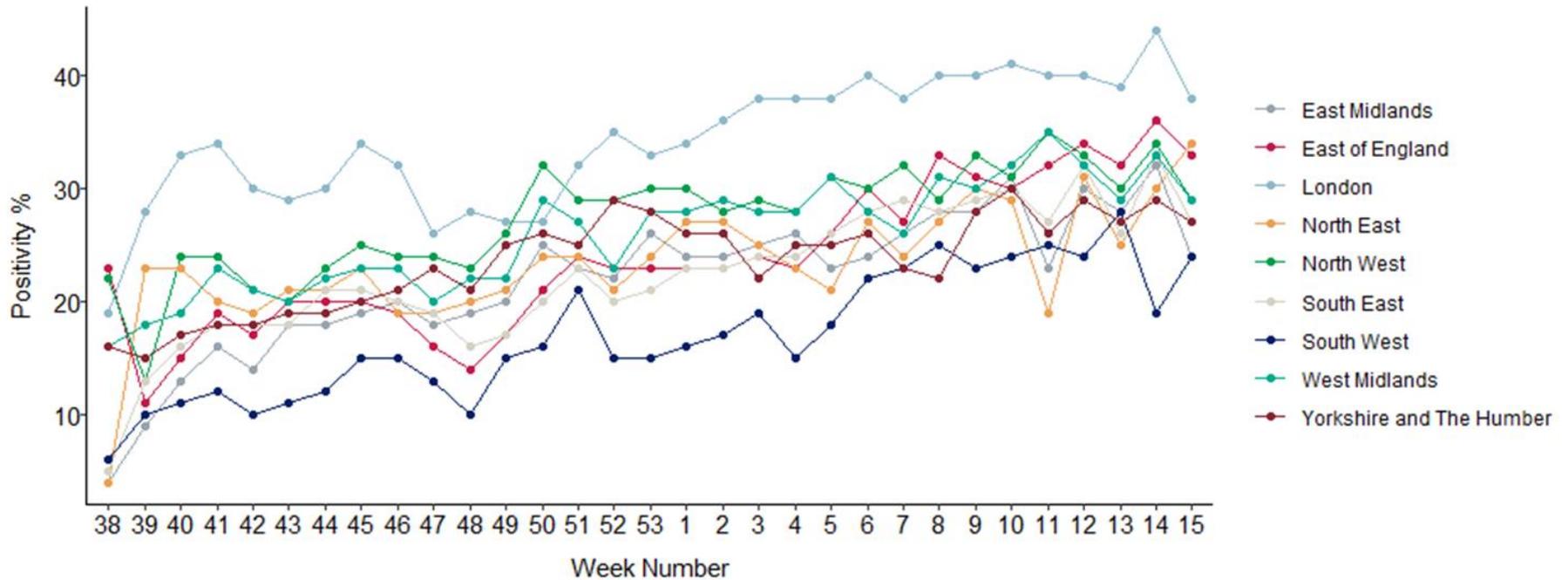


Bars represent number of tests; points represent positivity. Positivity shown where number of tests >100.



# Seropositivity among individuals (aged 20-69 years) tested for COVID-19 antibodies by region for test and trace tests (Thrive)

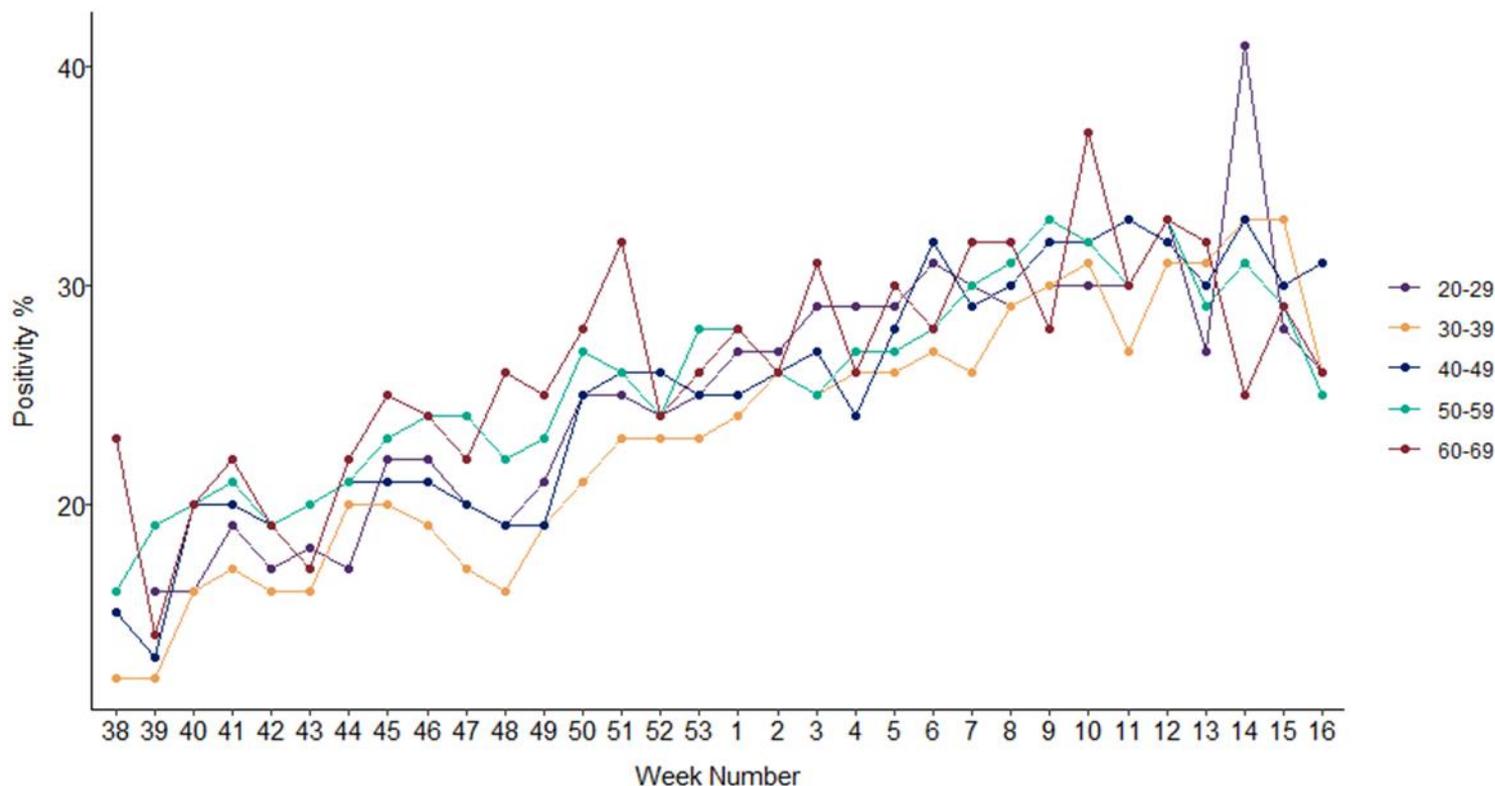
The graphs below demonstrates the distribution of TT tests by region (introduced mid-September 2020 (week 38)) and the percentage of tests positive for COVID-19 antibodies within each region. Overall, seropositivity was highest in London (34%), followed by the North West (26%). Seropositivity was lowest in the South West (14%). This geographical pattern is broadly consistent with previous SARS-CoV-2 infections. The region is based on the individuals postcode of residence entered when ordering a TT test.



Positivity is not shown for Week 16 and Week 17 as for some regions <100 tests were reported.



## Seropositivity among individuals (aged 20-69 years) tested for COVID-19 antibodies by age for test and trace tests (Thrive)



The graph above shows the distribution of TT tests by age group (introduced mid-September 2020 (week 38)) and the percentage of tests positive for COVID-19 antibodies within each age group. Seropositivity increased overtime for all age groups reflecting past incidence of confirmed SARS-CoV2 infection, with little difference in positivity by age groups. The proportion seropositive shows little variation by age over time. Seropositivity is not shown for week 17 as <100 tests were reported.

By sex a larger proportion of tests carried out were among females (78%), a reflection of the distribution within health and social care, with no difference in seropositivity by sex (22% and 24% for females and males, respectively).



# Co/secondary infections with COVID-19



## Co/secondary infections with COVID-19 (data updated monthly)

- Caveat - undertesting for other pathogens may result in an underestimate of co/secondary infection cases.
- Co/secondary infections refers to when a patient has an infection with more than one pathogen at the same time (co-infection), or acquires another infection after contracting the first infection (secondary infection).
- Numbers of co/secondary infection remain low across PHE surveillance systems except for patients with severe respiratory failure requiring Extra Corporeal Membrane Oxygenation (ECMO). Analysis of COVID-19 cases with severe respiratory failure requiring ECMO indicates co/secondary infections among these account for just less than a third of all severe respiratory failure cases due to infection.
- Preliminary data analysis from the first pandemic wave indicates that health care associated infections, *Streptococcus pneumoniae*, influenza, *Aspergillus* and *Candidemia* cases and cases with severe respiratory failure requiring ECMO have increased risk of mortality in comparison to patients without co/secondary infection.

Definitions agreed with DAs



## Co/secondary infections among Extra Corporeal Membrane Oxygenation (ECMO) patients (patients with most severe clinical respiratory signs)

Based on cumulative data on ECMO activity from week 40 (week beginning 30 Sep 2019) to week 15 (week ending 18 April 2021), which includes data to cover two complete seasons. COVID-19 cases are from week 5 2020 (week commencing 17 January 2020).

- 29% (156/537) of patients admitted to ECMO with a laboratory confirmed respiratory infection had a co/secondary infection reported.
- 43% (16/37) of patients with influenza had co/secondary infections
- 28% (125/439) of patients with COVID-19 had co/secondary infections. Of these 125 cases, the most frequent co/secondary infections in COVID-19 cases were Gram-negative bacilli and fungi, accounting for 56% (70/125).



## Co/secondary infections among patients with Healthcare Associated Infections: Blood stream and respiratory infections (bacterial and fungal) in COVID-19 patients in England in wave 2 by COVID-19 diagnosis (29 June 2020 to 31 January 2021)

- 0.2% of COVID-19 patients had a key bacterial/fungal coinfection ( $\pm 1$  day of first SARS-CoV-2 positive specimen date), or secondary infection (between 2 days and <28 days after the SARS-CoV-2 positive specimen date)
  - Of all COVID-19 patients, 0.04% had a key respiratory infection; 0.1% had a key bloodstream infection.
- 81% of co/secondary infections of any site\* were categorised as secondary infections.
- Although the proportion of COVID-19 cases with co/secondary infection remains small, there was >50% increase in cases from the last reporting period. This increasing trend presents a significant burden to hospitals and a continuing challenge in managing co/secondary infections among COVID-19 patients.
- Most frequent species identified from co/secondary infection isolates were:
  - **Respiratory:** *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Klebsiella pneumonia* and *Escherichia coli*.
  - **Blood:** *Escherichia coli*, *Staphylococcus aureus*, *Enterococcus faecium* and *Klebsiella pneumoniae*.
- Co-infections continued to occur more frequently in the elderly, those aged  $\geq 60$  years accounting for more than three-quarters (79%) of co-infections and 69% of secondary infections.

\* Includes Respiratory, Bloodstream, *Clostridioides difficile* infection (CDI), as well as any combination of Respiratory, Bloodstream infection and CDI



# Co/secondary infection with respiratory viruses, vaccine preventable bacteria and fungi

Virus / Bacteria/Fungi	First Wave (30 Jan 2020 - 28 Jun 2020)	Second Wave (29 June 2020 - 24 Apr 2021)	Total Cases
Influenza A	33	3	36
Influenza B	13	7	20
Influenza A & B	1	0	1
Flu (not typed)	1	0	1
Parainfluenza (any subtype)	14	8	22
Seasonal coronavirus	111	51	162
Enterovirus	5	6	11
Adenovirus	14	12	26
Rhinovirus	97	54	151
RSV	23	3	26
Human metapneumovirus	55	1	56
<i>Aspergillus fumigatus</i> ISOLATES (azole resistant)	46 (4)	116 (2)	162 (6)
Probable/Proven cases of COVID associated pulmonary aspergillosis (CAPA)	15	36	51
<i>Candida</i> spp.: Candidemia	63	133	196
<i>Bordetella pertussis</i>	0	0	0
<i>Haemophilus influenzae</i>	3	2	5
<i>Neisseria meningitidis</i>	2	0	2
<i>Streptococcus pneumoniae</i>	40	45	85

Please note fungal data refers to secondary infections only.

The UK moved out of influenza season in early 2020/21 when COVID-19 increase began in March 2020.

Data contains results from two systems (Respiratory DataMart system and SGSS).

Mycology data contains results from Mycology reference laboratory data, Candidaemia is representative of deep infection. One case of osteomyelitis and one case of ventriculitis were documented in wave two.

*Legionella*, *Mycoplasma* and gastrointestinal infection data not included.