Weekly Influenza and COVID-19 Surveillance graphs

Public Health England

PHE publishes a weekly national influenza and COVID-19 surveillance report which summaries 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.
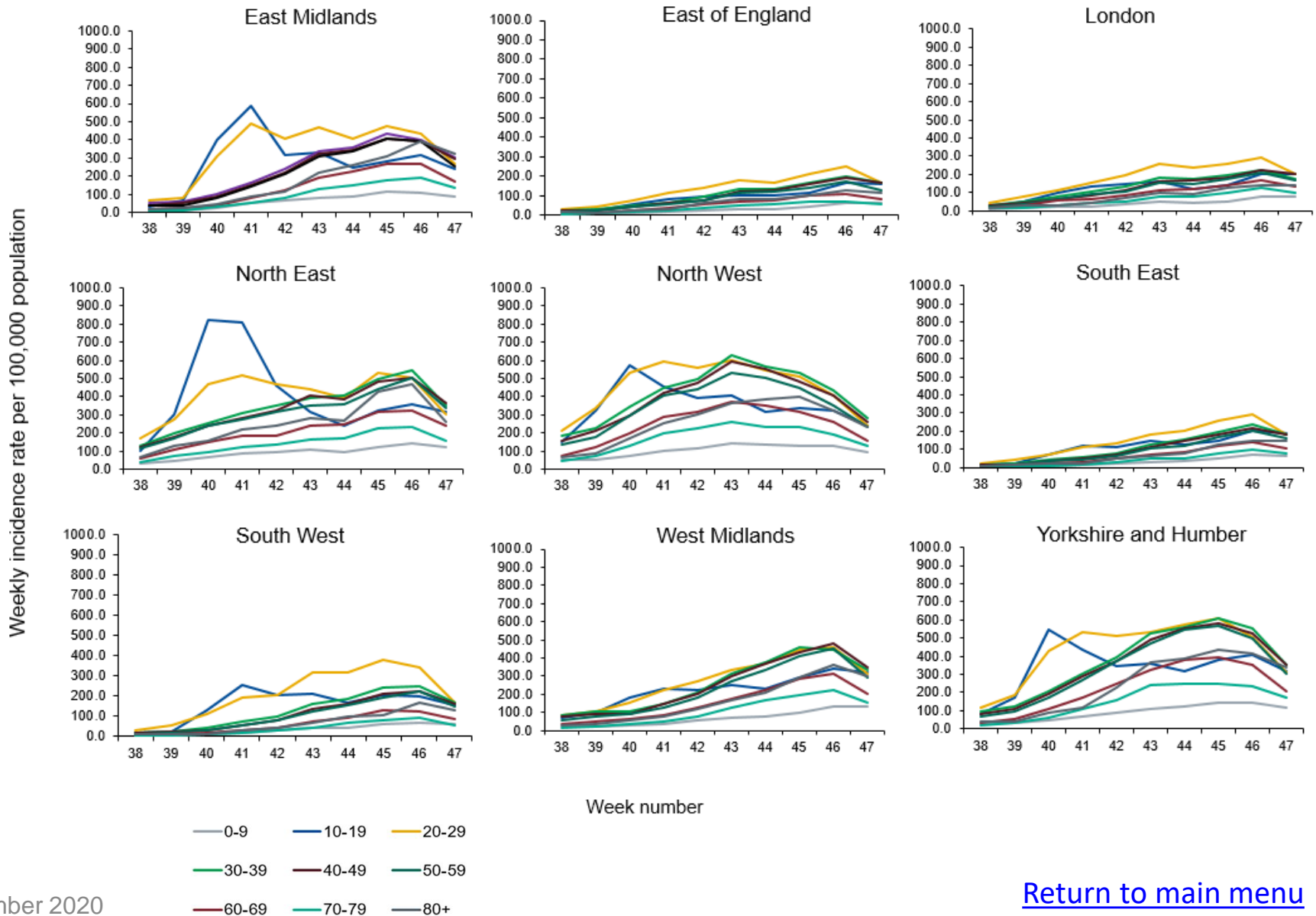
The figures presented in this slide set are based on data from week 47 (between 16 and 22 November 2020).

Public Health England

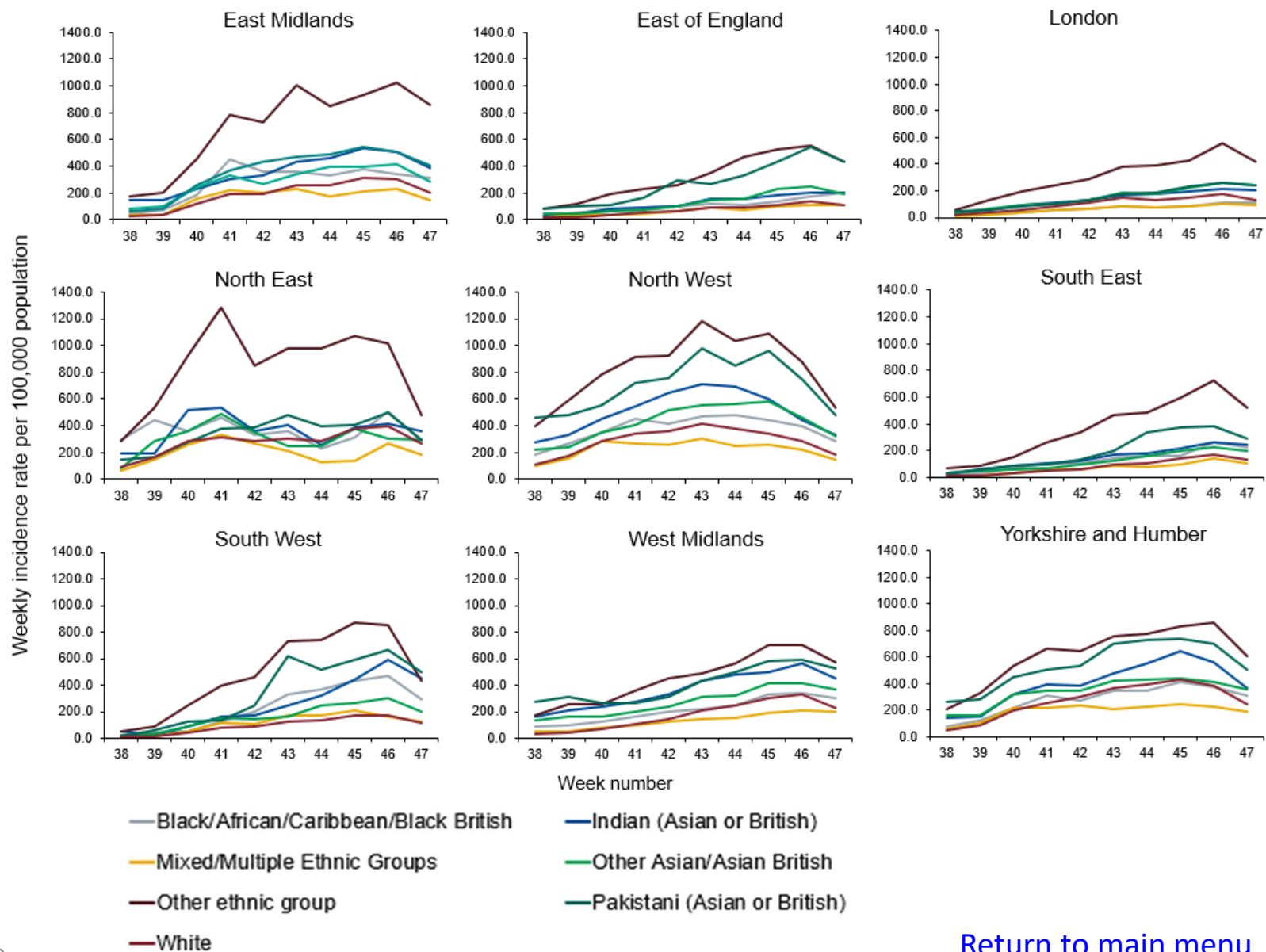# Confirmed COVID-19 cases in England

Weekly COVID-19 incidence per 100,000 population by age group and region, weeks 38-47
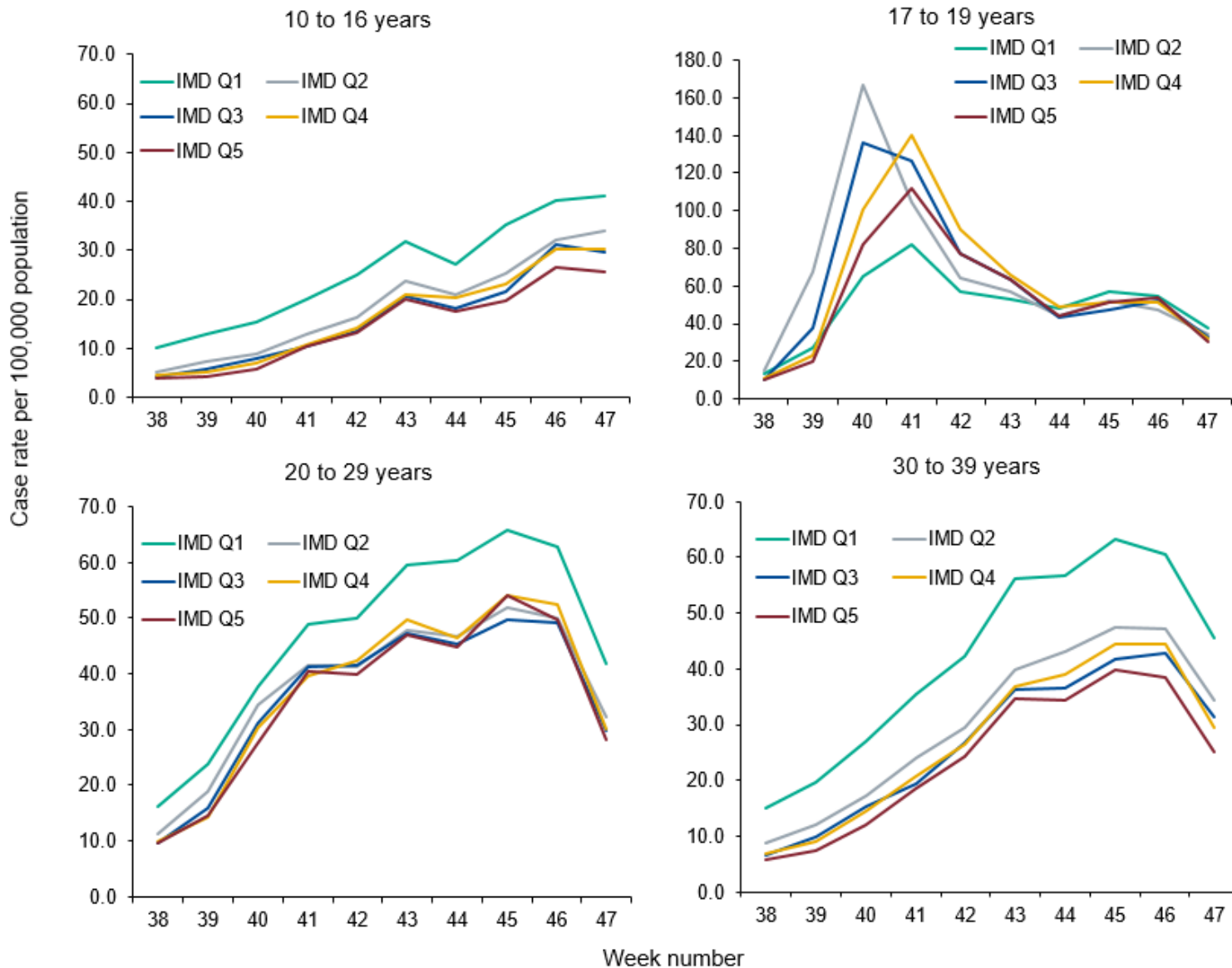
Weekly COVID-19 incidence per 100,000 population by ethnicity and region, weeks 38-47
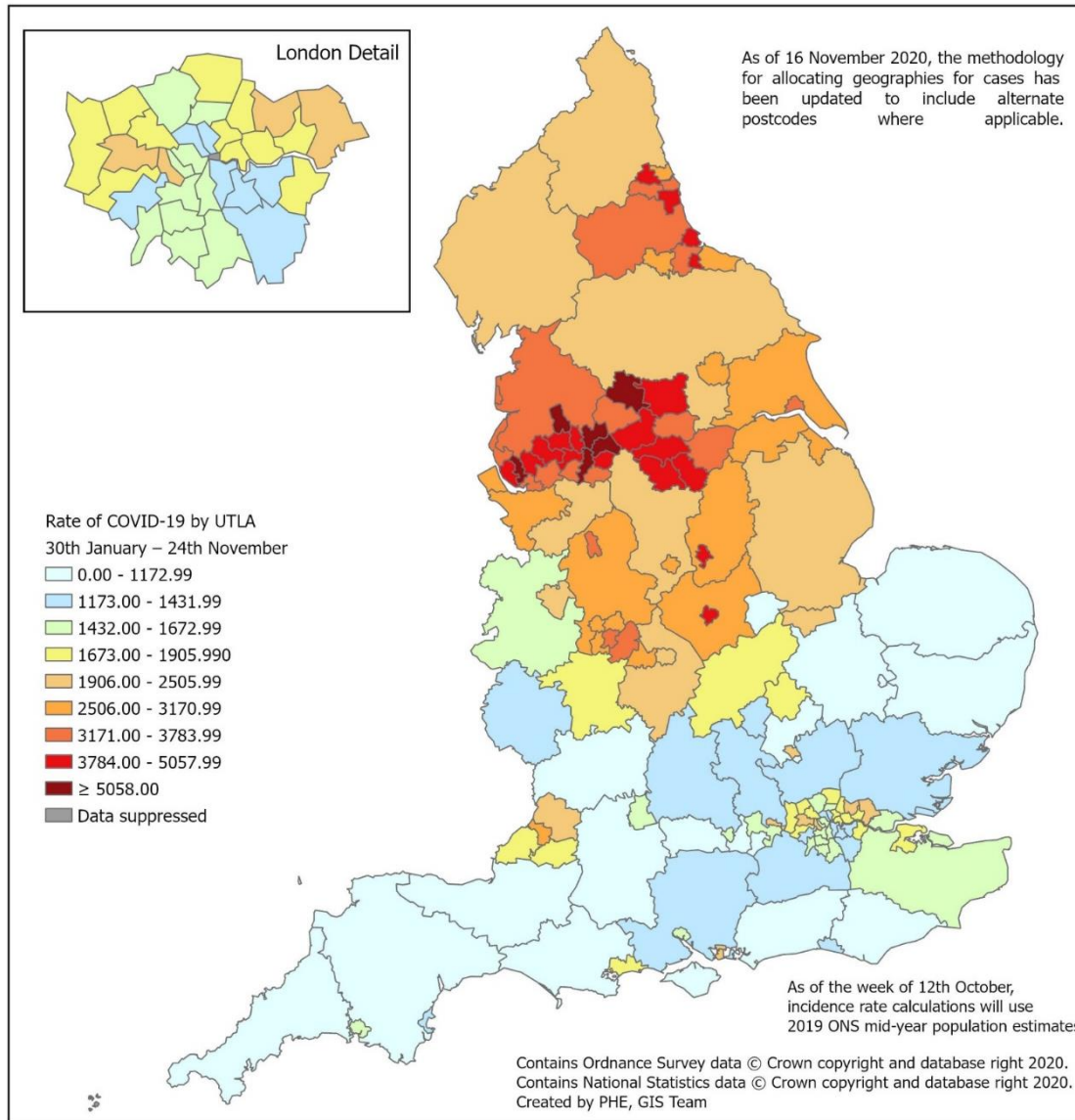
Weekly COVID-19 rate per 100,000 population by IMD quintile (1 being the most deprived and 5 being the least deprived), weeks 38-47
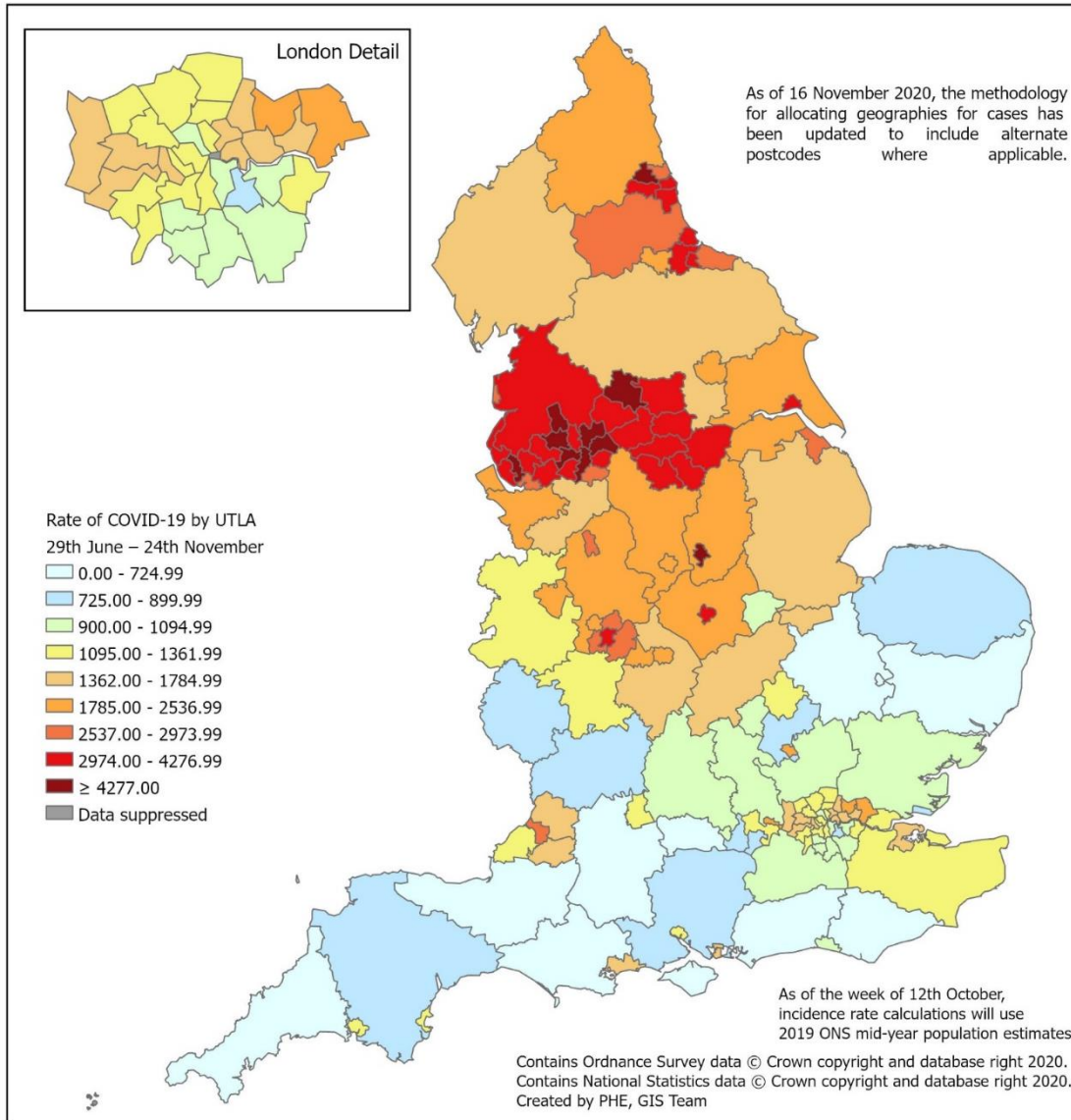
26 November 2020

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)

Public Health England

London Detail

As of 16 November 2020, the methodology for allocating geographies for cases has been updated to include alternate postcodes where applicable.

Rate of COVID-19 by UTLA
30th January – 24th November
- 0.00 - 1172.99
- 1173.00 - 1431.99
- 1432.00 - 1672.99
- 1673.00 - 1905.990
- 1906.00 - 2505.99
- 2506.00 - 3170.99
- 3171.00 - 3783.99
- 3784.00 - 5057.99
- ≥ 5058.00
- Data suppressed

As of the week of 12th October, incidence rate calculations will use 2019 ONS mid-year population estimates.

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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)
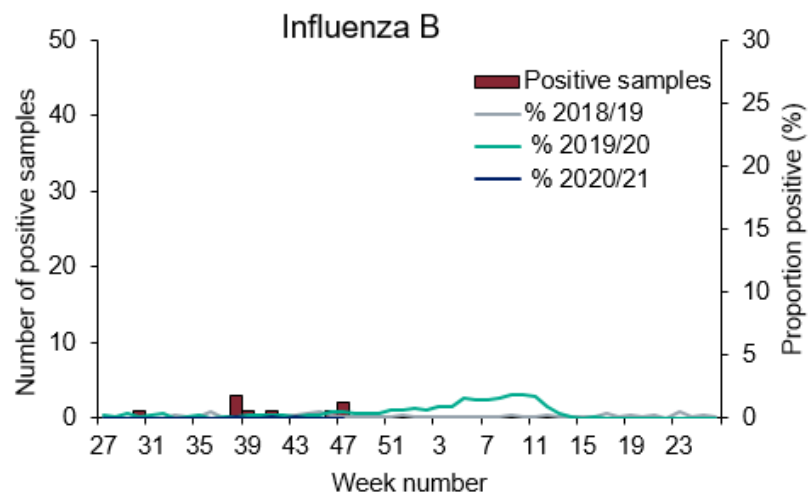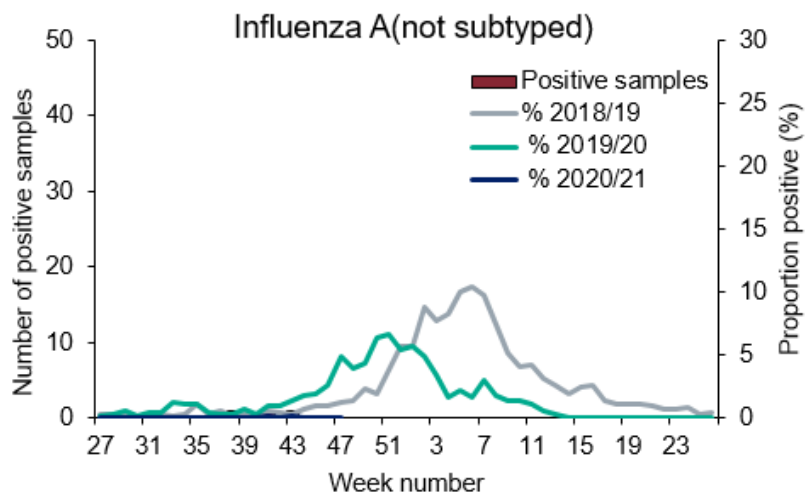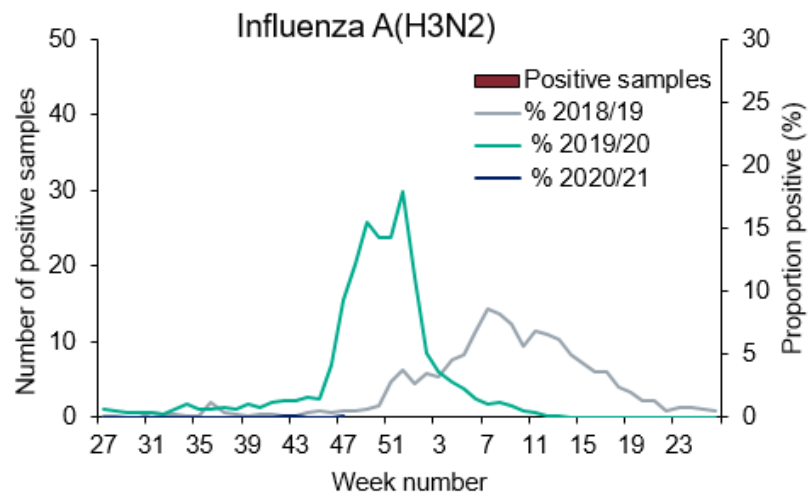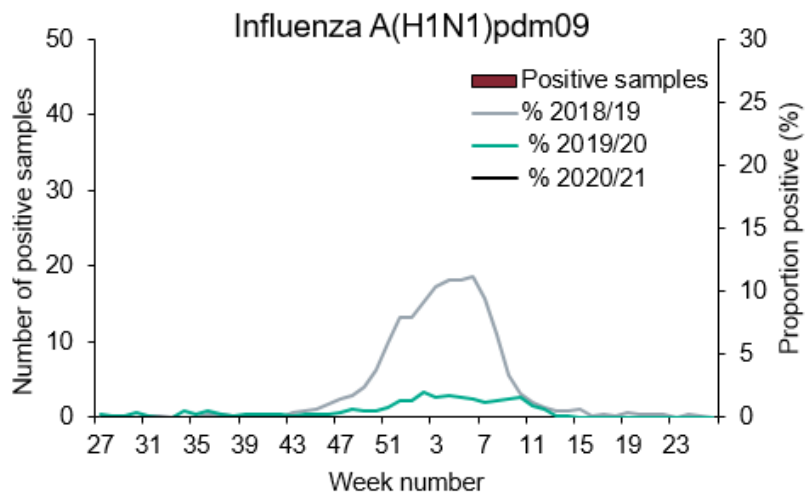

London Detail

As of 16 November 2020, the methodology for allocating geographies for cases has been updated to include alternate postcodes where applicable.

Rate of COVID-19 by UTLA
29th June – 24th November
- 0.00 - 724.99
- 725.00 - 899.99
- 900.00 - 1094.99
- 1095.00 - 1361.99
- 1362.00 - 1784.99
- 1785.00 - 2536.99
- 2537.00 - 2973.99
- 2974.00 - 4276.99
- ≥ 4277.00
- Data suppressed

As of the week of 12th October, incidence rate calculations will use 2019 ONS mid-year population estimates.

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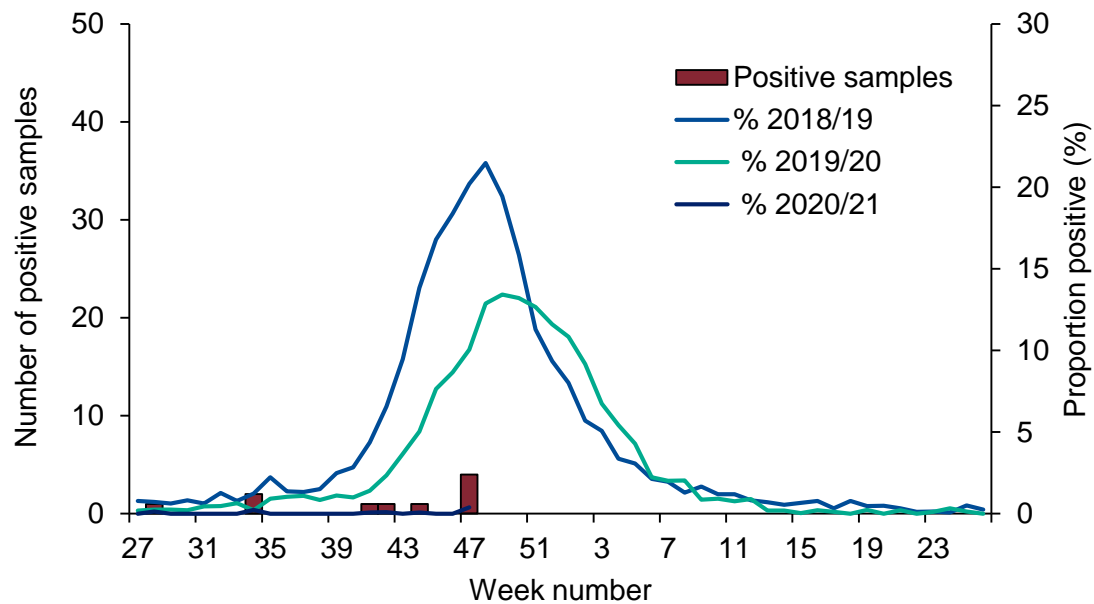Created by PHE, GIS Team

Respiratory Datamart system (England)
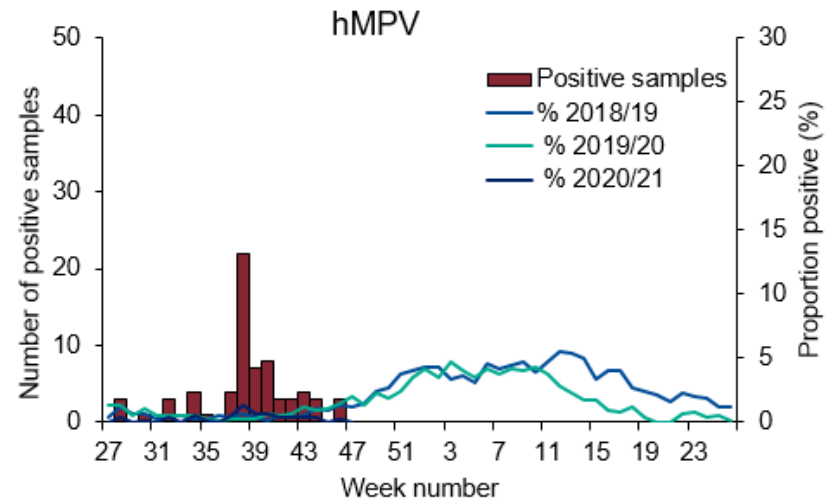
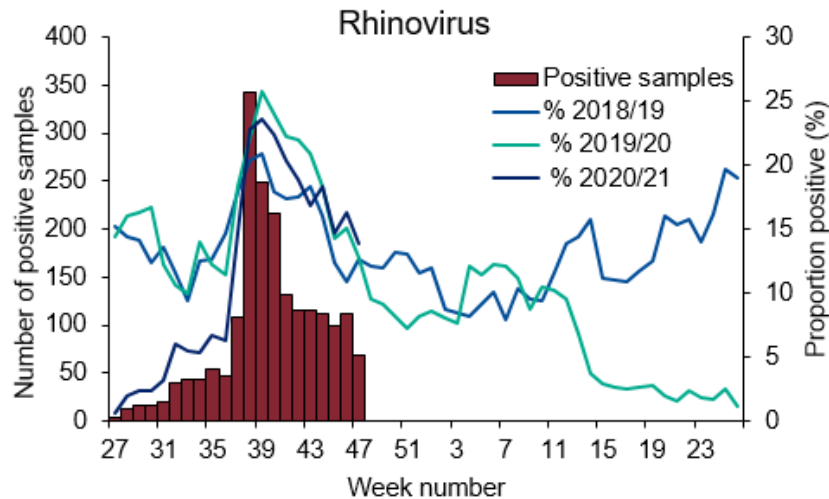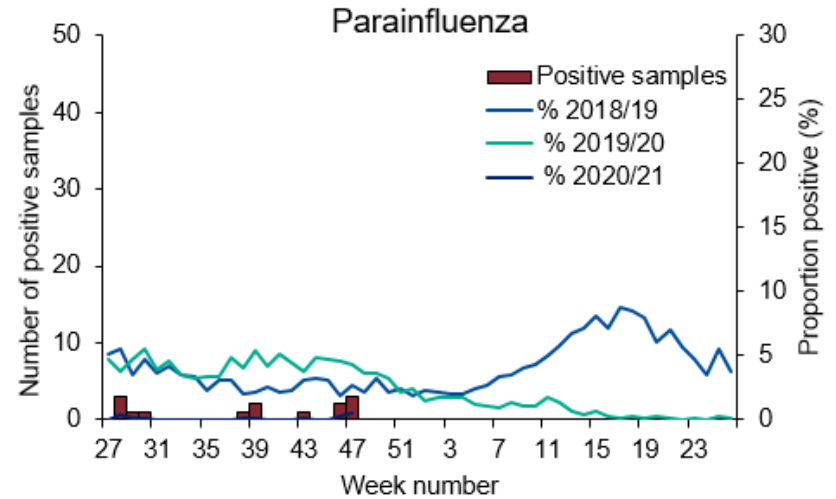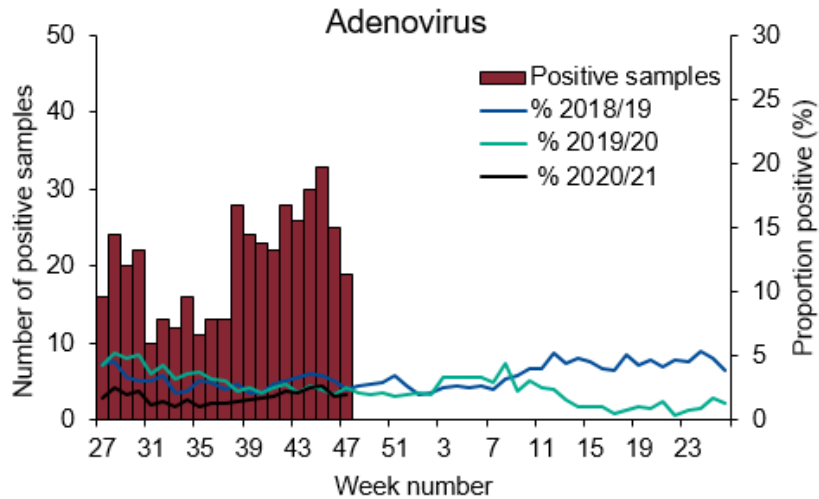# Respiratory DataMart – Influenza subtypes

Respiratory DataMart – Respiratory syncytial virus (RSV)
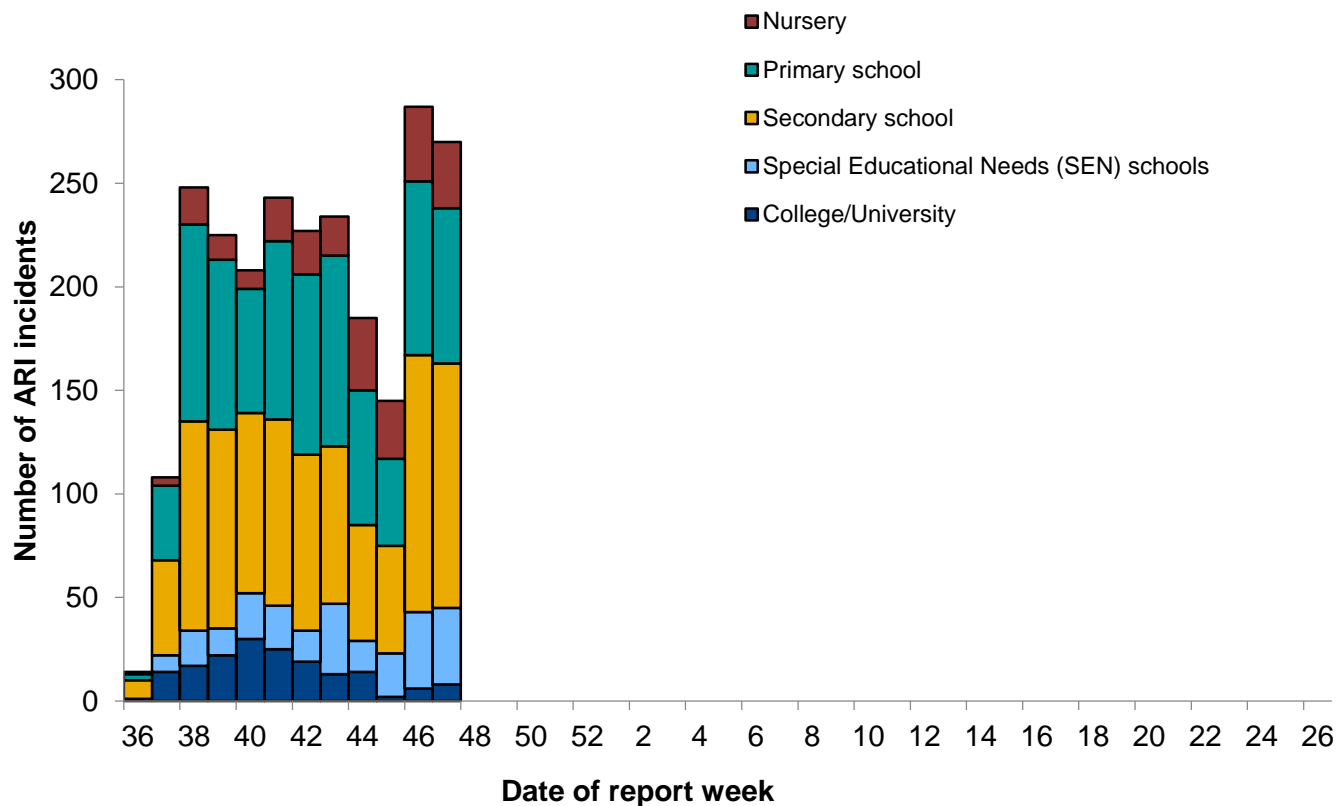
Respiratory DataMart – other respiratory viruses

Community surveillance

# 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

Public Health England

PHE Centres	Nursery	Primary school	Secondary school	Special Educational Needs (SEN) schools	College/University	Total
East of England	5 (0)	14 (1)	36 (3)	8 (1)	11 (0)	74 (5)
East Midlands	41 (8)	122 (12)	93 (9)	23 (1)	20 (1)	299 (31)
London	34 (3)	146 (16)	212 (41)	33 (4)	36 (2)	461 (66)
North East	1 (0)	17 (1)	20 (1)	7 (0)	5 (0)	50 (2)
North West	15 (0)	58 (1)	80 (5)	37 (2)	9 (0)	201 (8)
South East	55 (9)	125 (14)	188 (28)	42 (16)	23 (2)	431 (69)
South West	19 (4)	47 (3)	66 (10)	14 (3)	22 (2)	178 (22)
West Midlands	29 (1)	160 (10)	146 (9)	33 (7)	21 (0)	389 (27)
Yorkshire and Humber	37 (7)	118 (17)	99 (12)	34 (3)	23 (1)	311 (40)
Total	236 (32)	807 (75)	940 (118)	241 (37)	170 (8)	2394 (270)

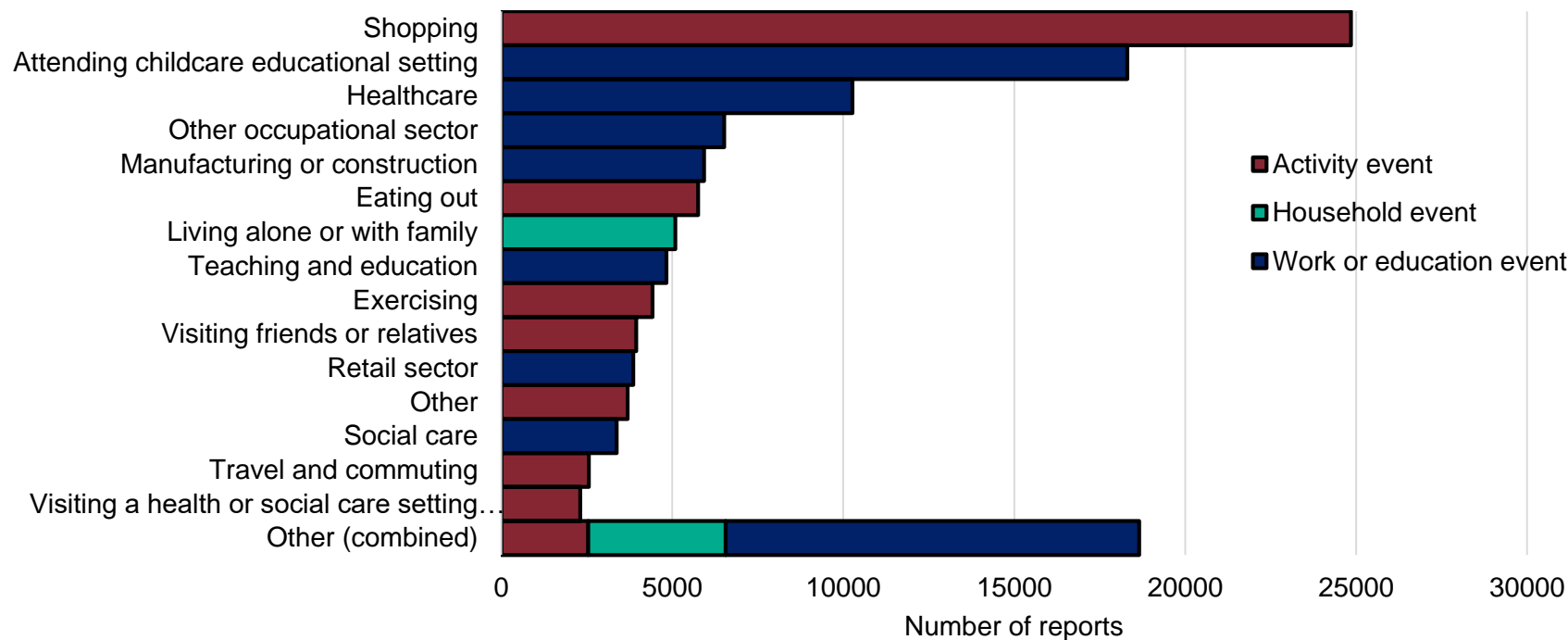*Number of outbreaks for Week 47 in brackets

Contacts by exposure/activity setting in week 47, England (Data source: NHS Test and Trace)
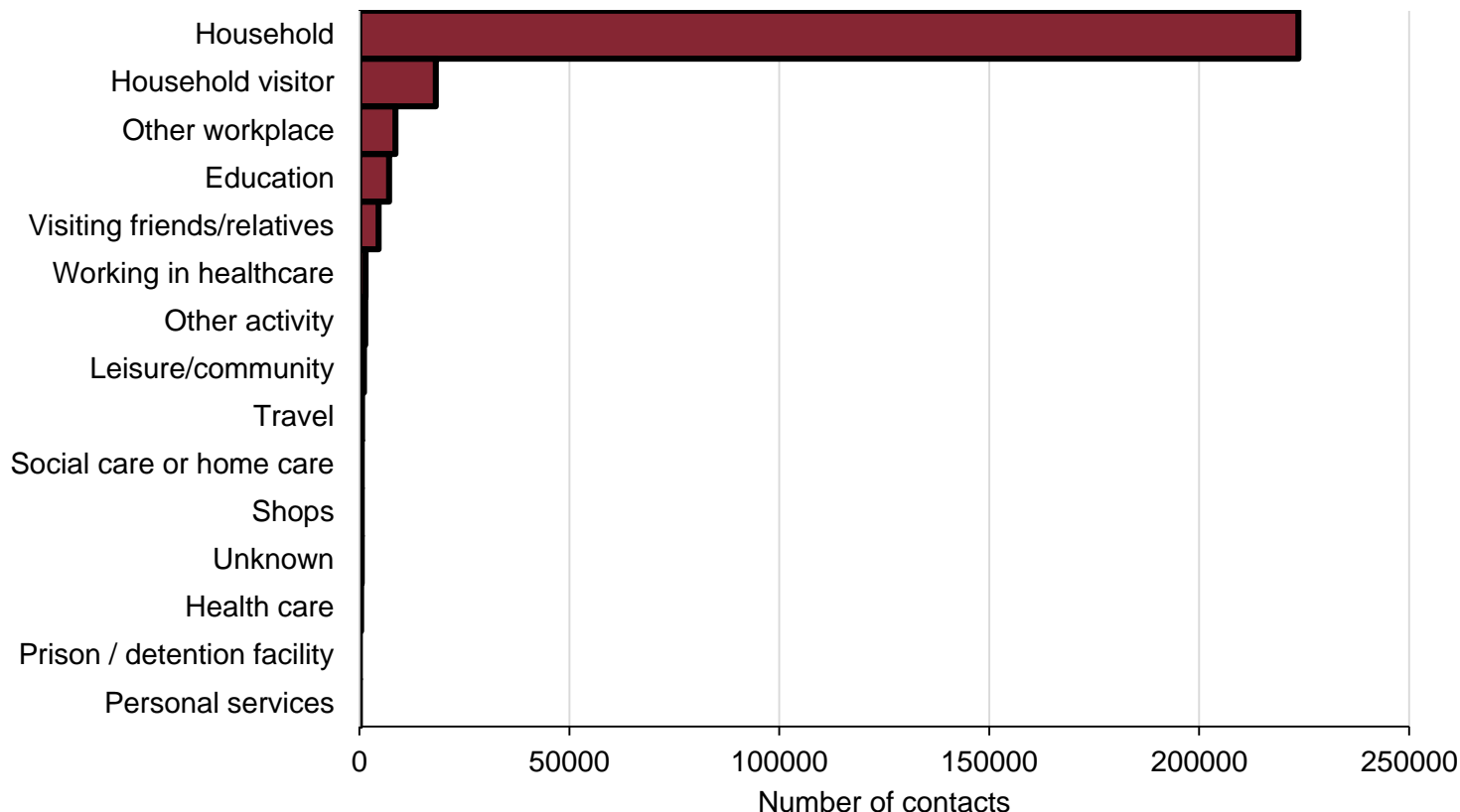
Note: categories have been grouped as follows: leisure / community includes eating out, attending events and celebrations, exercising, worship, arts, entertainment or recreation, community activities and attending play groups or organised trips; other workplace includes: retail, manufacturing or construction, 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 includes hairdressers, barbers, tattooists and nail bars.

Events and activities reported by people testing positive, prior to symptom onset in week 47, England
(Data source: NHS Test and Trace)

Public Health England

Number of reports

Legend:
- Activity event
- Household event
- Work or education event

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.

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Common locations reported by people testing positive in week 47, England (Data source: NHS Test and Trace)

Of the 86,770 cases reported for contact tracing between 16 and 22 November 2020, had a common exposure with at least 1 other case. 5,026 common locations/settings were reported in total (of which the table calculates % of the most frequent). Supermarkets were the most frequently reported common location.

Setting	Number of common locations reported	Proportion of all common locations reported
Supermarket (visiting and working)	988	19.7%
Secondary school (attending)	914	18.2%
Primary school (attending)	637	12.7%
Hospital (visiting)	281	5.6%
Care home (working)	209	4.2%
College (attending)	127	2.5%
Warehouse (working)	119	2.4%
Nursery preschool (attending)	76	1.5%
University (attending)	63	1.3%
Special needs educational setting (attending)	54	1.1%
Household fewer than 5 (home/shared)	53	1.1%
Hospitality (working)	17	0.3%

Common Exposure Reports use NHS Test and Trace enhanced contact tracing data to identify locations or activities reported by 2 or more cases. Once a case enters the NHS Test and Trace system, enhanced contact tracing information is collected on household, workplace, education and activities in the 7-2 day period before symptom onset (or date of test if onset date is not provided). Data collected for this period is primarily used to identify where someone may have caught their infection.

Data presented are for common exposures within the enhanced contact tracing data with a known postcode only. Activities, household and workplace events reported by cases are grouped based on a shared postcode. Any event with >=2 cases associated with it (>=2 persons declaring the same postcode with onsets (or date tested if unavailable) the last 7 days) is defined as a common exposure and is included in this report.

Locations with more visitors are more likely to be identified as common exposures. No adjustment has been made for how commonly a location is visited. The exposure category selected is the most commonly identified among all individuals with an event at that postcode. The exposure category can change retrospectivity therefore, changing the most common exposure as reported here.

Common exposures identified in this way are not always indicative of epidemiological linkage between the cases and require further investigation. Some will be coincidental rather than relating to potential/actual transmission events.

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Surveillance in 'educational-age' cohorts

Public Health
England

- 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
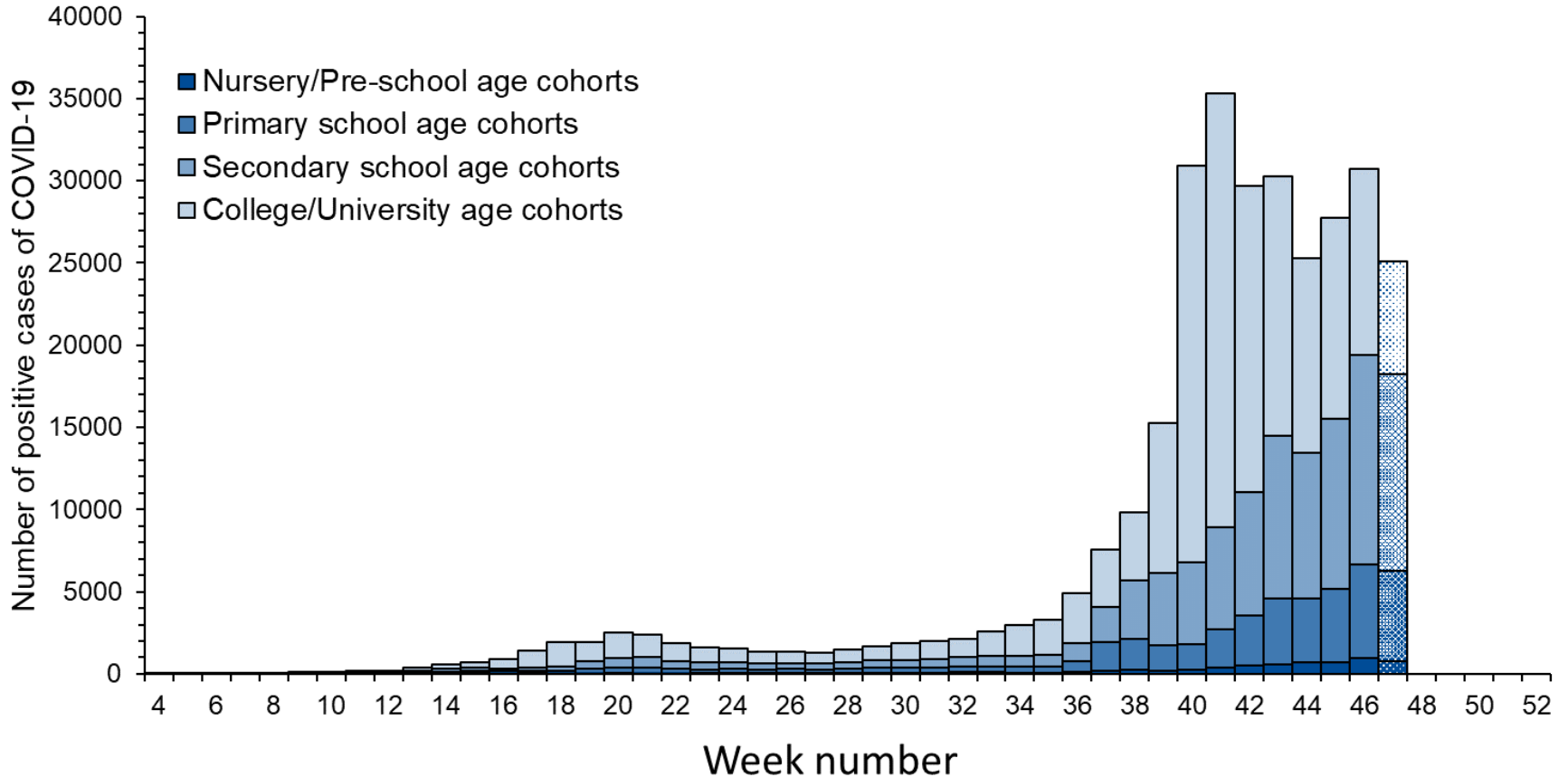
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Public Health England

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

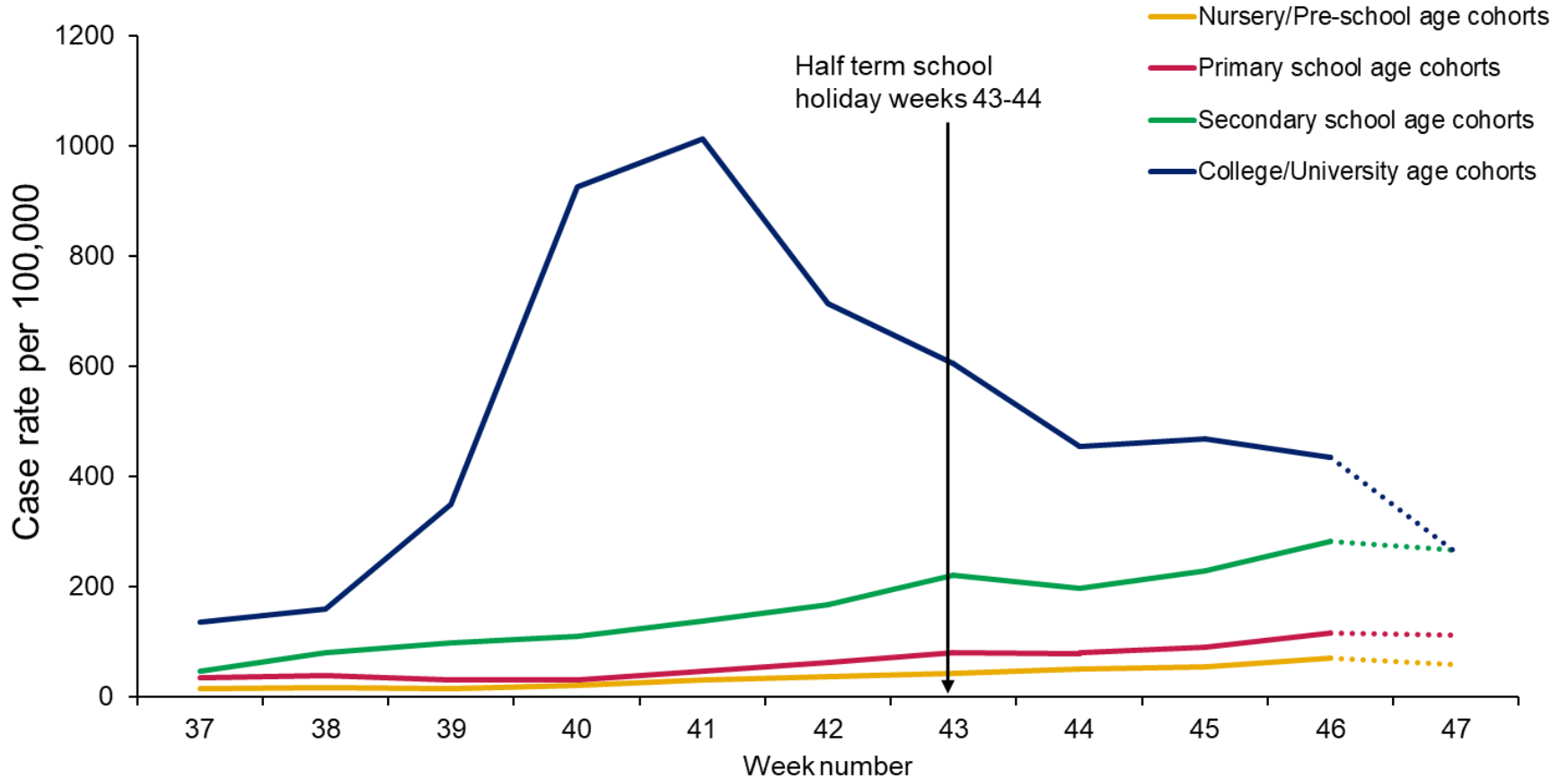| Birth cohort			Year group
01/09/1998	to	31/08/1999	Uni Year 4
01/09/1999	to	31/08/2000	Uni Year 3
01/09/2000	to	31/08/2001	Uni Year 2
01/09/2001	to	31/08/2002	Uni Year 1
01/09/2002	to	31/08/2003	Year 13
01/09/2003	to	31/08/2004	Year 12
01/09/2004	to	31/08/2005	Year 11
01/09/2005	to	31/08/2006	Year 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
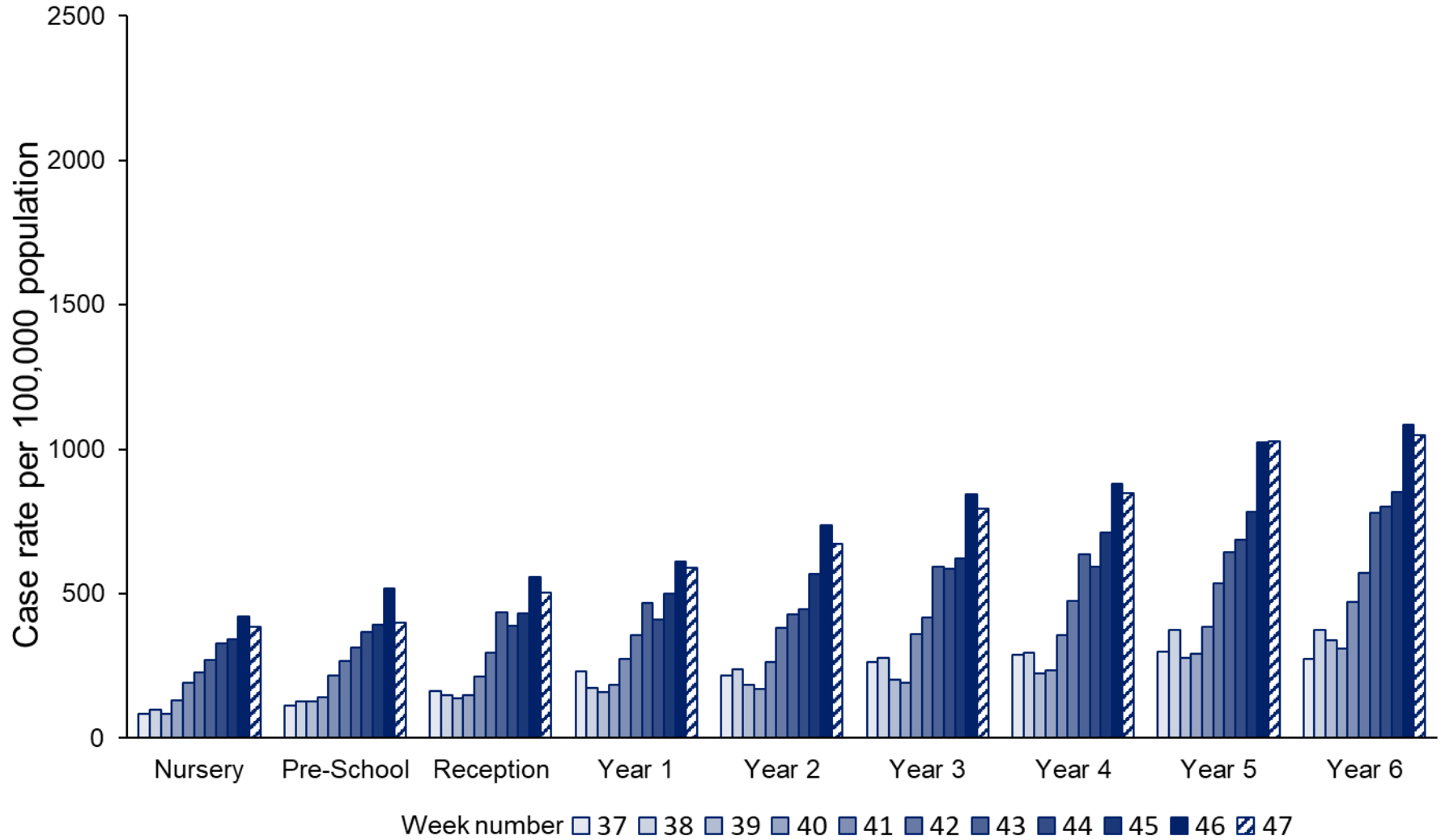
Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population in nursery/preschool, primary school, secondary school and college/university age cohorts, week 37 to 47

Public Health England

Half term school holiday weeks 43-44

Legend:
- Nursery/Pre-school age cohorts
- Primary school age cohorts
- Secondary school age cohorts
- College/University age cohorts

Y-axis: Case rate per 100,000
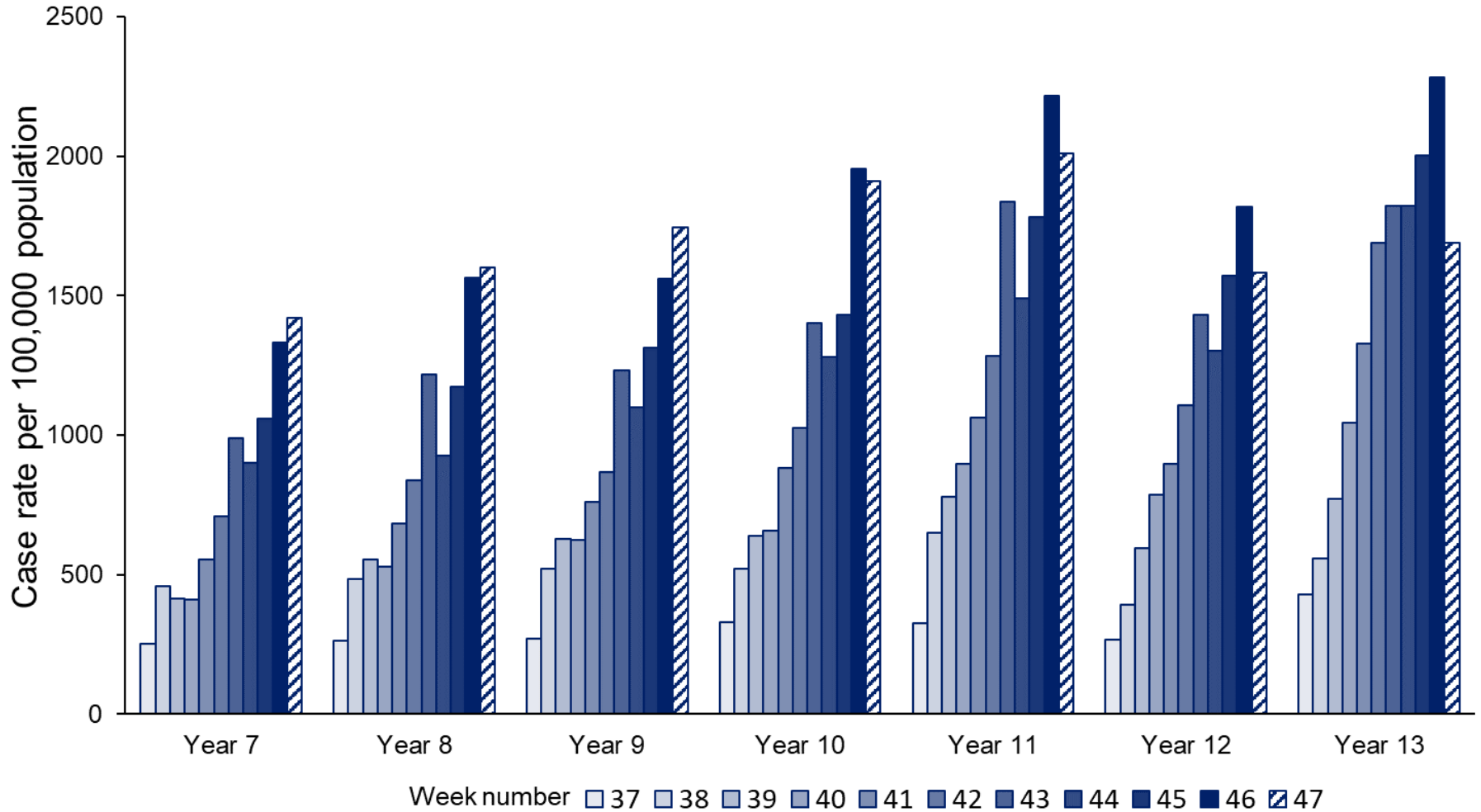X-axis: Week number

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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, week 37 to 47

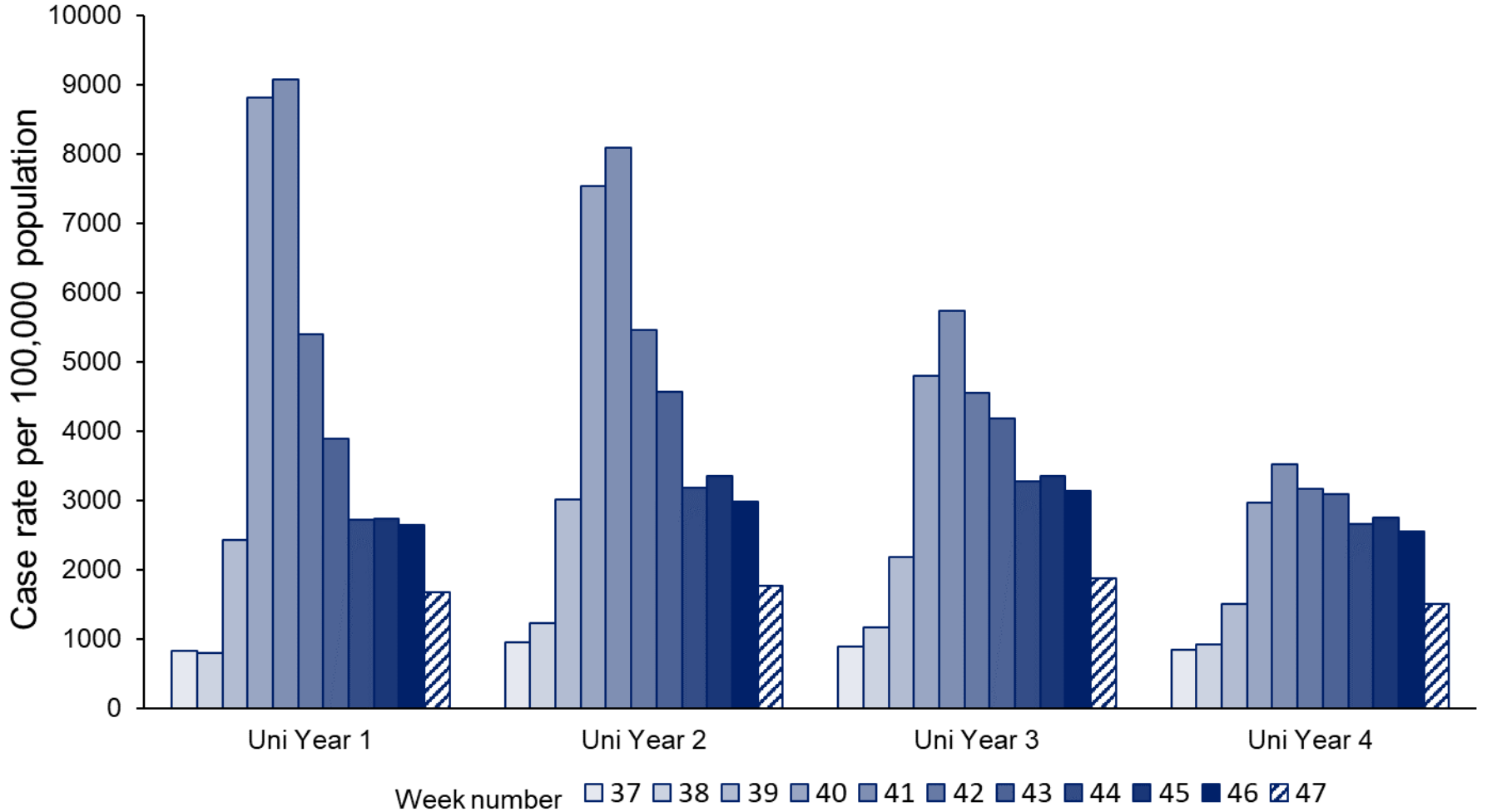Week number ☐ 37 ☐ 38 ☐ 39 ☐ 40 ☐ 41 ☐ 42 ☐ 43 ☐ 44 ☐ 45 ☐ 46 ☒ 47

26 November 2020

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), week 37 to 47
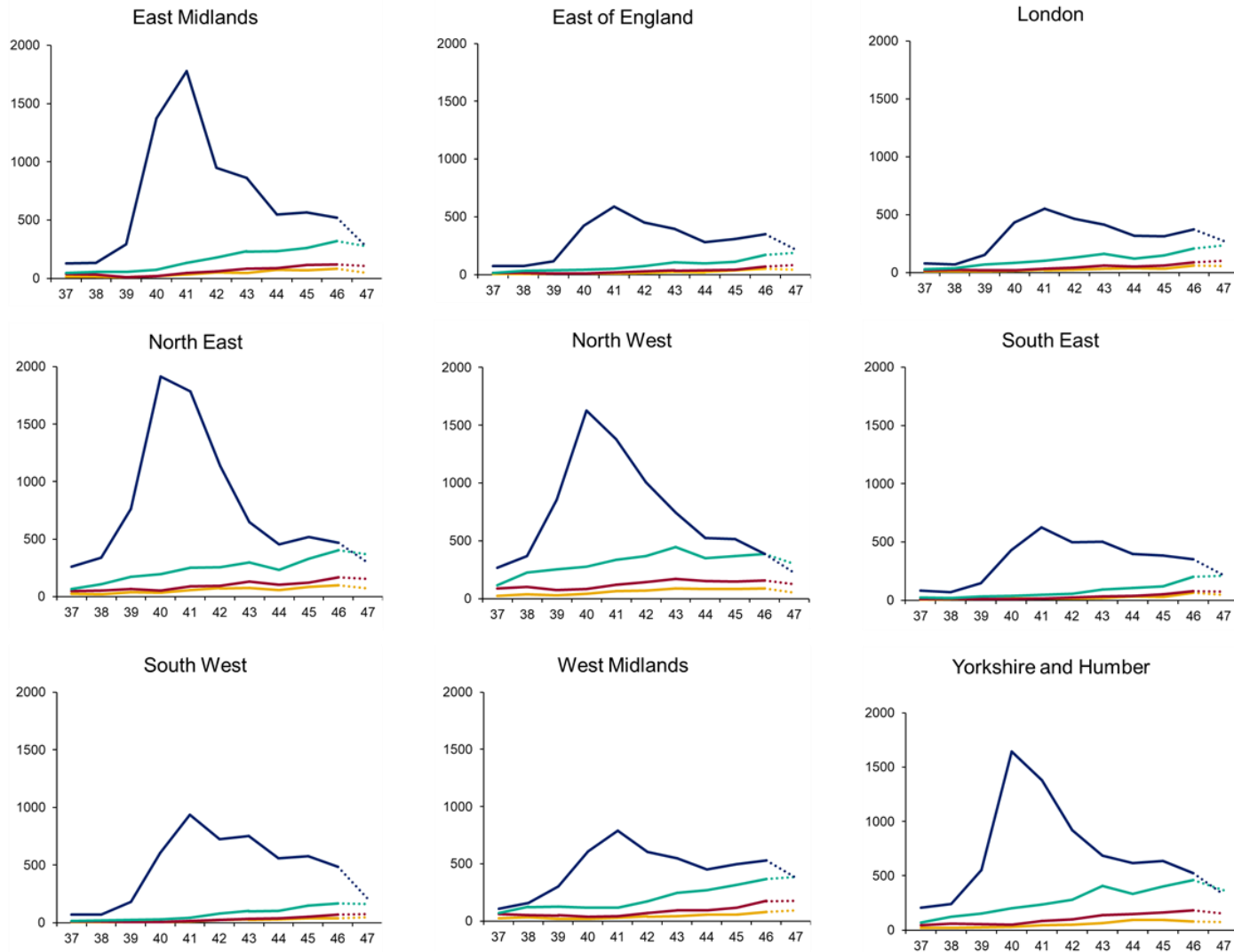
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Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population in educational age cohorts corresponding to university/college year groups, week 37 to 47

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Weekly incidence of laboratory confirmed COVID-19 cases per 100,000 population by educational age cohorts and PHE region, week 37 to 47
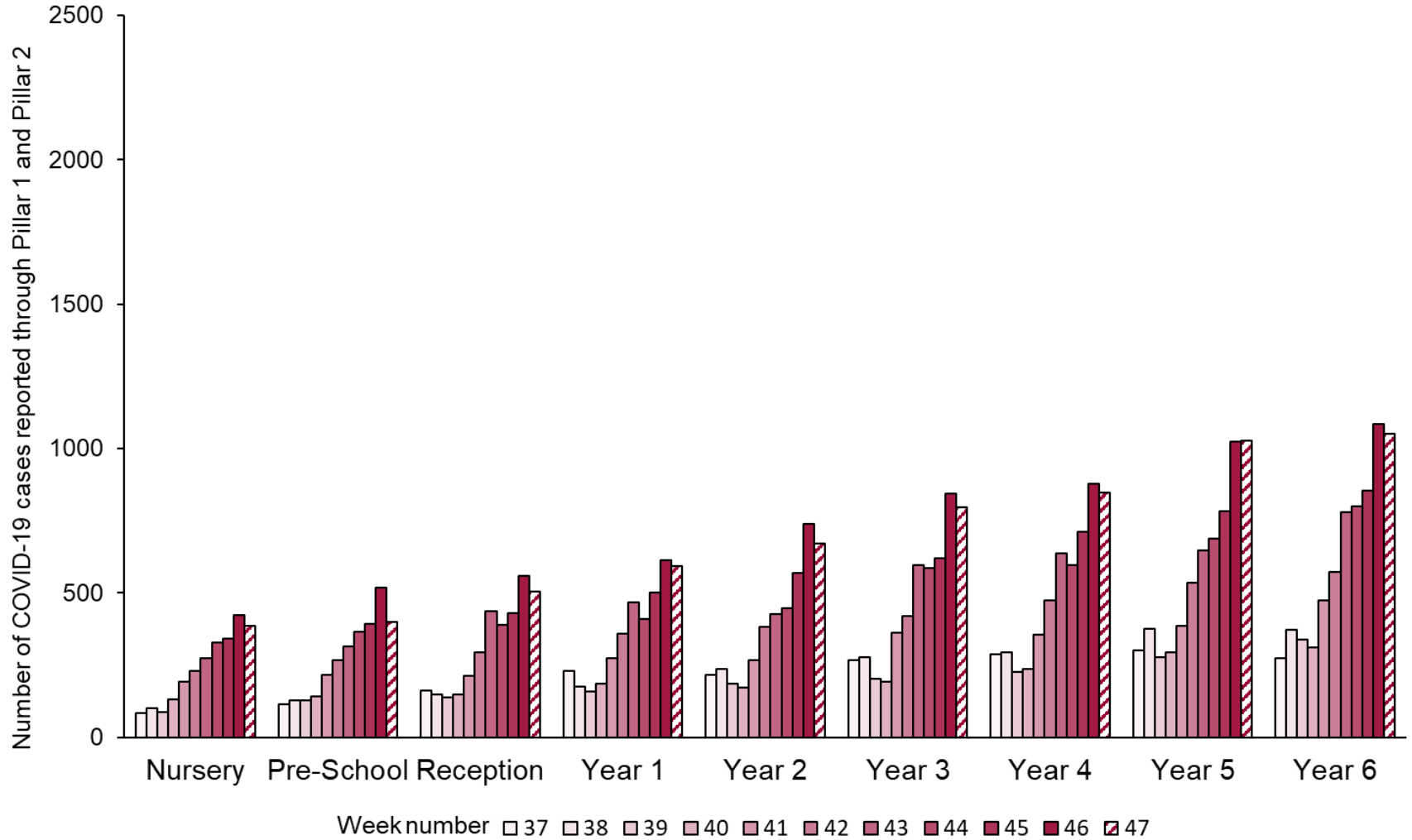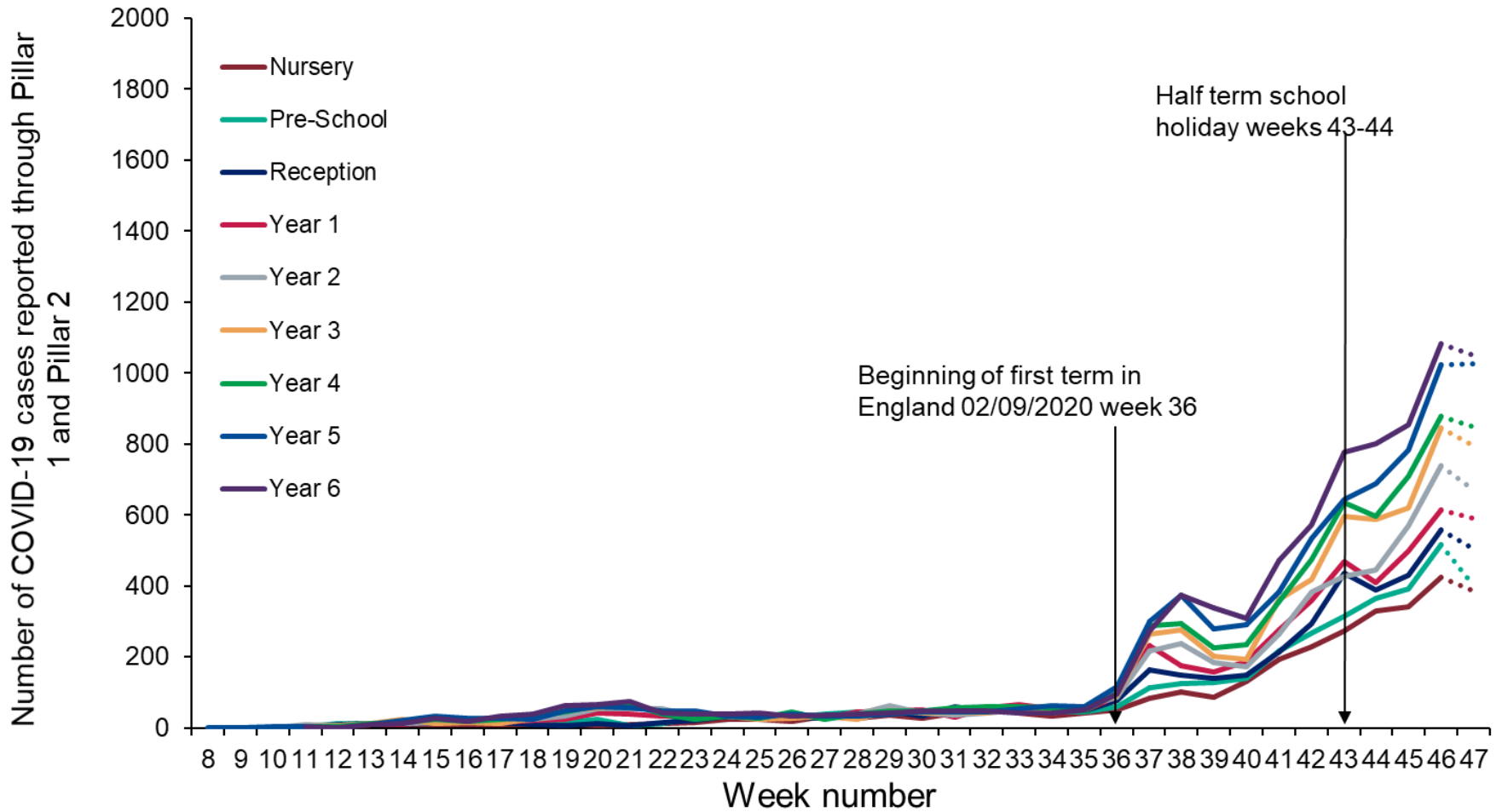
Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts presented by Year group, from nursery to Year 6, week 37 to 47
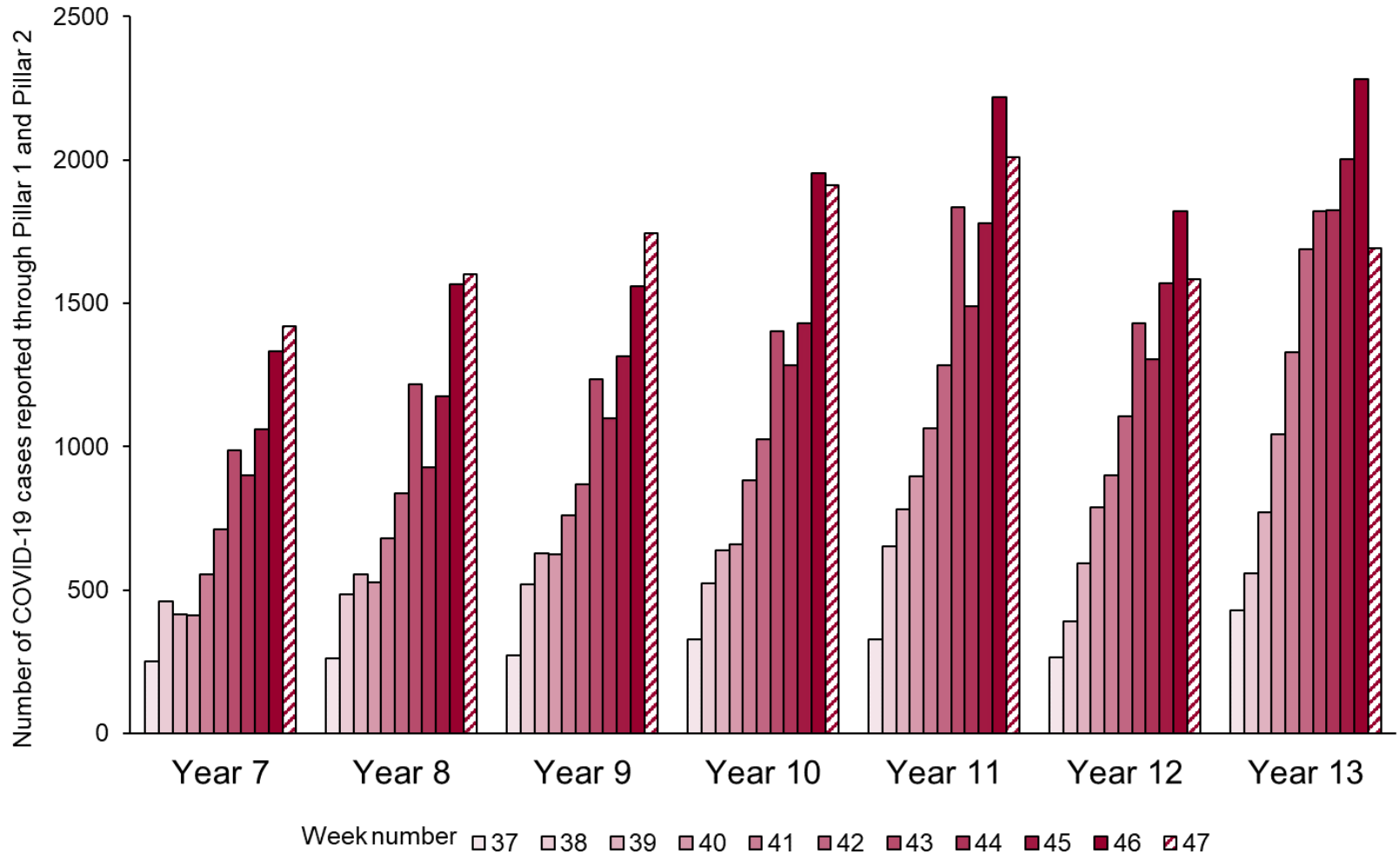
26 November 2020

Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts presented by Year group, from nursery to Year 6
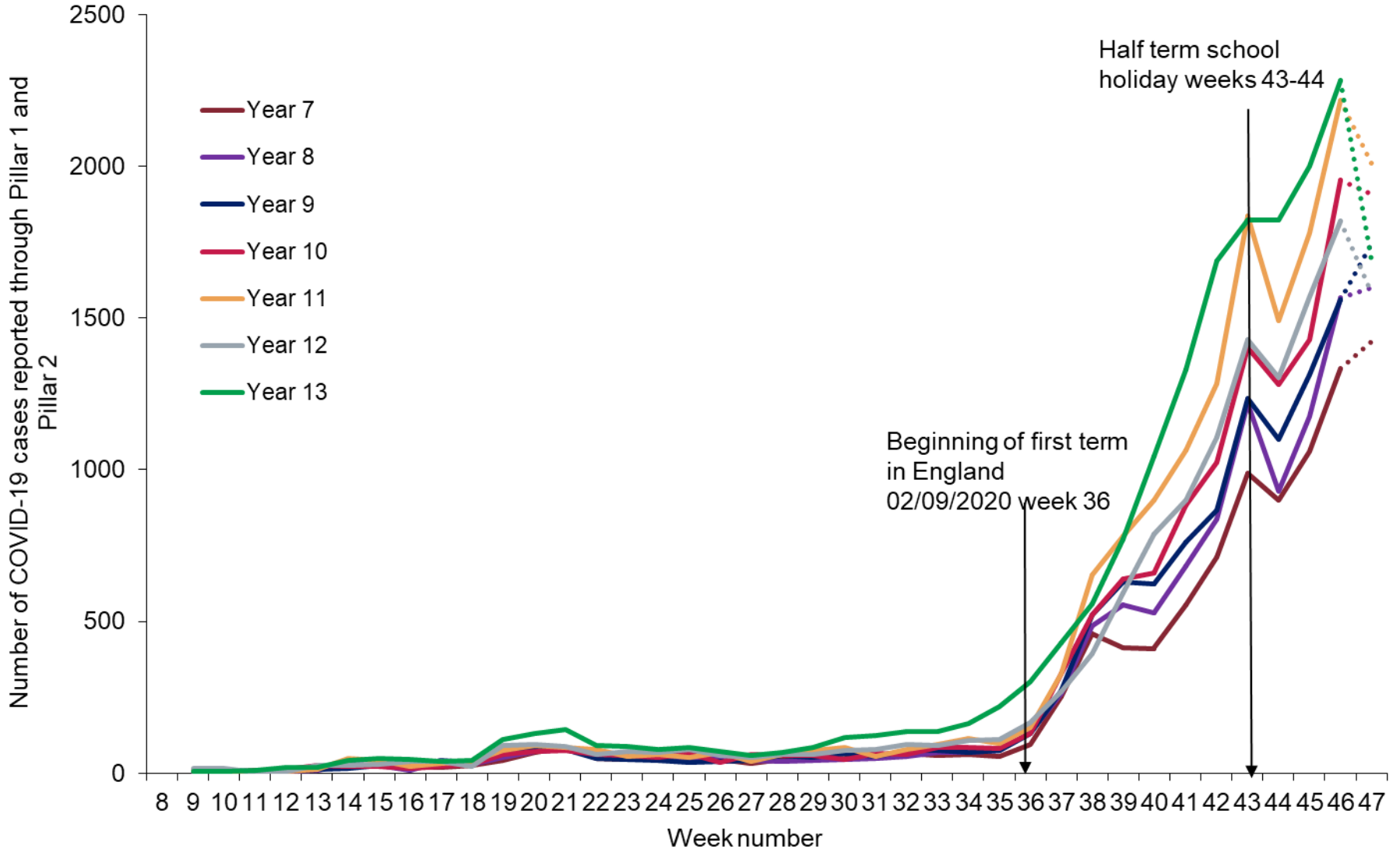
Weekly number of new laboratory confirmed COVID-19 cases in educational age groups presented by secondary school year groups (Year 7 to Year 13), week 37 to 47

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

Weekly number of new laboratory confirmed COVID-19 cases in educational age cohorts corresponding to university/college year groups, week 37 to 47

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

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Weekly number of new laboratory confirmed COVID-19 cases by educational age cohorts and PHE region, week 37 to 47

Weekly positivity rates of confirmed COVID-19 cases in educational age cohorts presented by Year group, from nursery to Year 6, week 37 to 47

Public Health England

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Weekly positivity rates of confirmed COVID-19 cases in educational age cohorts presented by secondary school year group (Year 7 to Year 13), week 37 to 47

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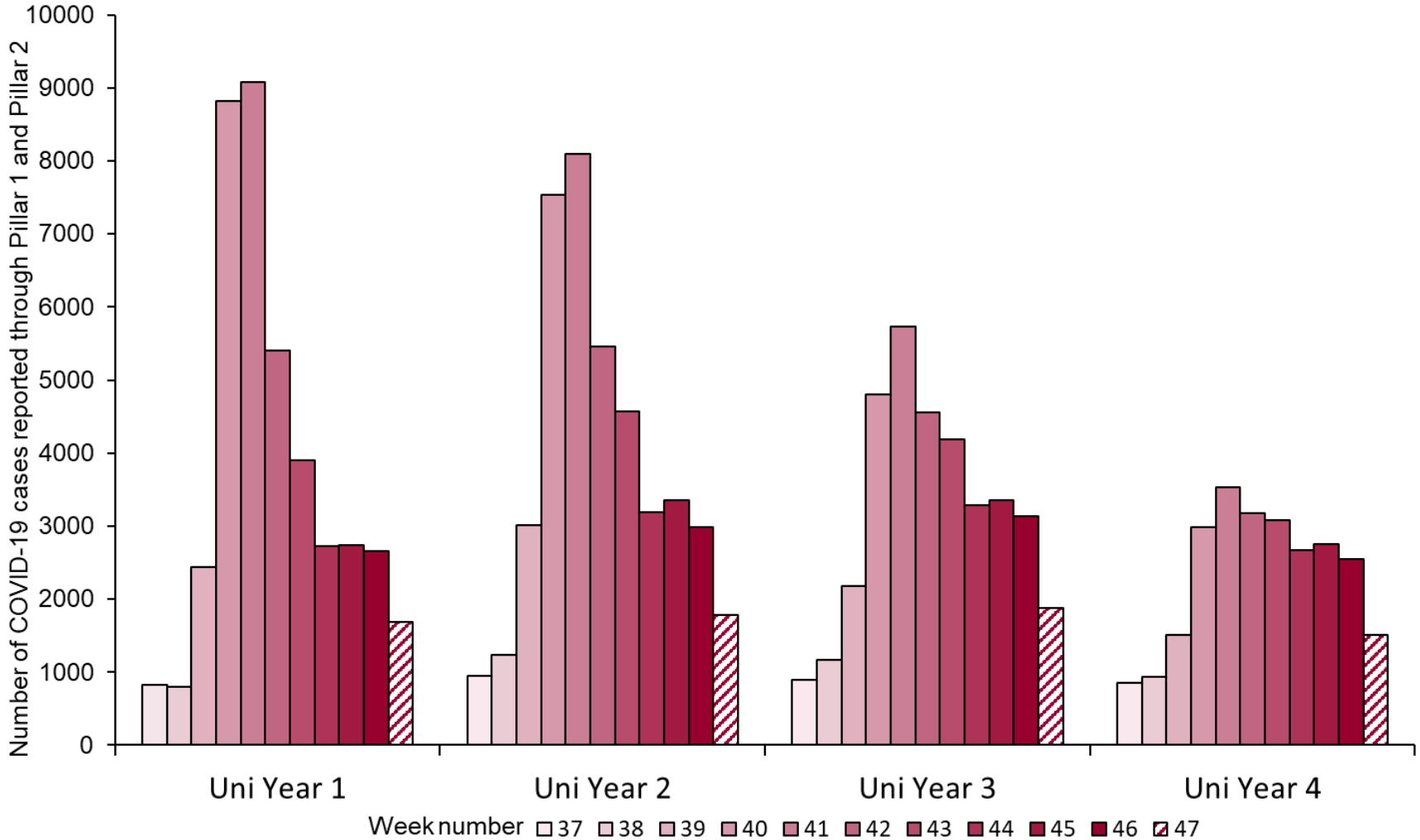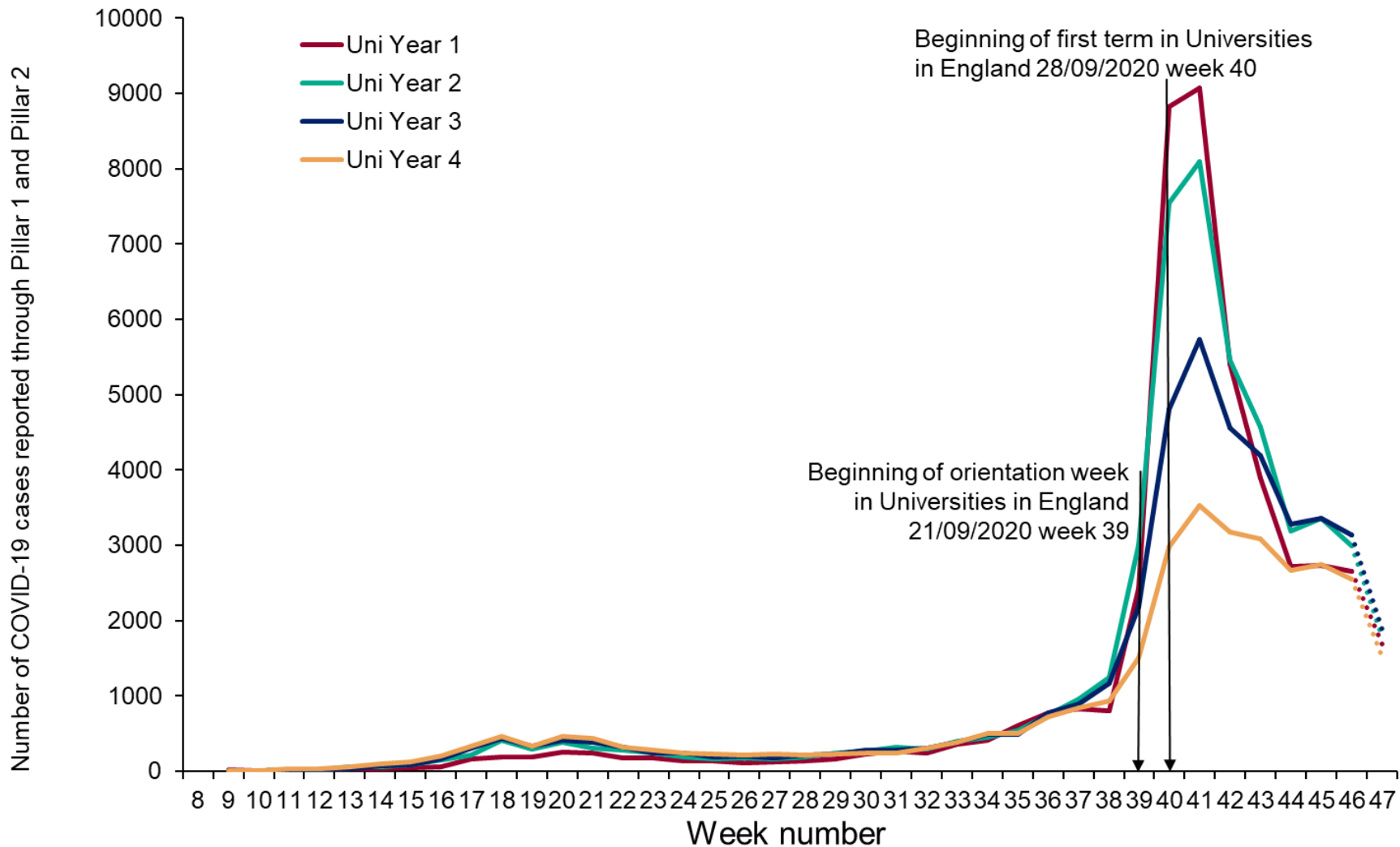
Weekly positivity rates of confirmed COVID-19 cases in educational age cohorts corresponding to university/college year groups, week 37 to 47
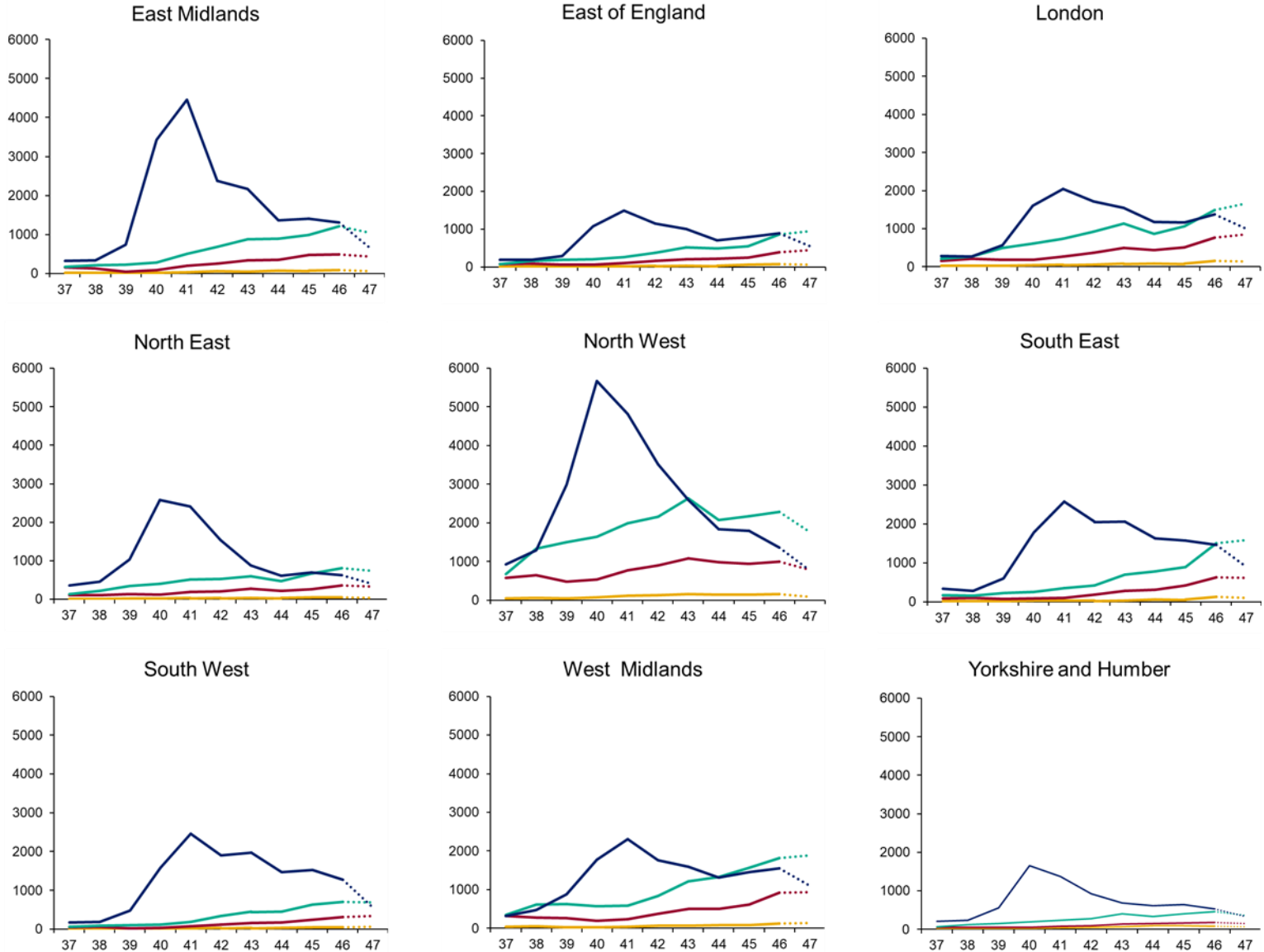
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Weekly positivity rates of confirmed COVID-19 cases, in nursery/preschool, primary school, secondary school and college/University age cohorts, week 37 to 47

Public Health England

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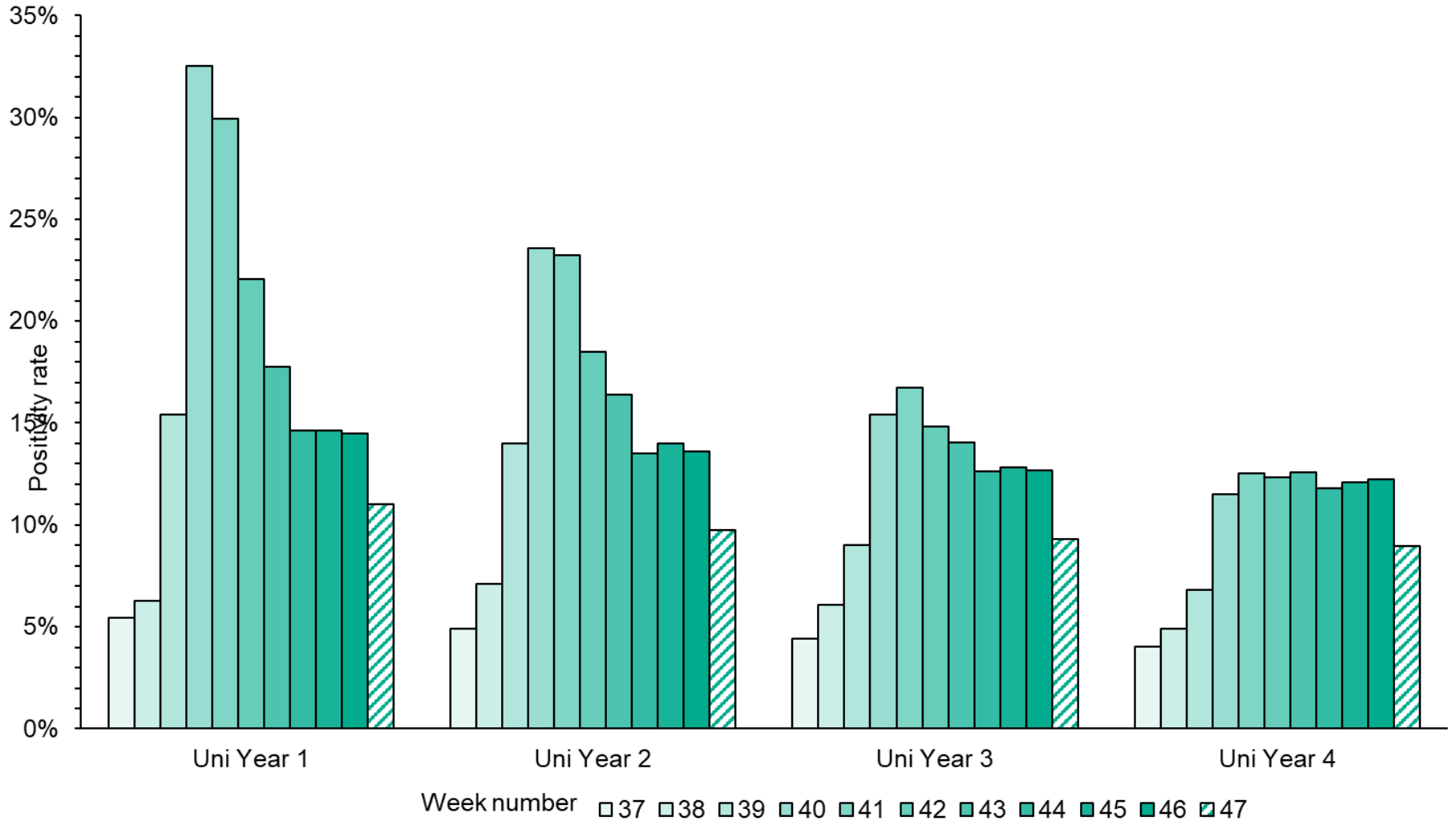
Weekly rate of new COVID-19 tests performed per 100,000 population in nursery/preschool, primary school, secondary school and college/University age cohorts, week 37 to 47
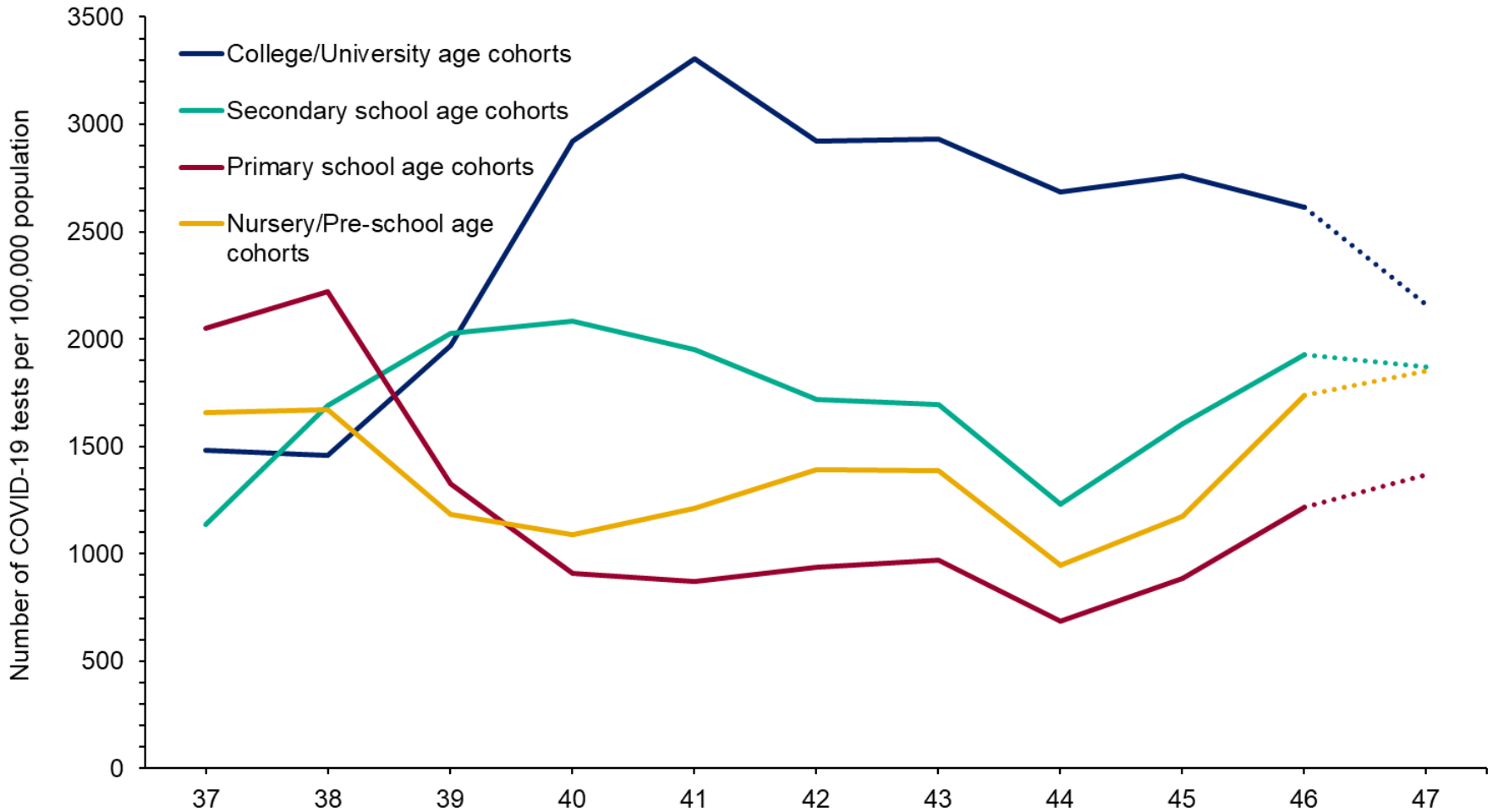
Primary care surveillance

Overall SARS-CoV-2 positivity (%) (weekly) by PHE Region, England (RCGP)
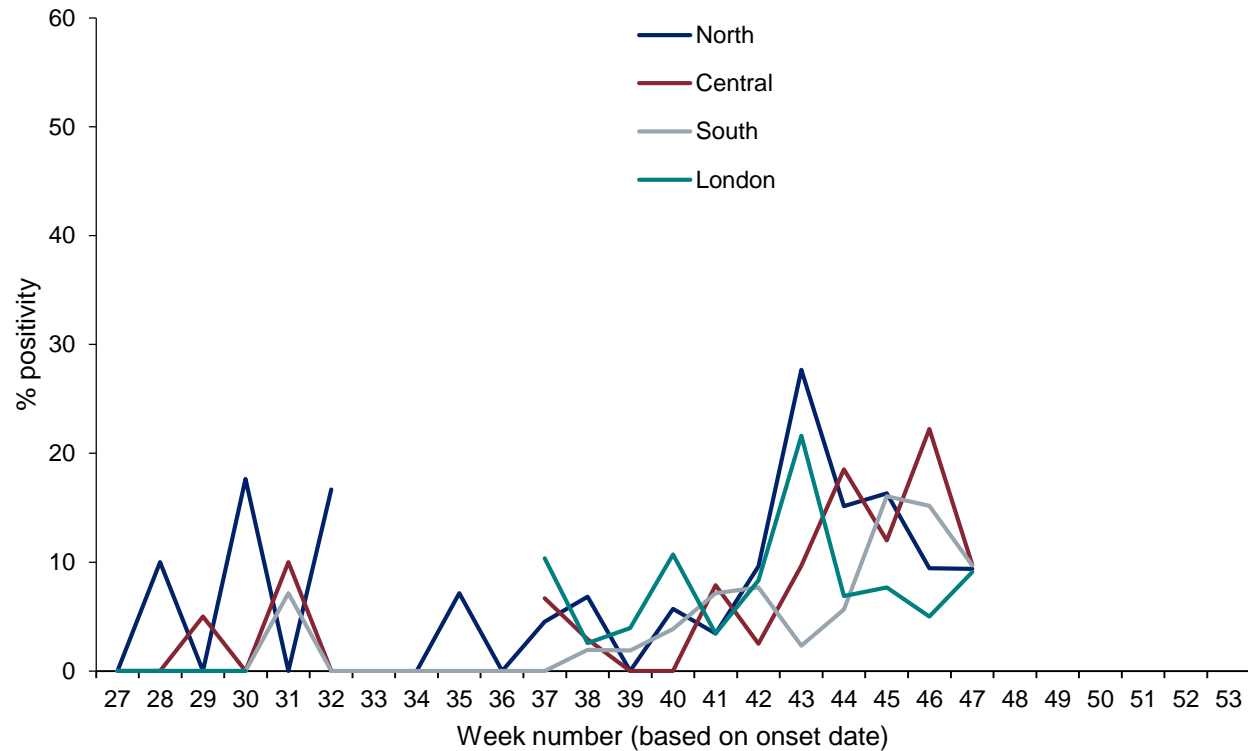
For the most recent week, more samples are expected to be tested therefore the graph should be interpreted with caution.

Positivity (%) is not calculated when the total number tested is less than 10

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Overall SARS-CoV-2 positivity (%) (weekly) by age group, England (RCGP)
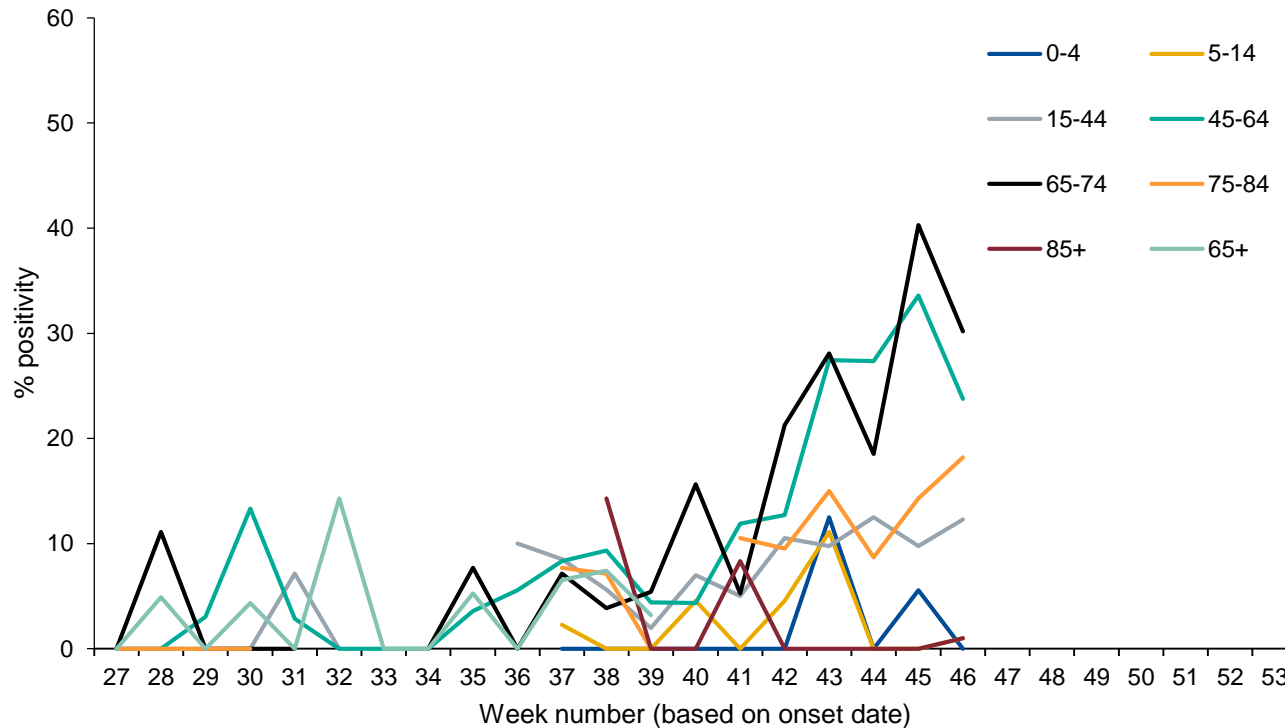
For the most recent week, more samples are expected to be tested therefore the graph should be interpreted with caution.

Positivity (%) is not calculated when the total number tested is less than 10

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Secondary Care surveillance

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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
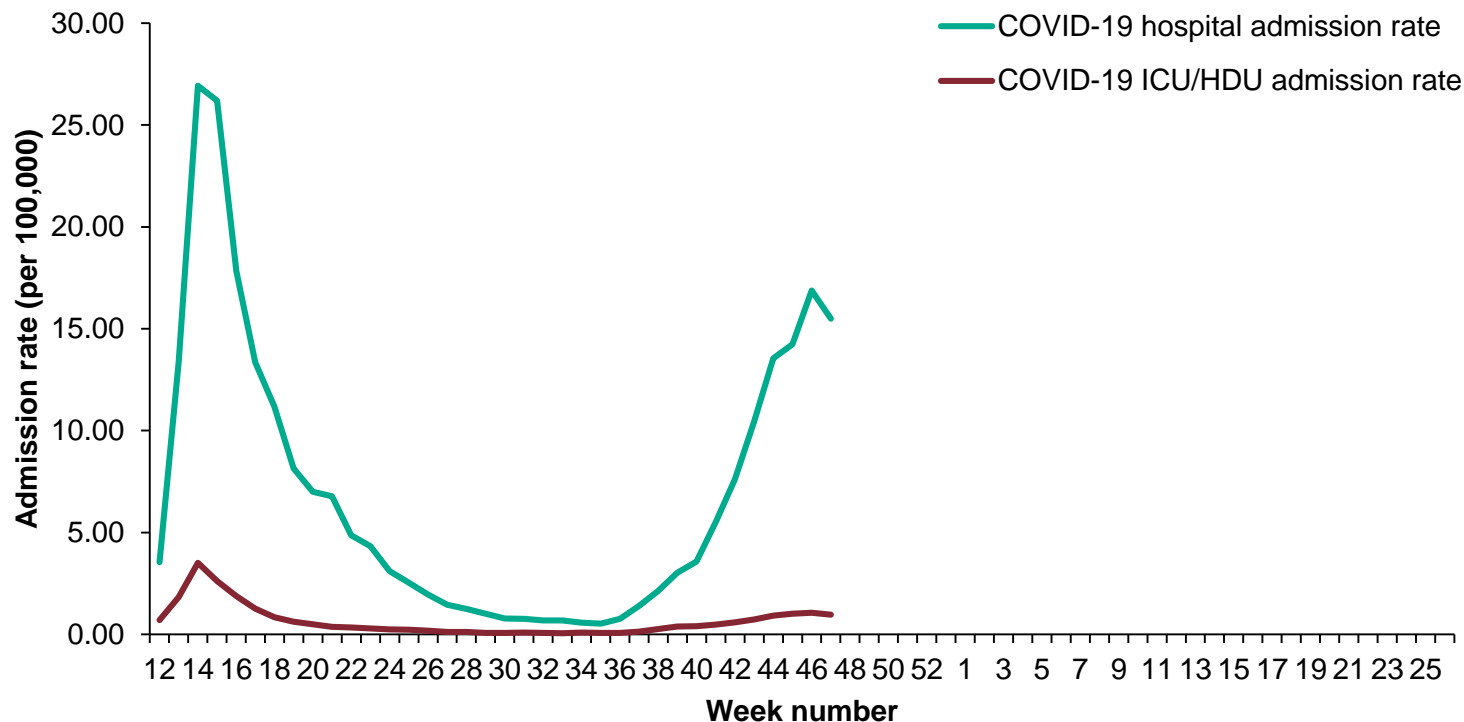
Weekly admission rates for hospital and ICU/HDU laboratory confirmed COVID-19 cases reported through SARI Watch, week 47

Hospital admissions of lab confirmed COVID-19 (Rate per 100,000 trust population)
- 0-9.99
- 10-19.99
- 20-29.99
- 30-39.99
- 40-49.99
- 50+
- No Data

Local Authority

ICU/HDU admissions of lab confirmed COVID-19 (Rate per 100,000 trust population)
- 0-0.49
- 0.5-0.99
- 1-1.99
- 2-2.99
- 3+
- No Data

Local Authority
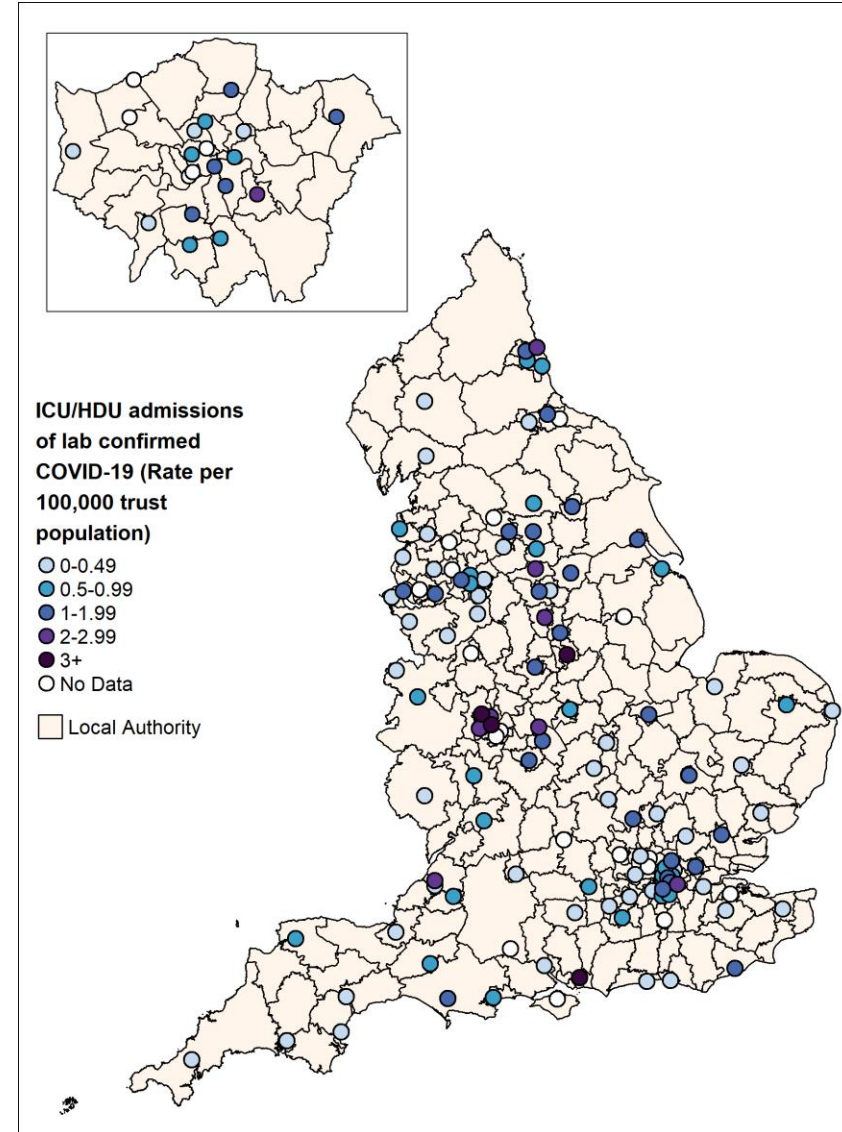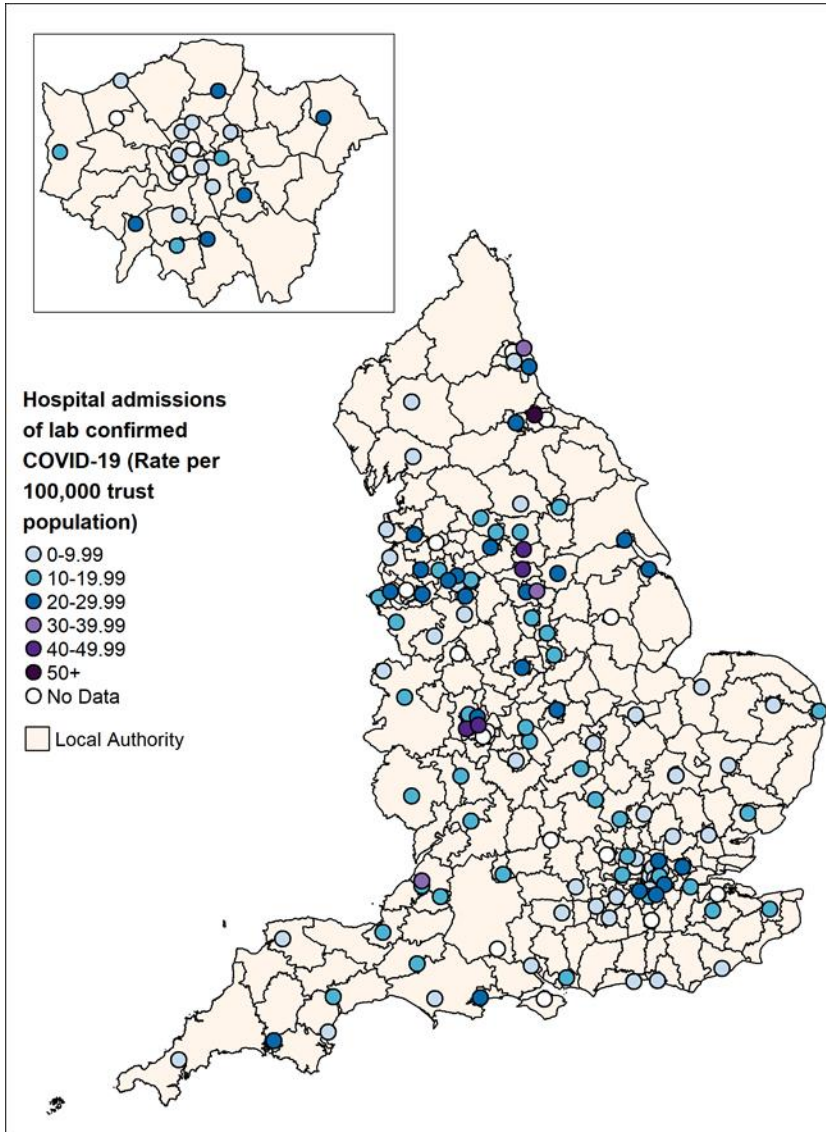
Age/sex pyramid of new (a) hospital (lower level of care) (n=22,594) and (b) ICU/HDU (n=9,760) COVID-19 cases reported through SARI Watch, England
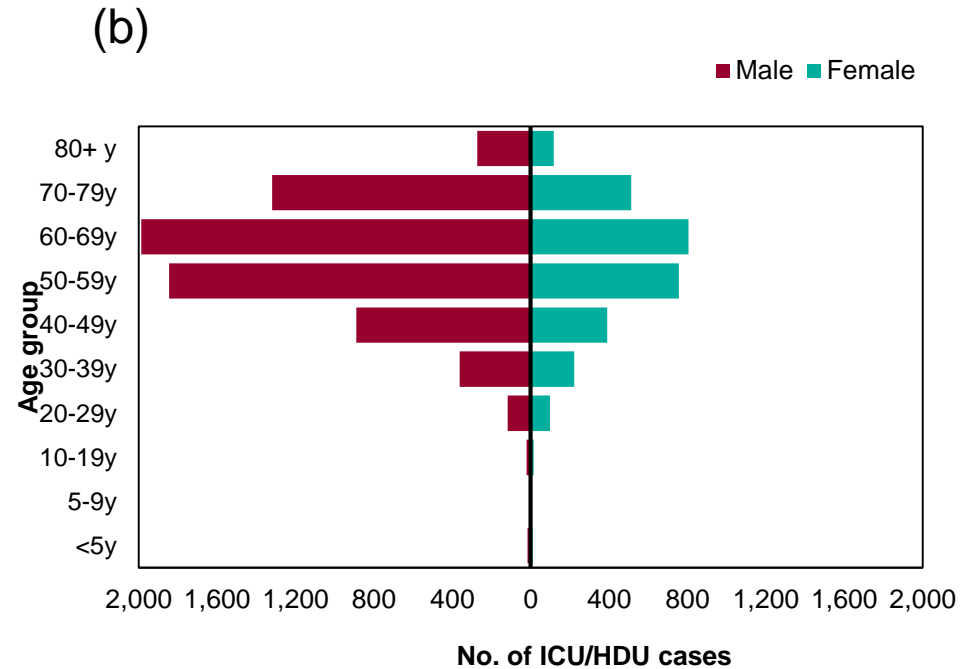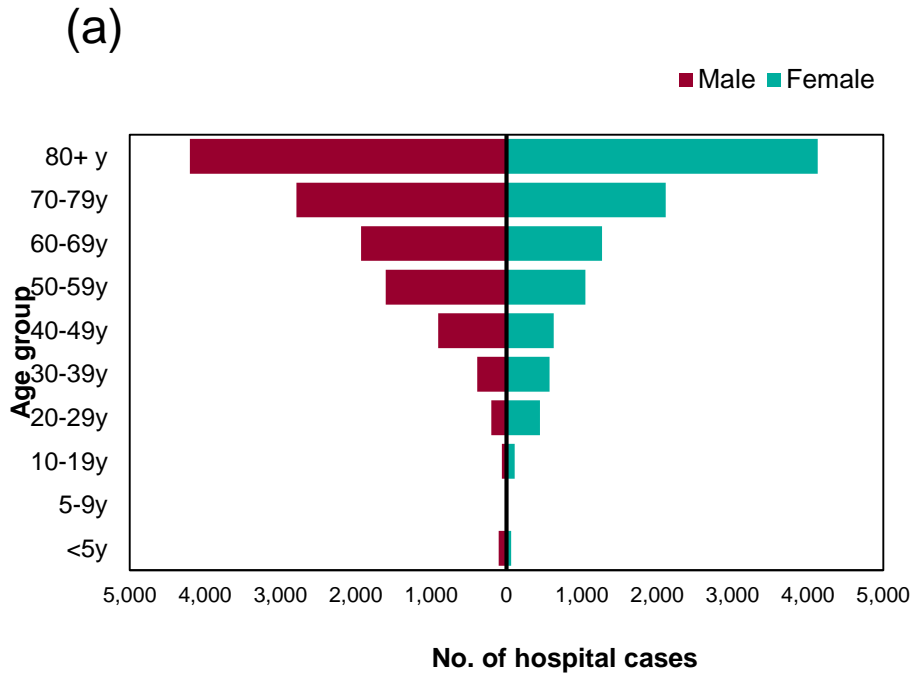
(a)

(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.

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Ethnic group of new hospitalisations (lower level of care) (n=21,779) and ICU/HDU (n=9,054) COVID-19 cases reported through SARI Watch, England
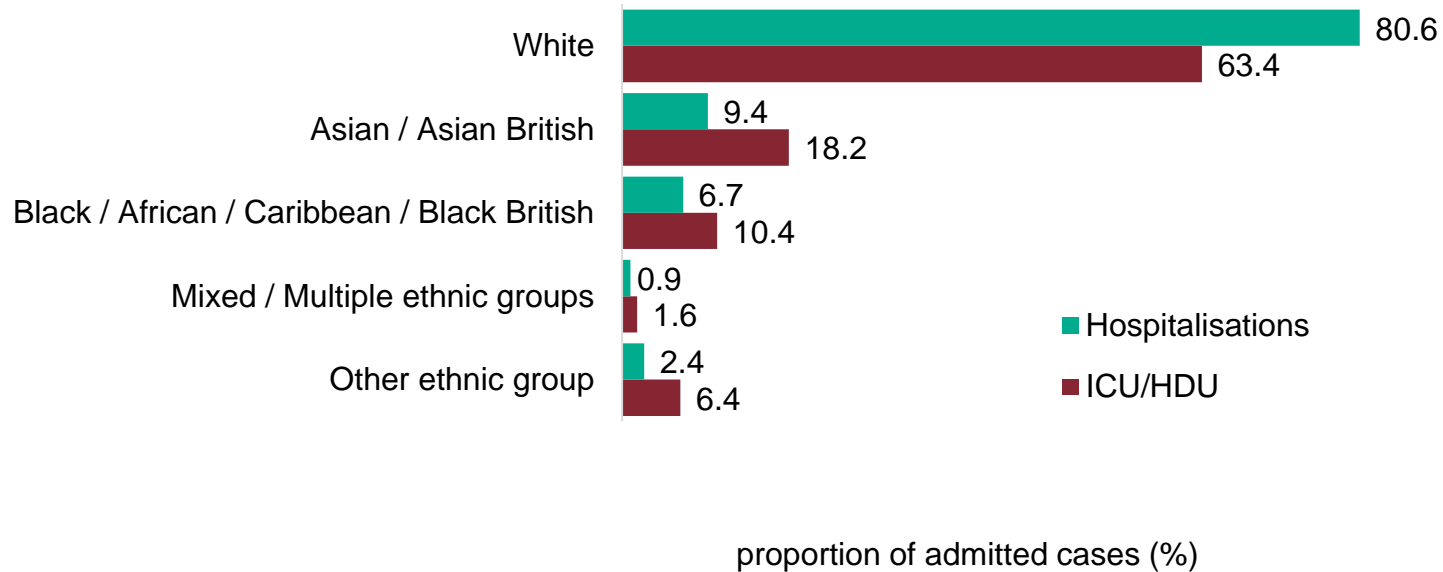
Public Health England

Ethnic group	Hospitalisations	ICU/HDU
White	80.6	63.4
Asian / Asian British	9.4	18.2
Black / African / Caribbean / Black British	6.7	10.4
Mixed / Multiple ethnic groups	0.9	1.6
Other ethnic group	2.4	6.4

proportion of admitted cases (%)

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.

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Weekly COVID-19 hospitalisation rate per 100,000 trust catchment population by age group and region, weeks 38-47

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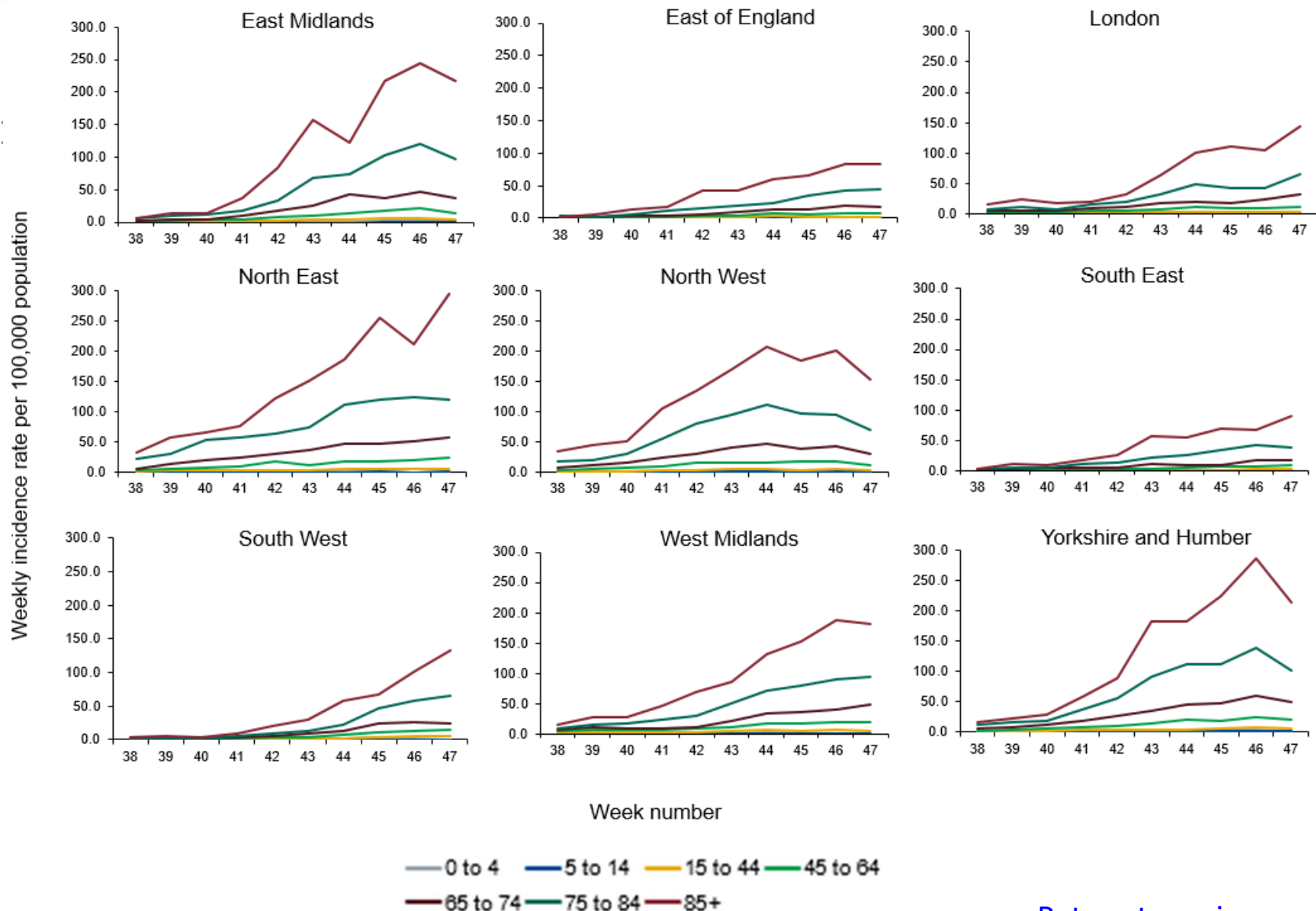
Mortality surveillance

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

Public Health England

- 28 day definition (N = 48,834)
- 60 day definition (N = 53,545)

Number of deaths (y-axis)
Week of death (x-axis)

26 November 2020
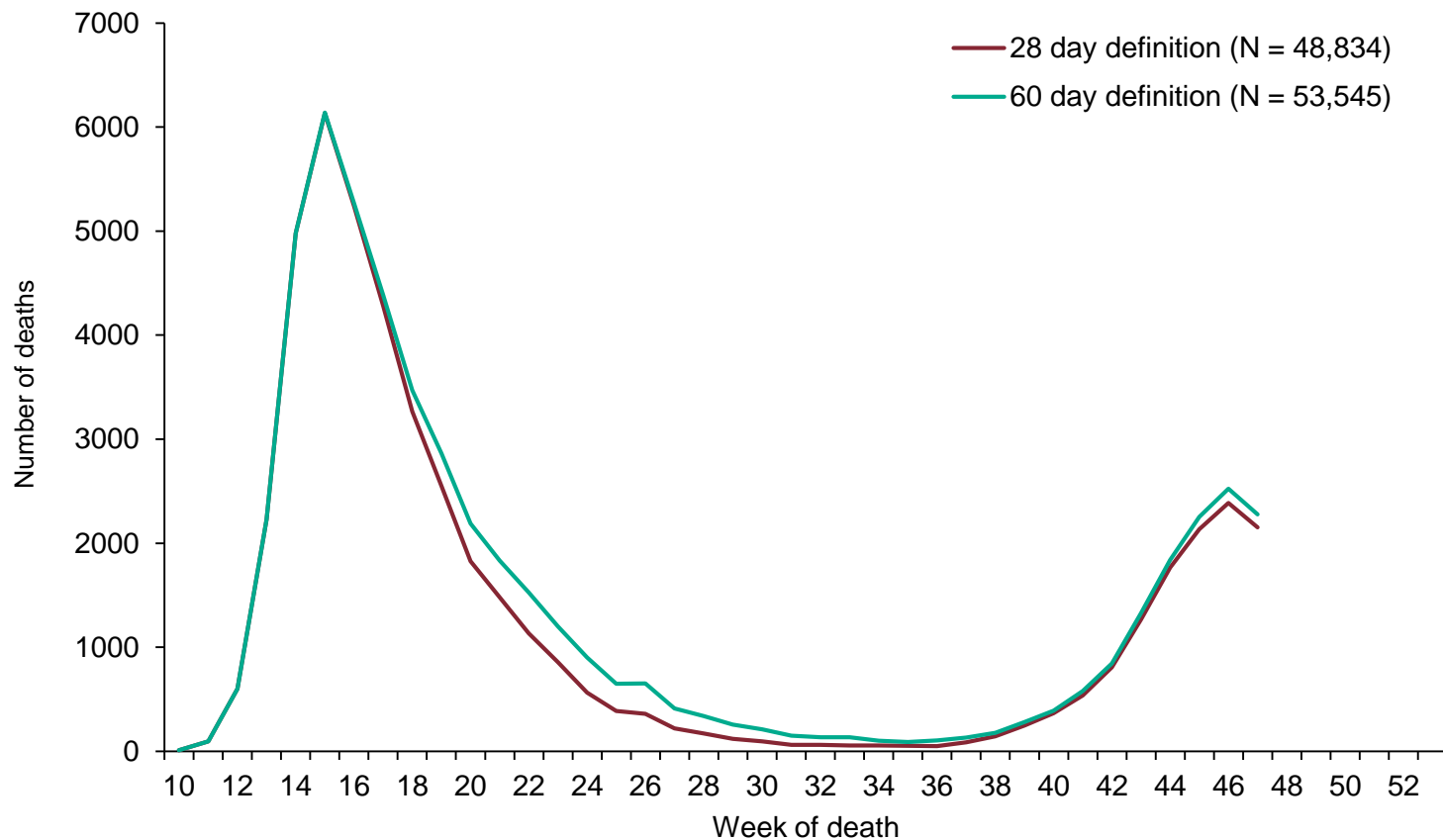
Cumulative mortality rate of COVID-19 cases per 100,000 population tested under Pillar 1 and 2 since week 27 by (a) 28 day definition and (b) 60 day definition

Public Health England

(a)

London Detail

Cumulative COVID-19 mortality rate
29 June to 24 November (28 day)
- No mortality
- 0.01 - 5.49
- 5.50 - 8.99
- 9.00 - 14.99
- 15.00 - 26.99
- 27.00 - 39.99
- ≥ 40.00
- Data Suppressed

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(b)

London Detail

Cumulative COVID-19 mortality rate
29 June to 24 November (60 day)
- No mortality
- 0.01 - 5.49
- 5.50 - 8.99
- 9.00 - 14.99
- 15.00 - 26.99
- 27.00 - 39.99
- ≥ 40.00
- Data Suppressed

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From this report onwards, rates have been calculated using mid-2019 ONS population estimates

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COVID-19 sero-prevalence surveillance

Sero-prevalence in adults in the RCGP collection

Prevalence was estimated from samples from patients aged between 18 and 100 years old, who had a routine blood test via the Royal College of General Practioners Research and Surveillance Centre (RCGP-RSC) network during the period 1st May – 12th October.

Population weighted (by NHS region and age group) seropositivity estimates for adults from the RCGP collection were 4.1% (95% CI 3.1%-5.3%) in May/June increasing to 5.2% (95% CI 5.5%-6.1%) for samples collected from July-August and 5.7% (95% CI 4.7-7.1%) as measured by the EuroImmun assay. The most recent estimate from testing of the RCGP samples is thus almost identical to the national seropositivity estimated from blood donors in September/October.

Time period	Positive	Ind	Negative	Total	Population weighted % positive (95% CI)
EuroImmun					
May to June	164	24	5259	5447	4.1% (3.1 - 5.3%)
July to August	248	36	5492	5776	5.2% (4.5 - 6.1%)
September to October	154	23	2793	2970	5.7% (4.7 - 7.1%)

Sero-prevalence in adults in the RCGP collection

Linked additional RCGP information was available for 8051 individual patients whose sample was collected at their GP during a consultation for a routine blood test via the Royal College of General Practioners Research and Surveillance Centre (RCGP-RSC) network during the period May to October 2020 for adults over 18 years.

Seropositivity was 26.1% (95% CI 18.4%-35.8%) in black ethnicities compared to 4.6% (95% CI 3.7%-5.7%) in white ethnicities when tested using the Euroimmun assay. Asian ethnicities also showed a slightly higher seropositivity when compared to white ethnicities with a seropositivity of 11.1% (95% CI 7.2%-16.7%).
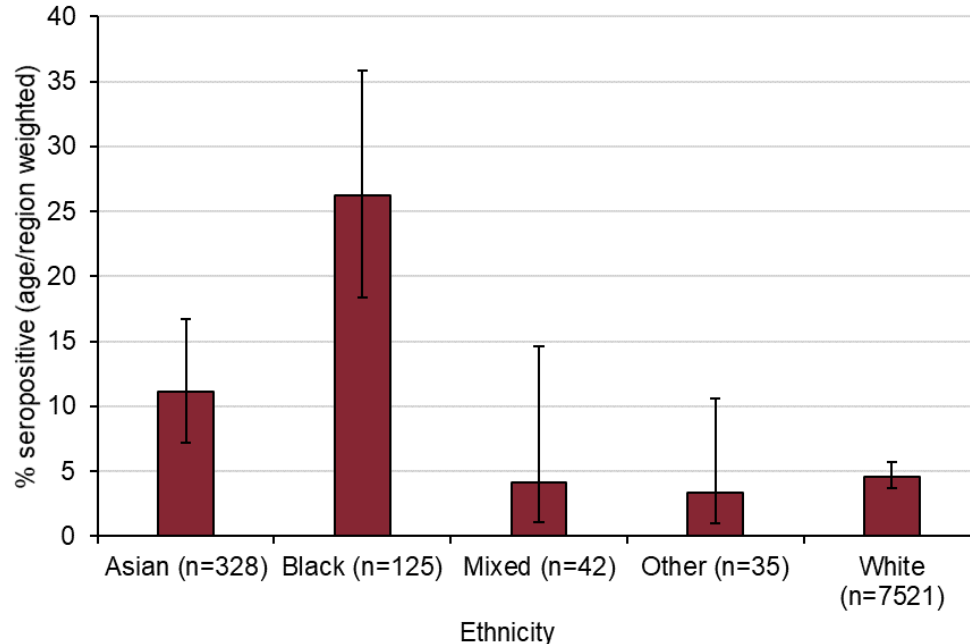
The graph above represents seropositivity (age/region weighted) by ethnicity using the EuroImmun assay, May to October 2020

26 November 2020

Co/secondary infections with COVID-19

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

- Caveat - a limited number of COVID-19 cases are tested for other respiratory viruses therefore data could represent an underestimate of co/secondary infection cases. Due to the low number of cases data is representative of January to October 2020 unless stated.

- 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 requiring Extra Corporeal Membrane Oxygenation (ECMO) which are those with the most severe respiratory signs. Analysis of ECMO cases indicates co/secondary infections account for just less than a third of respiratory infection cases.

- Preliminary data analysis from the first pandemic wave (health care associated infections, *Streptococcus pneumoniae*, influenza, ECMO data) to end of September 2020 indicates that patients requiring ECMO and those not requiring ECMO with co/secondary infection have increased risk of mortality in comparison to patients without co/secondary infection.

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

Based on data including the first wave from week 10 (week beginning 2 March 2020) to week 46 (week ending 15 November) 2020 is included:

- 32% (117/364) 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

- 32% (86/268) of patients with COVID-19 had co/secondary infections). Of these 86 cases, the most frequent co/secondary infections in COVID-19 cases were Gram-negative bacilli and fungi, accounting for 64% (55/86).

Co/secondary infections among patients with Healthcare Associated Infections: Blood stream and respiratory infections (bacterial and fungal, COVID-19 cases up to September 3rd)

- 1.6% of COVID-19 patients had a bacterial/fungal infection at or within 28 days following their COVID-19 diagnosis: 0.5% respiratory infection; 0.9% bloodstream infection.

- Most (71%) of co/secondary infections were categorised as secondary infections.

- Most frequent species identified from respiratory co/secondary infection isolates were Staphylococcus aureus, followed by Pseudomonas aeruginosa, Klebsiella pneumoniae and Haemophilus influenzae.

- Most frequent species identified from blood co/secondary infection isolates were Escherichia coli, followed by Enterococcus faecium, Klebsiella pneumoniae and Staphylococcus aureus.

- Co-infections occur more frequently in the elderly (>70 years; 66% of co-infections)

- Secondary infections occurred more frequently in the 50 to 70years age groups (46% secondary infections)

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

Bacteria/Fungi	Cases per Month										Total Cases 24.10.2020
	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	
Influenza A	0	0	28	5	0	0	0	0	0		33
Influenza B	0	0	10	3	0	0	0	0	0		13
Influenza A & B	0	0	1	0	0	0	0	0	0		1
Flu (not typed)	0	0	1	0	0	0	0	0	0		1
Parainfluenza (any subtype)	0	3	10	1	0	0	0	0	0		14
Seasonal coronavirus	0	6	41	56	8	0	0	0	0		111
Enterovirus	0	2	1	2	0	0	0	0	0		5
Adenovirus	0	2	11	0	0	0	0	0	0		13
Rhinovirus	0	21	68	7	1	0	0	1	0		98
RSV	0	5	17	1	0	0	0	0	0		23
Human metapneumovirus	0	3	34	8	0	0	1	0	0		55
Aspergillus fumigatus ISOLATES (azole resistant)	0	0	5 (1)	30 (3)	10	1	0	1	2	1	50 (4)
Probable/Proven cases of CAPA	0	0	1	8	3	3	0	0	1	0	16
Bordetella pertussis	0	0	0	0	0	0	0	0	0	-	0
Candidaspp.:	0	0	1	21	6	1	0	0	0	0	29
CandidemiaOsteomyelitis/discitis:	0	0	0	0	0	0	0	0	1	0	1
Haemophilus influenzae	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Neisseria meningitidis	0	0	1	1	0	0	0	0	0	-	2
Streptococcus pneumoniae	0	0	16	23	1	0	TBC	TBC	TBC	TBC	TBC

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.
Legionella, mycoplasma and gastrointestinal infection data not included

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