Public Health England

Protecting and improving the nation's health

Weekly national Influenza and COVID-19 surveillance report

Week 38 report (up to week 37 data)
23 September 2021

Executive summary

This report summarises the information from the surveillance systems which are used to monitor Coronavirus Disease 2019 (COVID-19), influenza, and other seasonal respiratory viruses in England. References to COVID-19 represent the disease name and SARS-CoV-2 represent the virus name. The report is based on data from week 37 (between 13 September and 19 September 2021) and for some indicators daily data up to 21 September 2021.

Surveillance indicators suggest that at a national level COVID-19 activity remained stable or decreased in most indicators in week 37 of 2021. Laboratory indicators suggest that influenza activity is very low.

Overall COVID-19 case rates decreased in week 37. Case rates decreased in all regions and in most ethnic groups and age groups, except those aged 5 to 19. Overall Pillar 1 and Pillar 2 positivity remained stable compared to the previous week.

The overall number of reported acute respiratory incidents in the past week decreased compared to the previous week, however there were increases in the number in educational settings. SARS-CoV-2 was identified in the majority of these.

COVID-19 hospitalisations decreased slightly in week 37. Deaths with COVID-19 remained stable in the most recent week.

COVID-19 vaccine coverage was 64.9% for dose 1 at the end of week 37. COVID-19 vaccine coverage was 59.5% for dose 2 at the end of week 37, reaching over 90% in all cohorts over the age of 65 years and over 80% in all cohorts over 50 years.

Seroprevalence data indicates that approximately 97.8% of blood donors aged 17 and over have antibodies to SARS-CoV-2 from either infection or vaccination.

Through Respiratory Datamart, there was 1 influenza positive sample detected in week 37 (influenza B). Other indicators for influenza such as hospital admissions and GP influenza-like illness consultation rates remain very low. Respiratory syncytial virus positivity decreased to 8.3% in week 37, while rhinovirus positivity decreased to 11.5% in week 37. Parainfluenza, adenovirus and human metapneumovirus (hMPV) positivity remained low at 0.7%, 0.9% and 1.0% respectively in week 37.

Contents

Laboratory surveillance

Confirmed COVID-19 cases (England)

As of 9am on 21 September 2021, a total of 6,398,633 first positive cases have been confirmed for COVID-19 in England under Pillars 1 and 2, since the beginning of the pandemic.

Overall COVID-19 case rates decreased in week 37. Case rates decreased in all regions and in most ethnic groups and age groups, except those aged 5 to 19. Overall Pillar 1 and Pillar 2 positivity remained stable compared to the previous week.

From the week 32 report onwards, case rates have been updated to use the latest ONS population estimates for mid-2020. Previously case rates were calculated using the mid-2019 population estimates. Rates by ethnicity and IMD quantile will continue to be presented using the mid-2019 estimates, until the mid-2020 estimates become available.

Please note that positivity is presented as positivity by Polymerase Chain Reaction (PCR) testing only, unless otherwise stated (for example figure 2).

Changes to testing policies over time may impact on positivity rates.

Figure 1: Confirmed COVID-19 cases tested under Pillar 1 and Pillar 2, based on sample week with overall weekly PCR positivity for Pillars 1 and 2 (%)
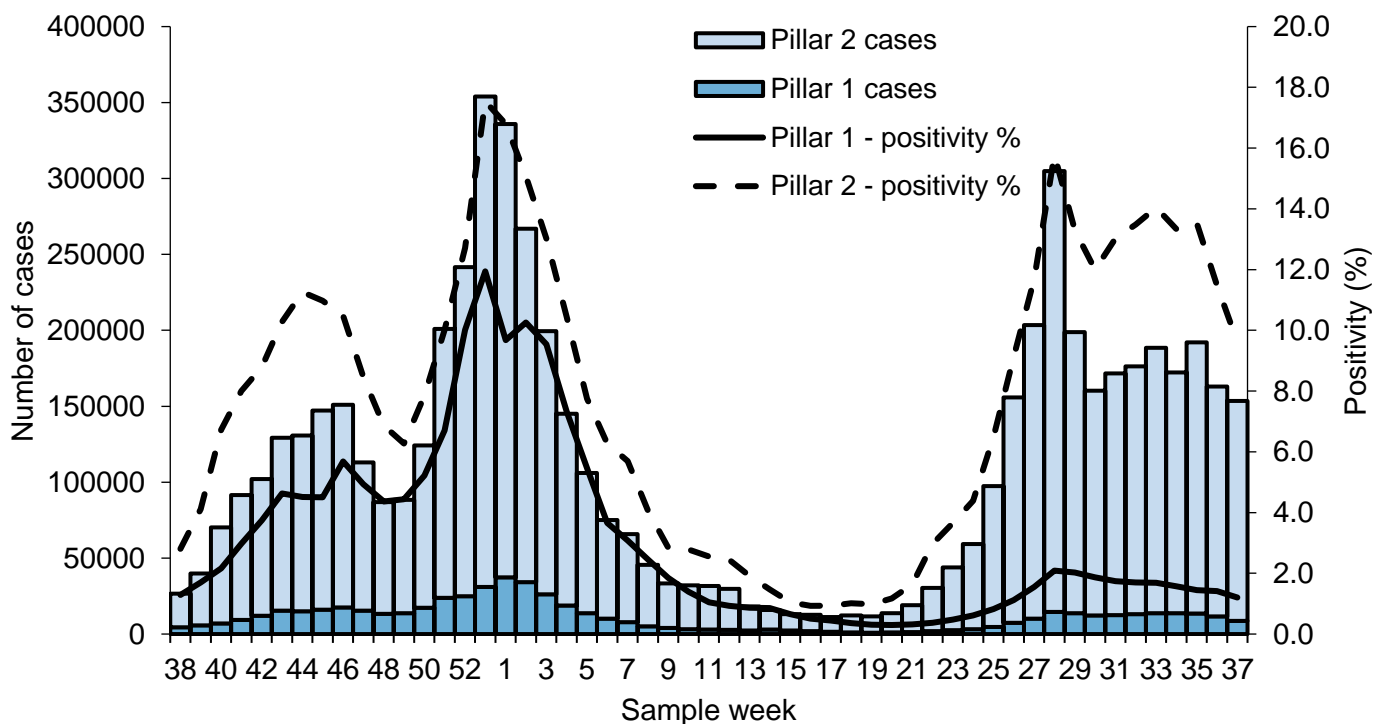
* The data are shown by the week the specimen was taken from the person being tested. This gives the most accurate analysis of this time progression, however, for the most recent week results for more samples are expected therefore this should be interpreted with caution
* Positivity (excluding Figure 2) is calculated as the number of individuals testing positive during the week divided by the number of individuals tested during the week through Polymerase Chain Reaction (PCR) testing
* Data source: Second Generation Surveillance System (SGSS)

Figure 2: Weekly positivity (%) of confirmed COVID-19 and number of individuals tested by type of test, under Pillar 1 and 2
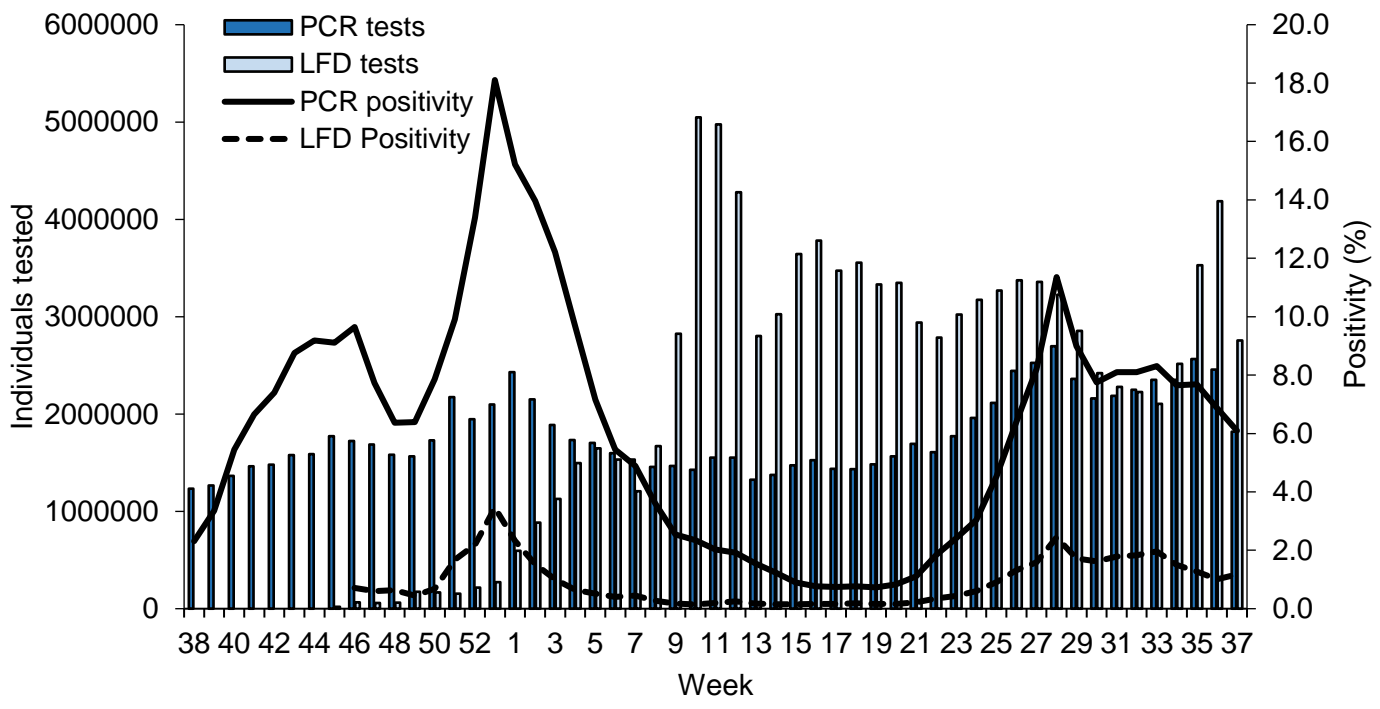
* For Figure 2 positivity is calculated as the number of individuals testing positive using a specific test type during the week, divided by the number of individuals tested using that specific test type during the week
* Please note that an individual may appear under both PCR and LFD tests if they have been tested using both test types in a given week

Age and sex

Figure 3: Age-sex pyramids for confirmed COVID-19 cases tested under Pillars 1 and 2 in weeks 36 and 37 (n=315,002)
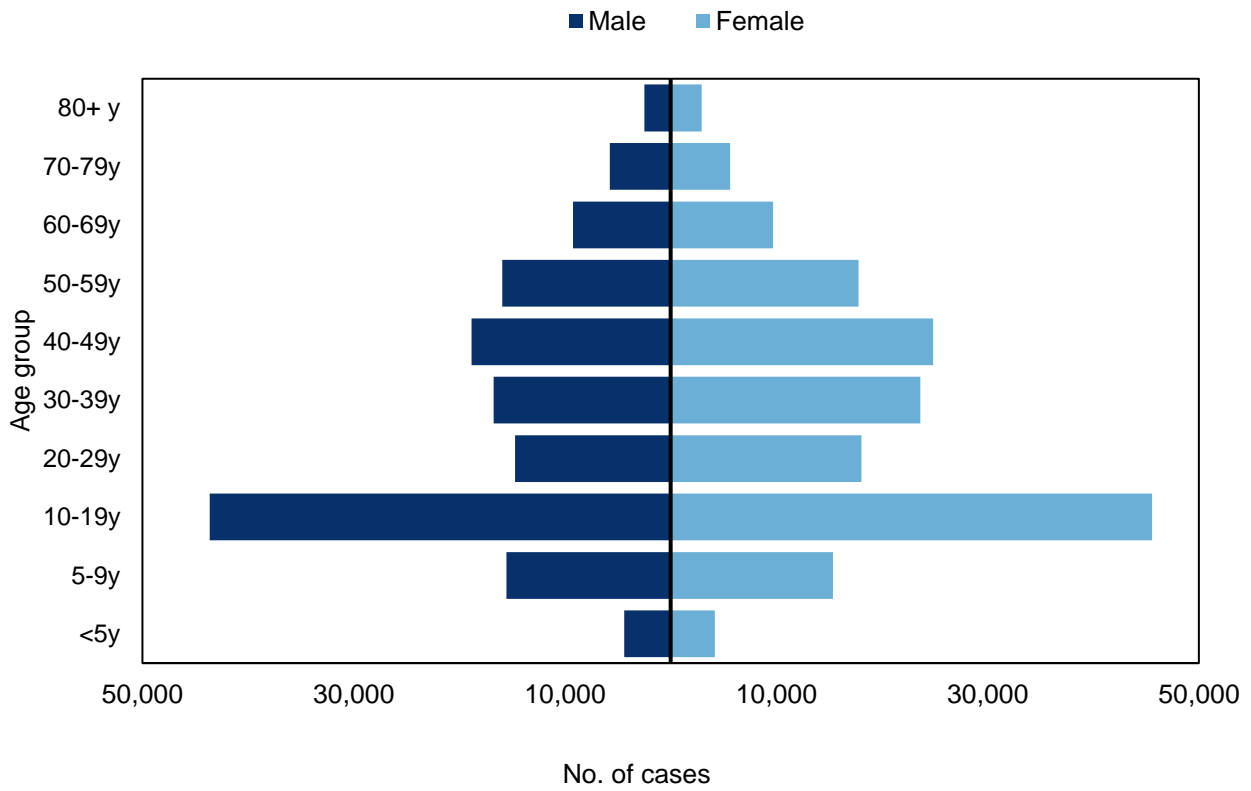
Figure 4: Weekly confirmed COVID-19 case rates per 100,000, tested under Pillar 1 and Pillar 2, by sex
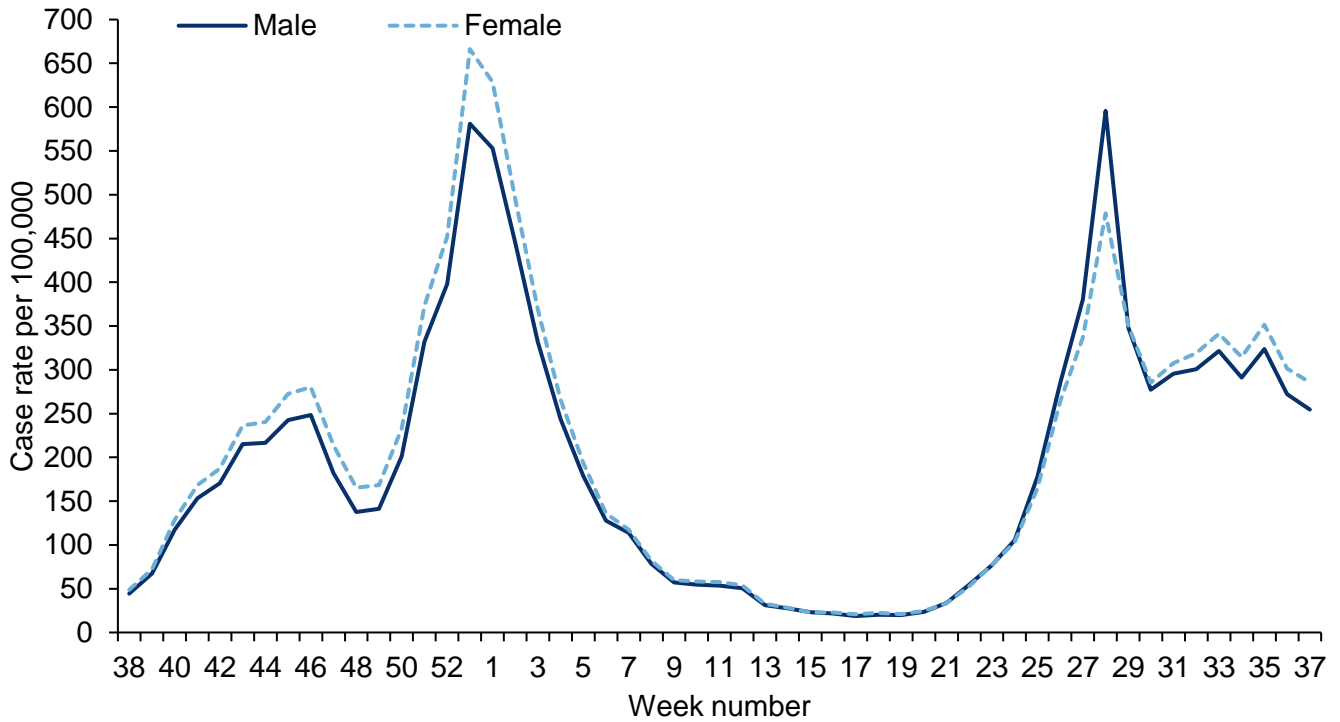
Figure 5: Weekly confirmed COVID-19 case rates per 100,000, tested under Pillar 1 and Pillar 2, by age group

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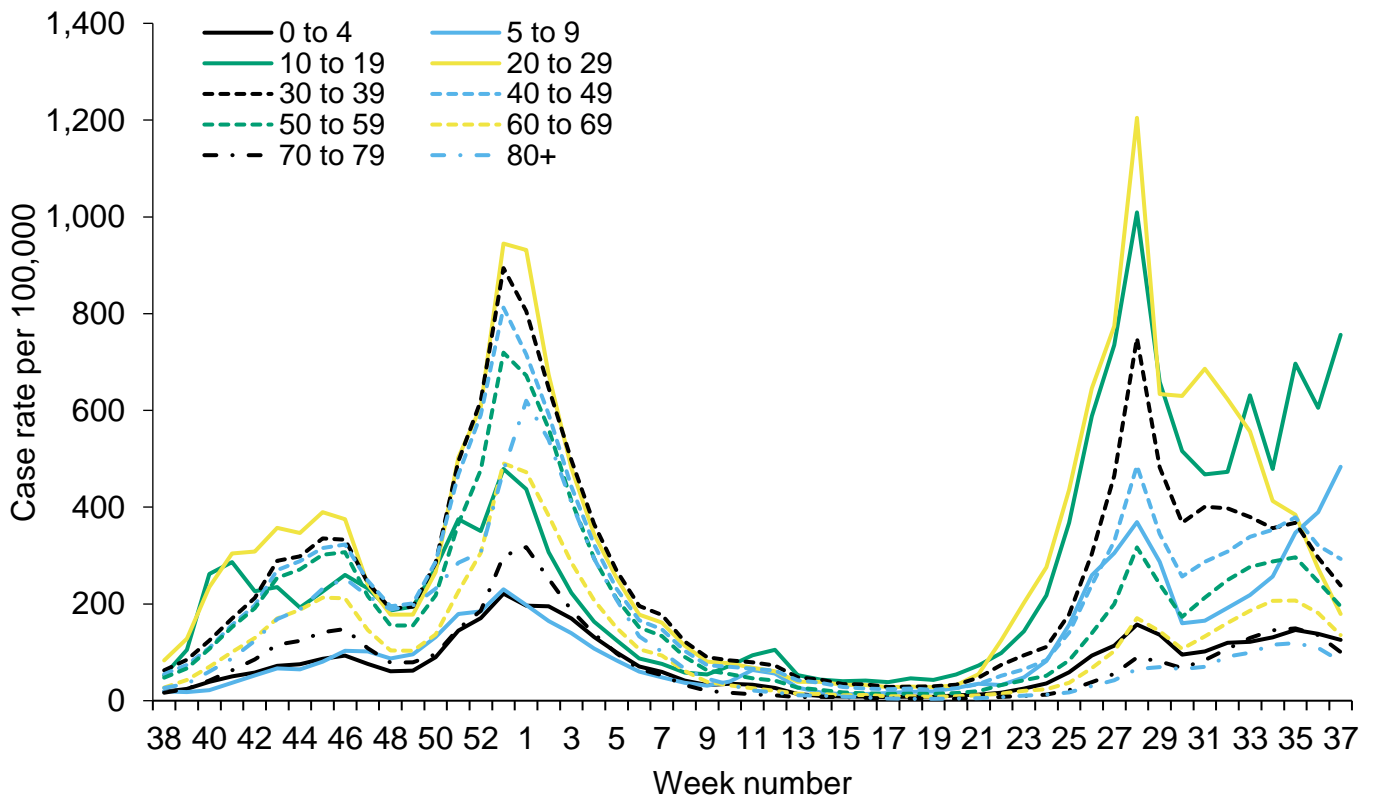
Figure 6: Weekly PCR positivity (%) of confirmed COVID-19 cases tested overall and by sex under (a) Pillar 1 and (b) Pillar 2

(a)

(b)

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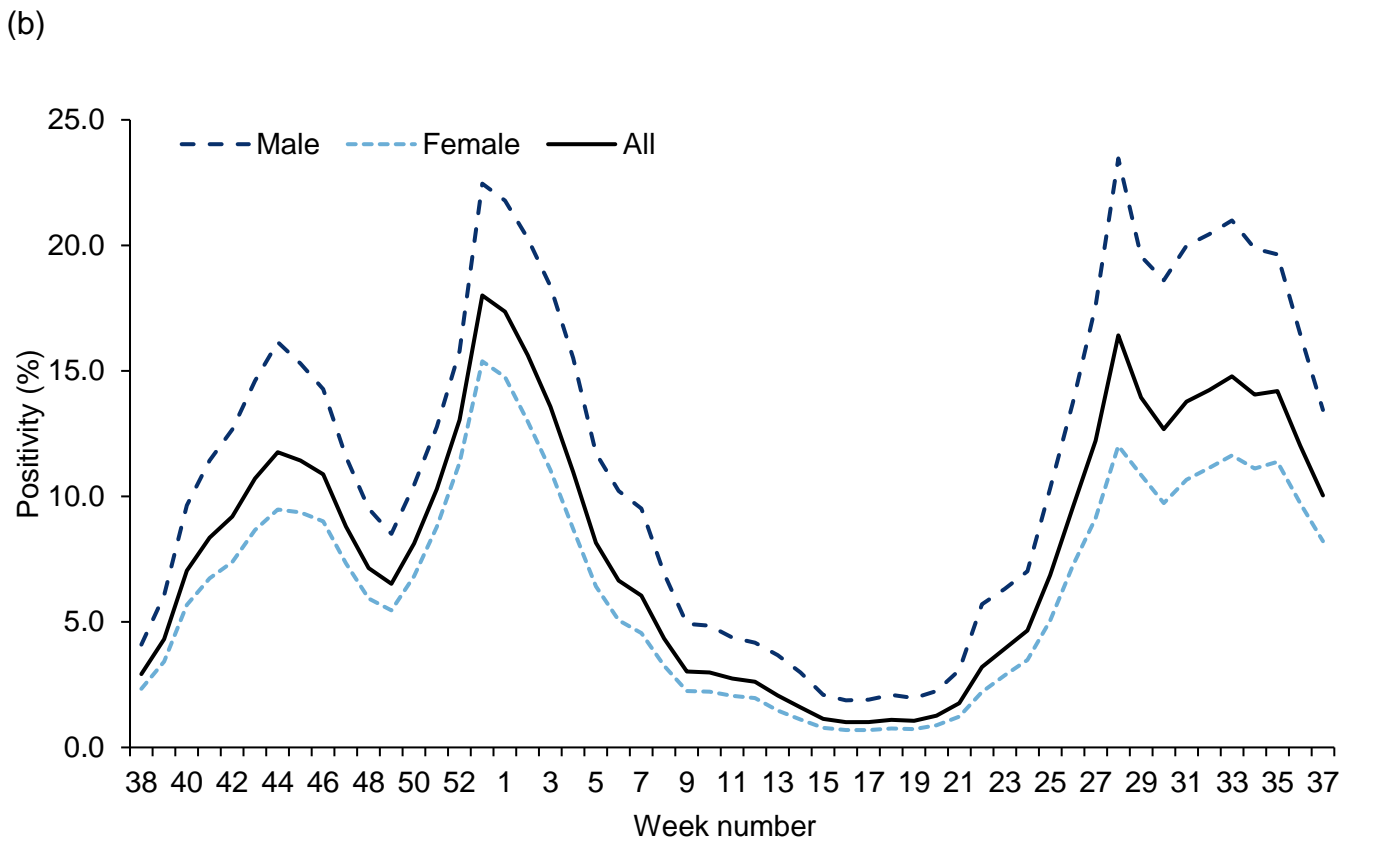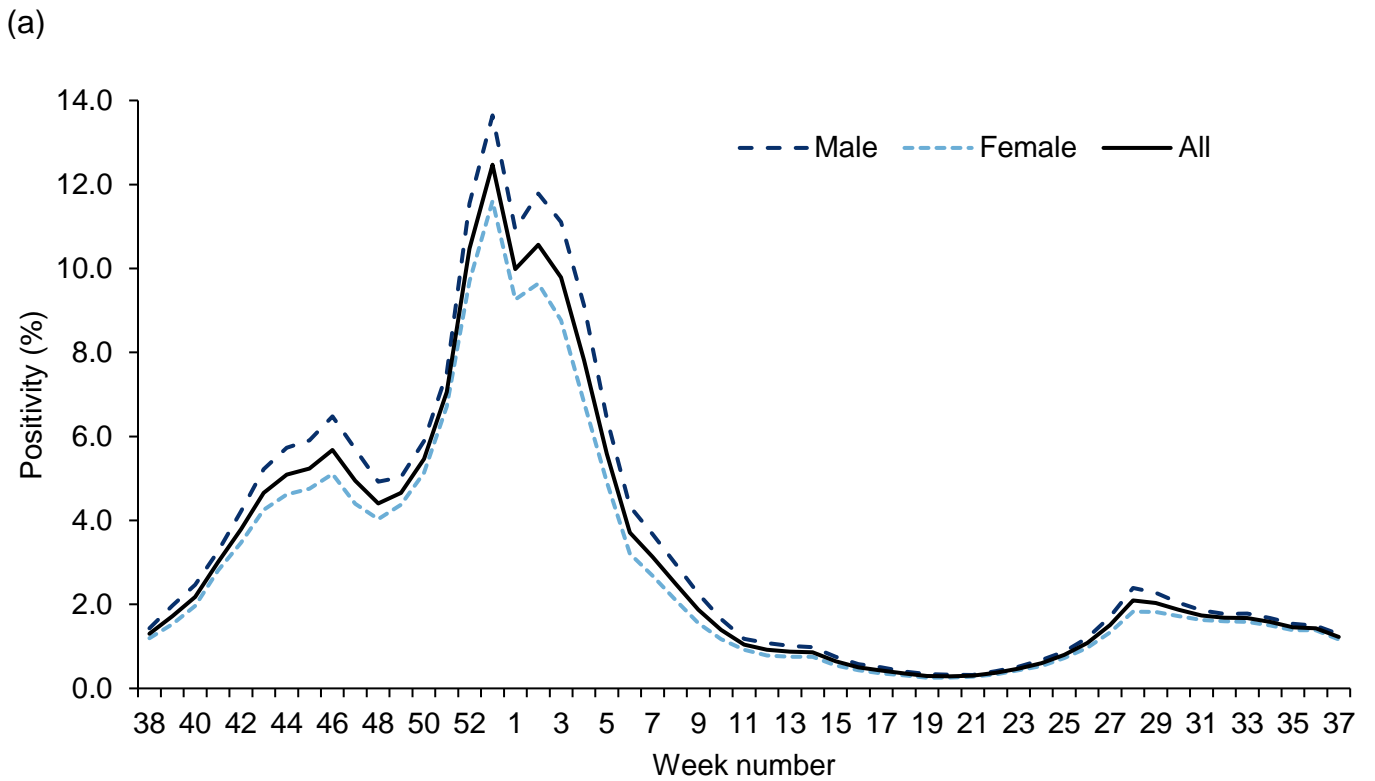
Figure 7: Weekly PCR positivity (%) of confirmed COVID-19 cases tested under Pillar 1, (a) by male and age group and (b) by female and age group and; under Pillar 2, (c) by male and age group and (d) by female and age group

(a) Pillar 1 - Male
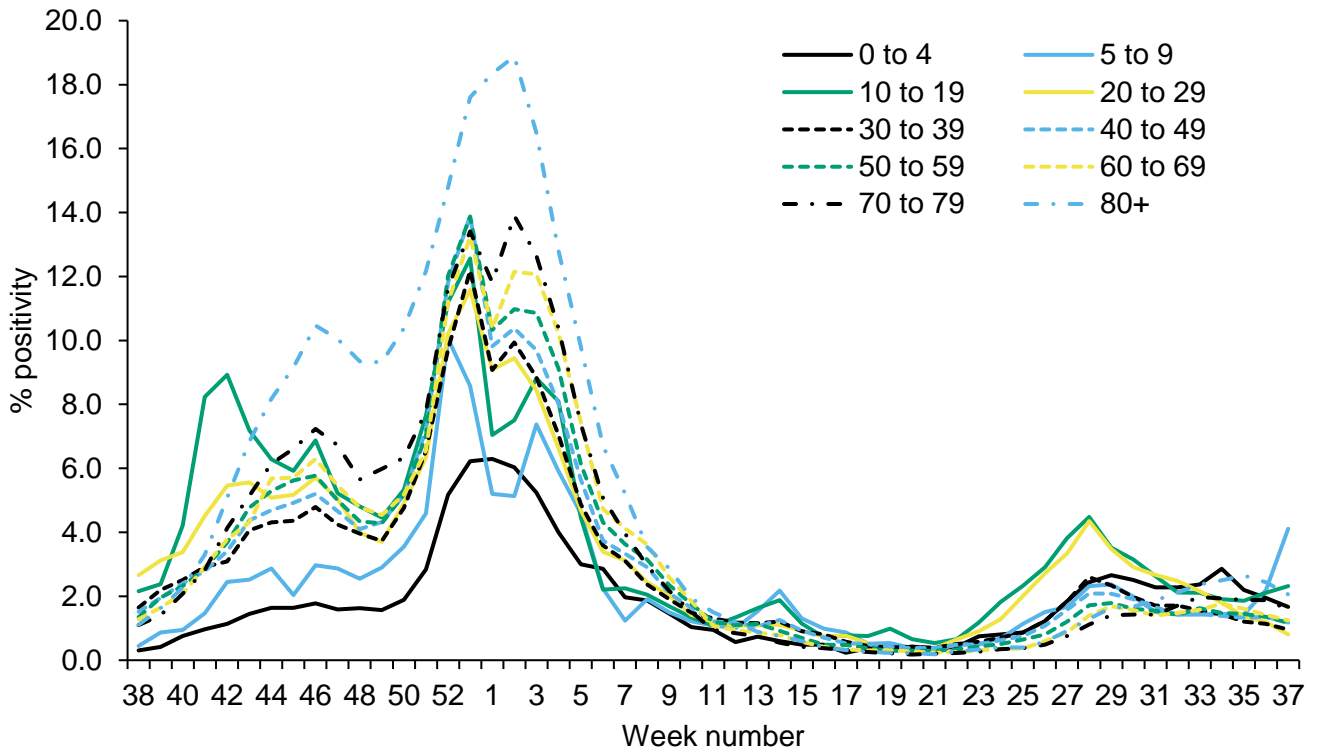
(b) Pillar 1 - Female
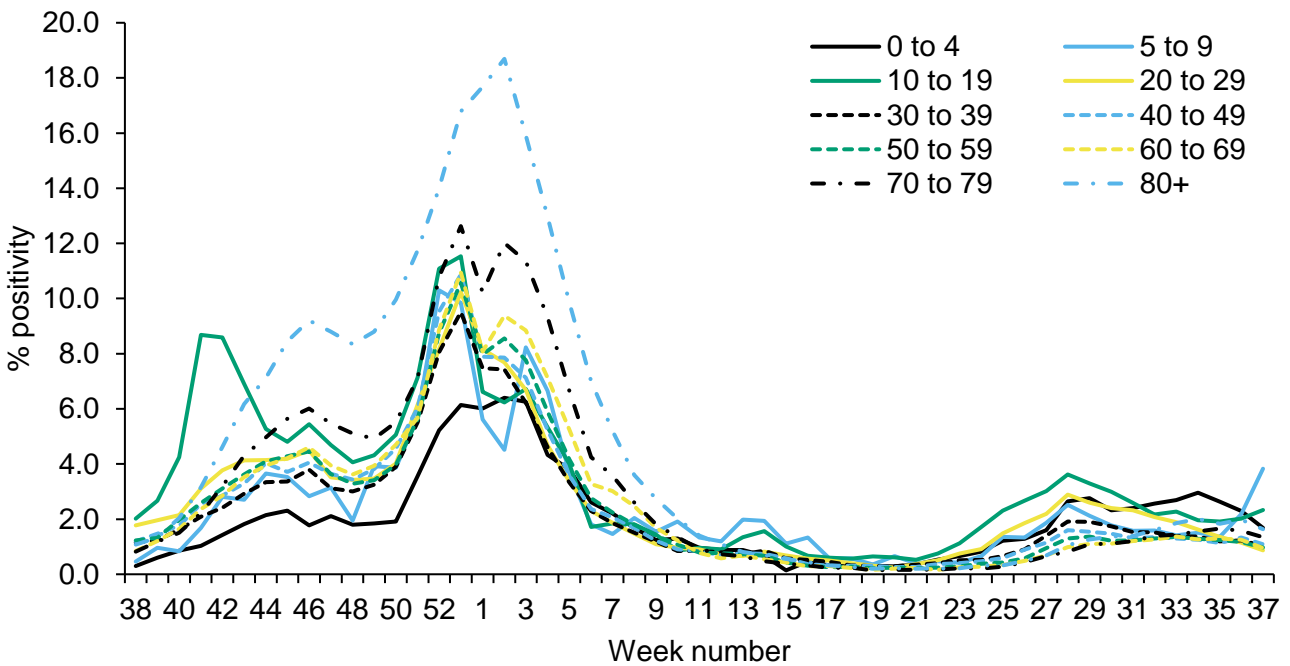
(c) Pillar 2 – Male
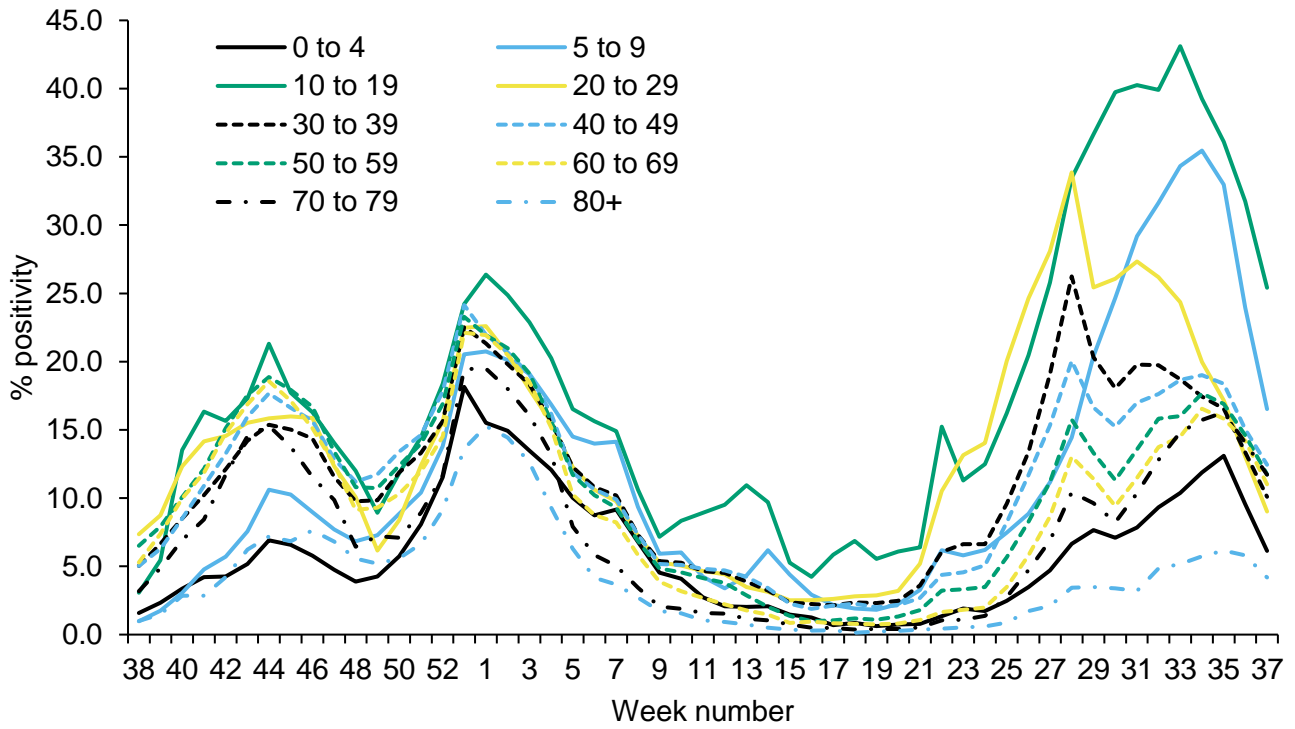
(d) Pillar 2 – Female
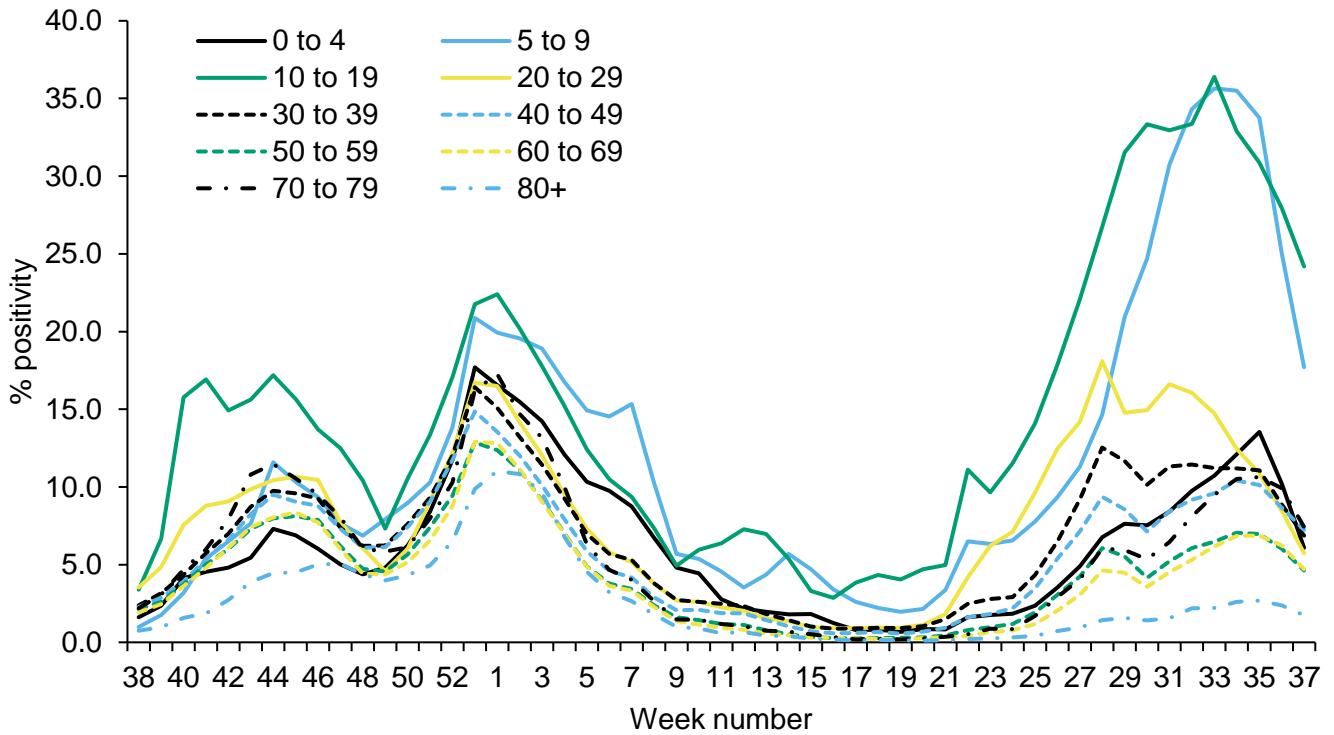
Geography

Figure 8: Weekly confirmed COVID-19 case rates per 100,000 population (Pillar 1 and Pillar 2), by PHE Centres and sample week
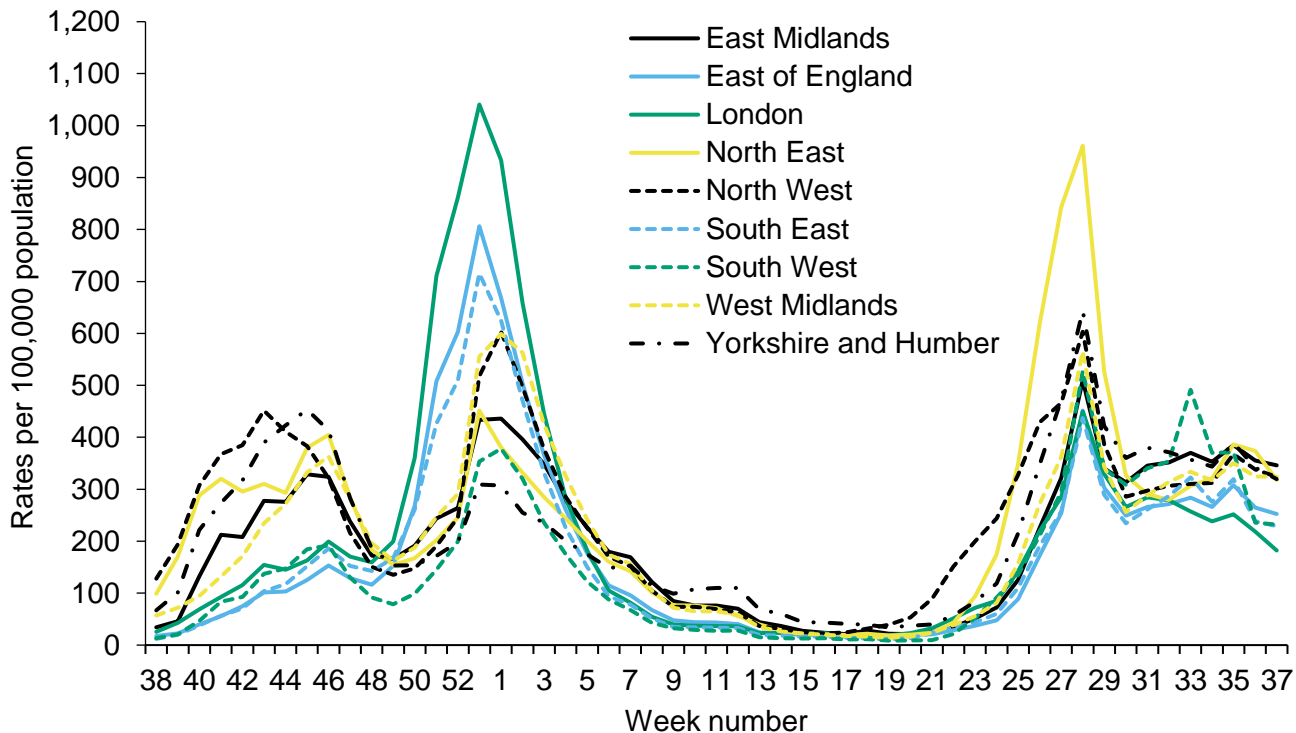
Figure 9: Weekly PCR positivity of confirmed COVID-19 cases tested under (a) Pillar 1 (%) and (b) Pillar 2 (%), by PHE Centres and sample week

(a)

(b)
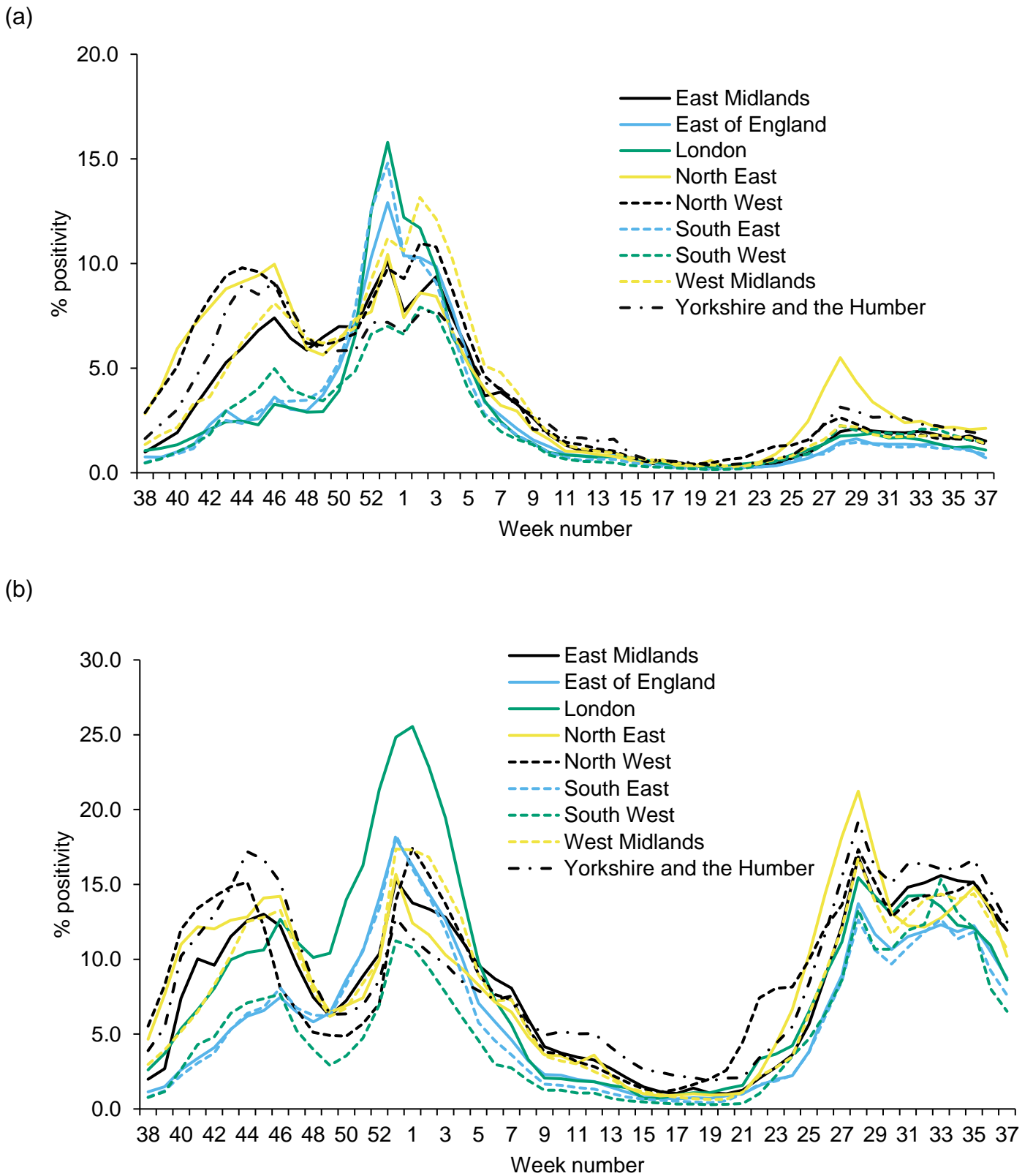
Figure 10: Weekly rate of COVID-19 cases per 100,000 population (Pillar 1 and 2), by upper-tier local authority, England (box shows enlarged map of London area)
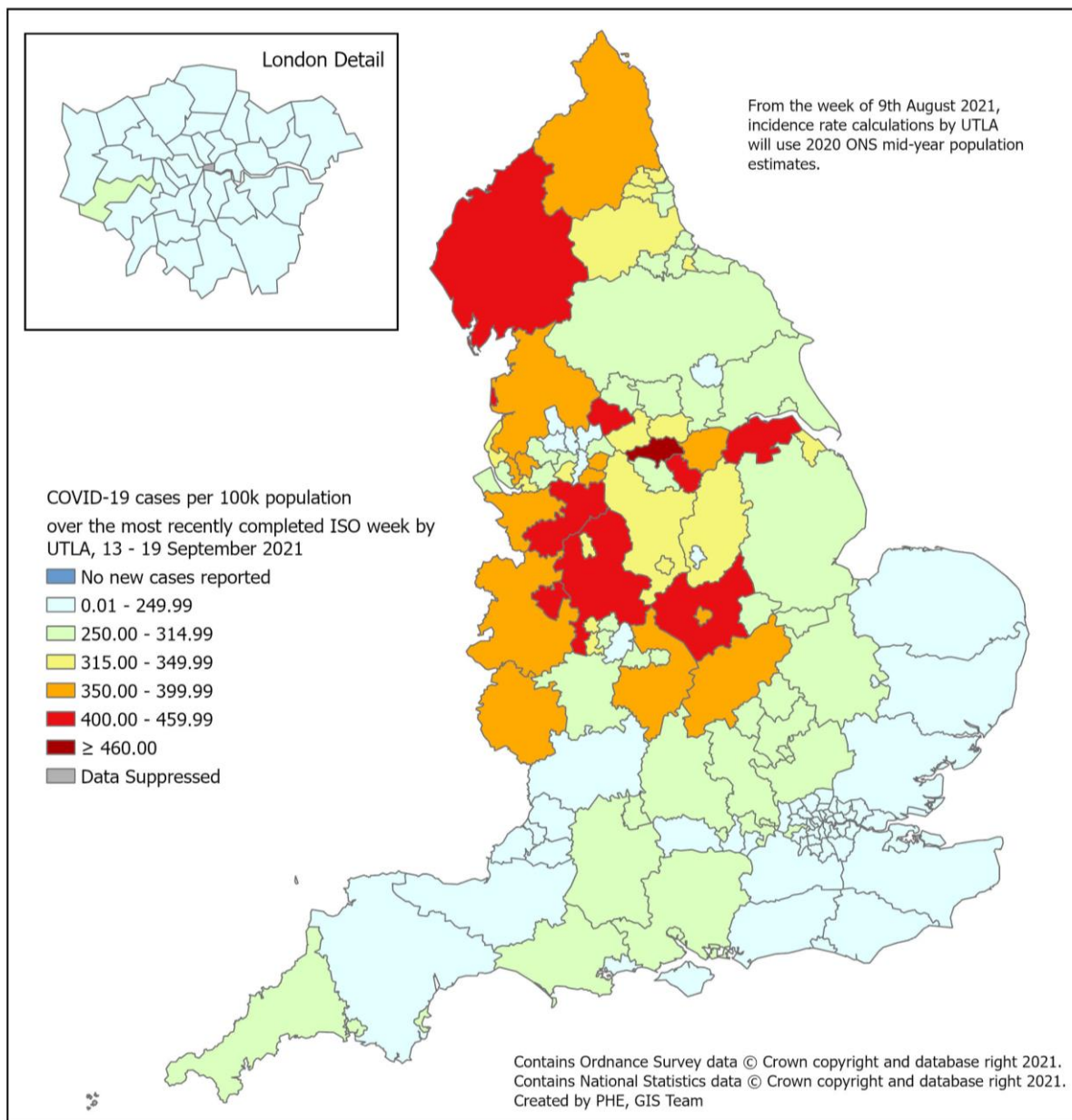
Ethnicity

Figure 11: Weekly incidence per 100,000 population by ethnicity, England
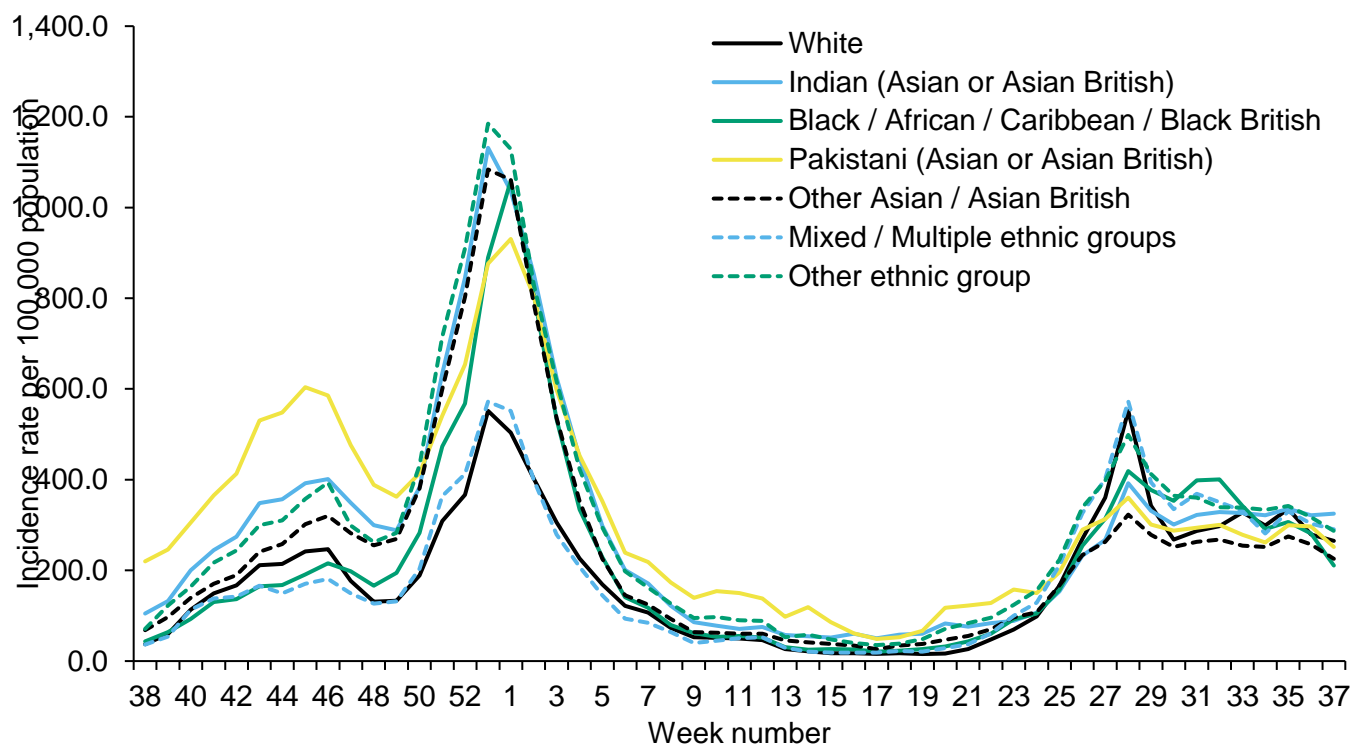
*the incidence rates on Figure 11 have been calculated using the mid-2019 ONS population estimates

Positivity by symptoms

Figure 12: Weekly PCR positivity (%) of confirmed COVID-19 cases by symptoms reported on Pillar 2 test request
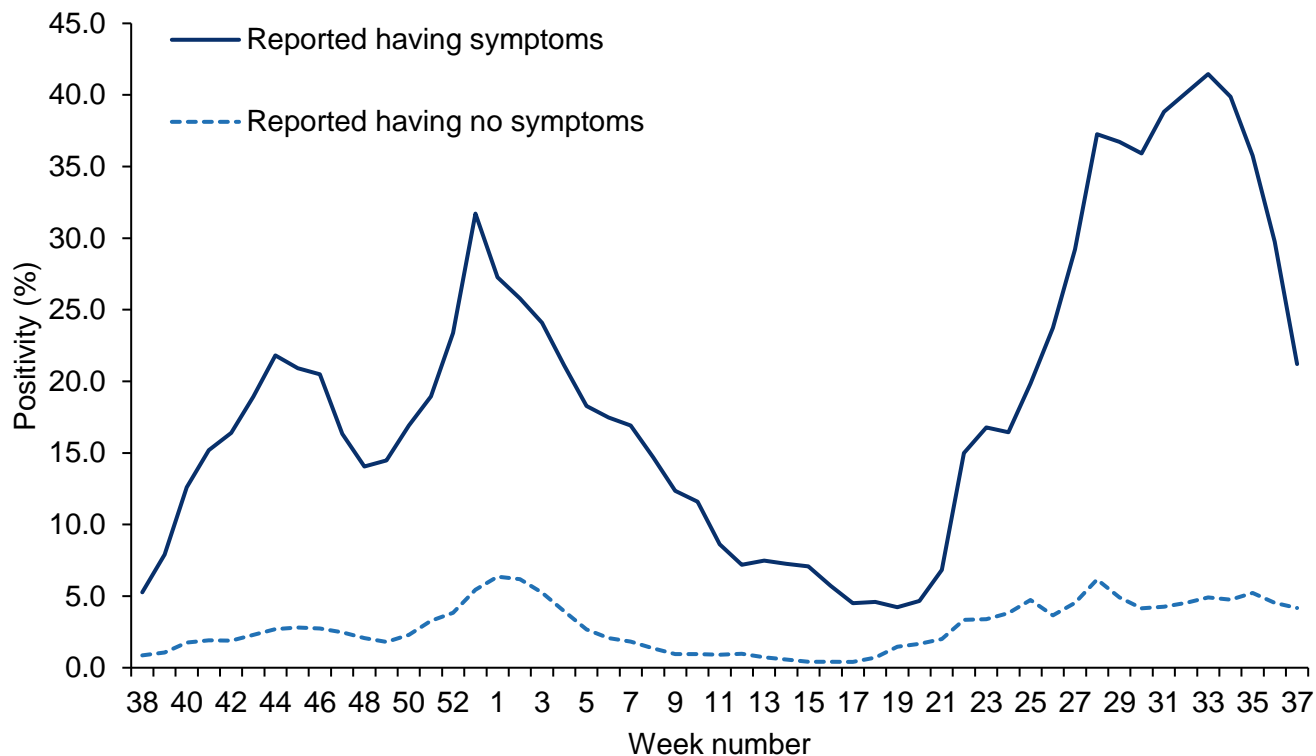
Possible SARS-CoV-2 reinfection in England

Please note that this section will be updated monthly. Last update was published 16 September 2021.

The following figures present population data based on the first time that individuals tested positive for SARS-CoV-2 through PCR and/or lateral flow device testing in England together with those who have tested positive for SARS-CoV-2 through PCR and/or lateral flow testing with an interval of at least 90 days between two consecutive positive tests. To the end of week 34 in 2021 (to 29 August 2021) 45,119 possible reinfections have been identified, of which 259 have been confirmed by identification of genetically distinct specimens from each illness episode to end August 2021 (see Table 1).

For a possible reinfection to be categorised as confirmed it requires sequencing of a specimen at each episode and for the later specimen to be genetically distinct from that sequenced from the earlier episode. Availability of such dual sequencing is currently very low for several reasons; sequencing was not widely undertaken early in the pandemic; LFD test results do not allow sequencing and some PCR samples have a low viral load where sequencing cannot be undertaken. To meet the definition of a probable reinfection requires sequencing at the later episode that identifies a variant that was not circulating at the time of the earlier episode. Further details on the methodology, as well as additional data on reinfections are available in the graph set published alongside this report.

It is important to consider reinfections in the context of first infections and there is a 90-day delay before people with a first infection can become eligible for reinfection.

Table 1 summarises the definitions of different categories of COVID-19 infection accompanied by totals generated to 29 August 2021 (end week 34 2021) and review of 5,014 possible reinfections with sequencing data available to end August 2021. These data are skewed by the limited availability of sequencing data, particularly in the early months of the pandemic. More recently, widespread routine testing of asymptomatic individuals has taken place and this, together with surge testing, will lead to an increased number of asymptomatic reinfections being identified.

Figure 13 shows the weekly rates of possible reinfections per 1000 first infections based on a cumulative denominator derived from total individuals with a first SARS-CoV-2 positive test result at a point 13 weeks (91 days) before the second positive test result together with the cumulative total of first infections (secondary Y-axis) and total first infections (secondary Y-axis) by week of onset.

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Table 1: Different categories of COVID-19 infection with current totals generated by ongoing analysis in England to 29 August 2021 (end week 34 2021)

Infection type	Definition	Current totals
Primary infection/ first positive	the first positive PCR/ LFD test result for an individual	**5.9 million first positives**
Possible reinfection	identified based on two sequential positive test results (PCR or LFD) at least 90 days apart	**45,119 possible reinfections**
Probable reinfection	where only reinfection sample is available, and this is congruent with contemporaneous phylogeny OR the second event identifies a variant which was not in circulation at the time of first infection	**2,981 classified as probable***
Confirmed reinfection	sequencing of a specimen at each episode of a possible reinfection with the later specimen genetically distinct from that sequenced at first episode	**259 confirmed reinfections***
Persistent infection	*Nominally repeat test positives at between 14 and <90-day intervals (likely associated with immunosuppression)*	Unquantified

*This is out of 5,014 samples with sequencing data available to end August 2021

Figure 13: The weekly rate of possible COVID-19 reinfections with cumulation of first infections becoming eligible for reinfection and weekly total of first infection* (England only to week 34 2021)
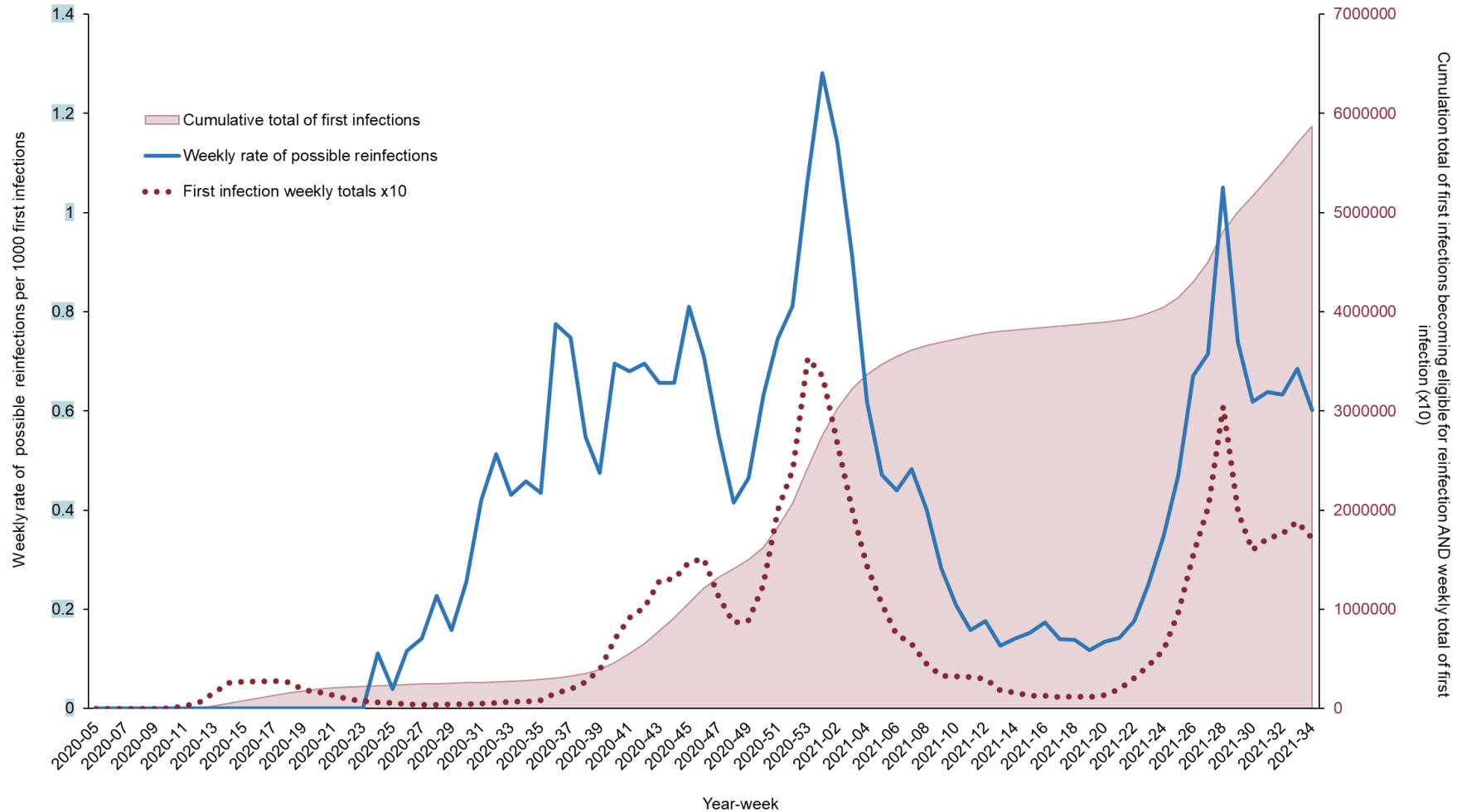
*These data have been derived independently based on Pillar 1 and Pillar 2 datasets and may therefore differ to previously published data

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Respiratory DataMart system (England)

The Respiratory Datamart system was initiated during the 2009 influenza pandemic to collate all laboratory testing information in England. It is now used as a sentinel laboratory surveillance tool, monitoring all major respiratory viruses in England. Sixteen laboratories in England will be reporting data for this season. As this is based on a sample of labs - SARS-CoV-2 positivity figures quoted here will differ from those quoted in the Confirmed COVID-19 cases section, however, they are included to facilitate comparison with data on other respiratory viruses.

In week 37 2021, out of the 109,739 respiratory specimens reported through the Respiratory DataMart System (based on data received from 14 out of 16 laboratories), 2,034 samples were positive for SARS-CoV-2 with an overall positivity of 1.9%. The highest positivity was noted in the 5 to 14-year olds at 6.8% in week 37. The overall influenza positivity remained very low at 0.04% in week 37, with 1 of the 2,422 samples testing positive for influenza (influenza B).

Respiratory syncytial virus (RSV) positivity continued to decrease from 9.5% in week 36 to 8.3% in week 37, with the highest positivity in the under 5-year olds at 16.3%. Rhinovirus positivity decreased from 13.2% in week 36 to 11.5% in week 37, however it increased from 20.8% in week 36 to 24.4% in week 37 for the 5 to 14-year olds. Parainfluenza, adenovirus and human metapneumovirus (hMPV) positivity remained low at 0.7%, 0.9% and 1.0% respectively in week 37 (Figure 16).

Figure 14: DataMart samples positive for influenza and weekly positivity (%) for influenza, England
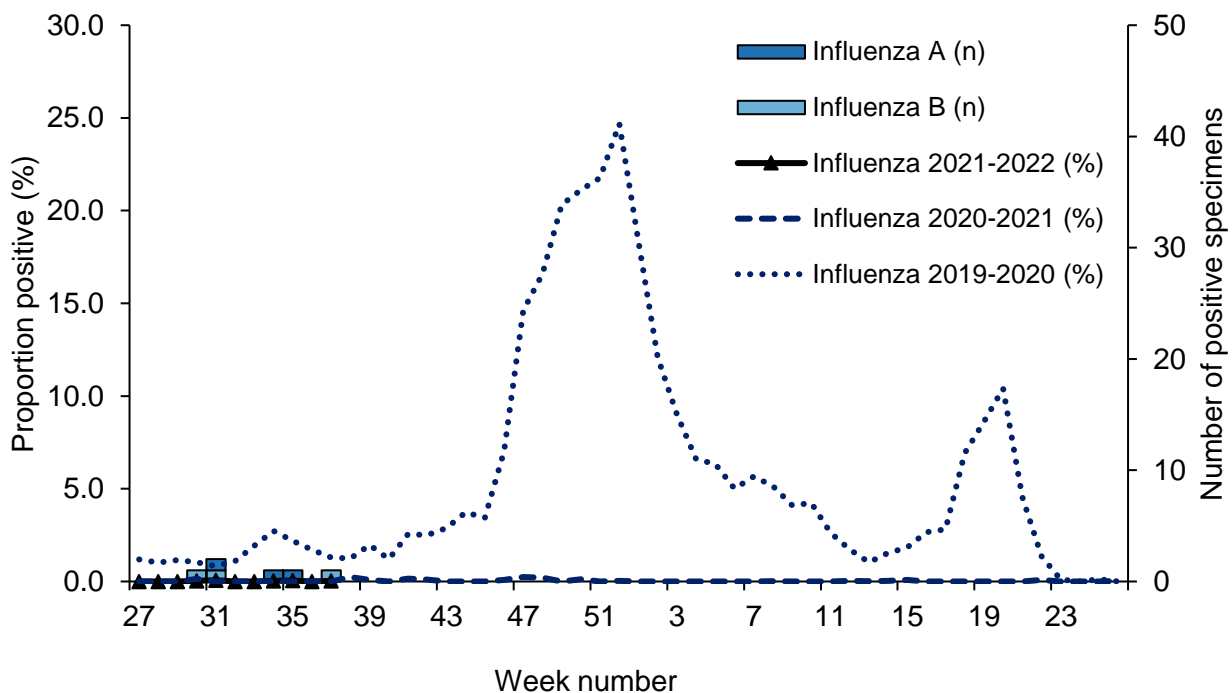
Figure 15: DataMart weekly positivity (%) for SARS-CoV-2, England
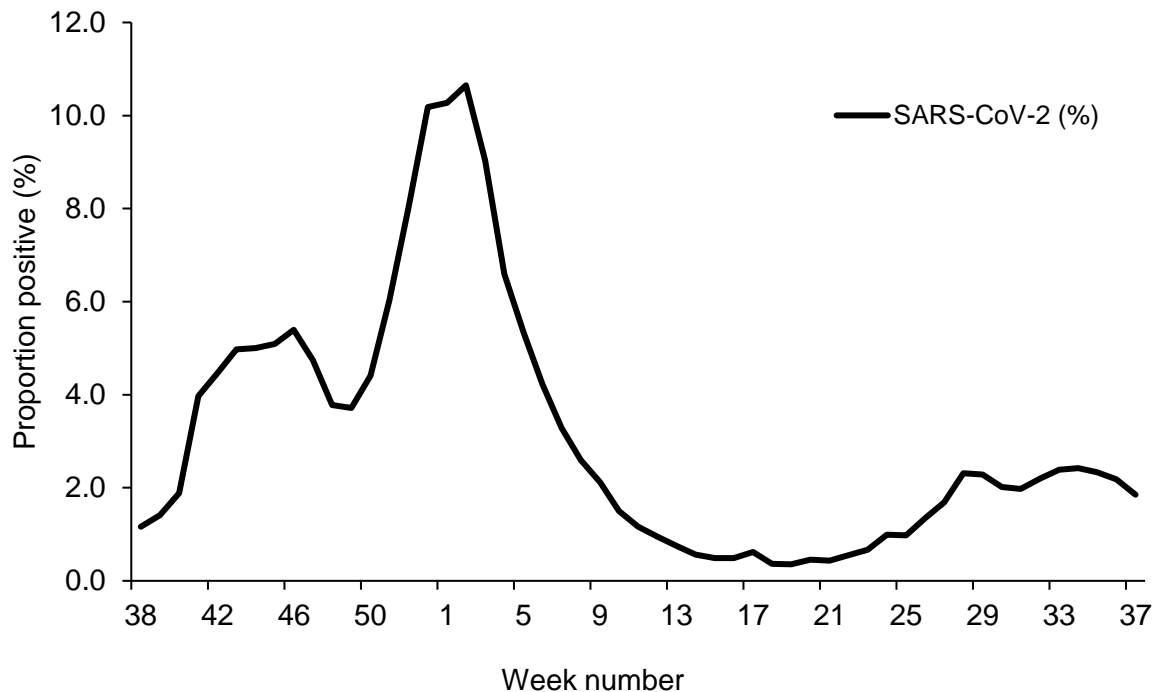
Figure 16: DataMart weekly positivity (%) for other respiratory viruses, England
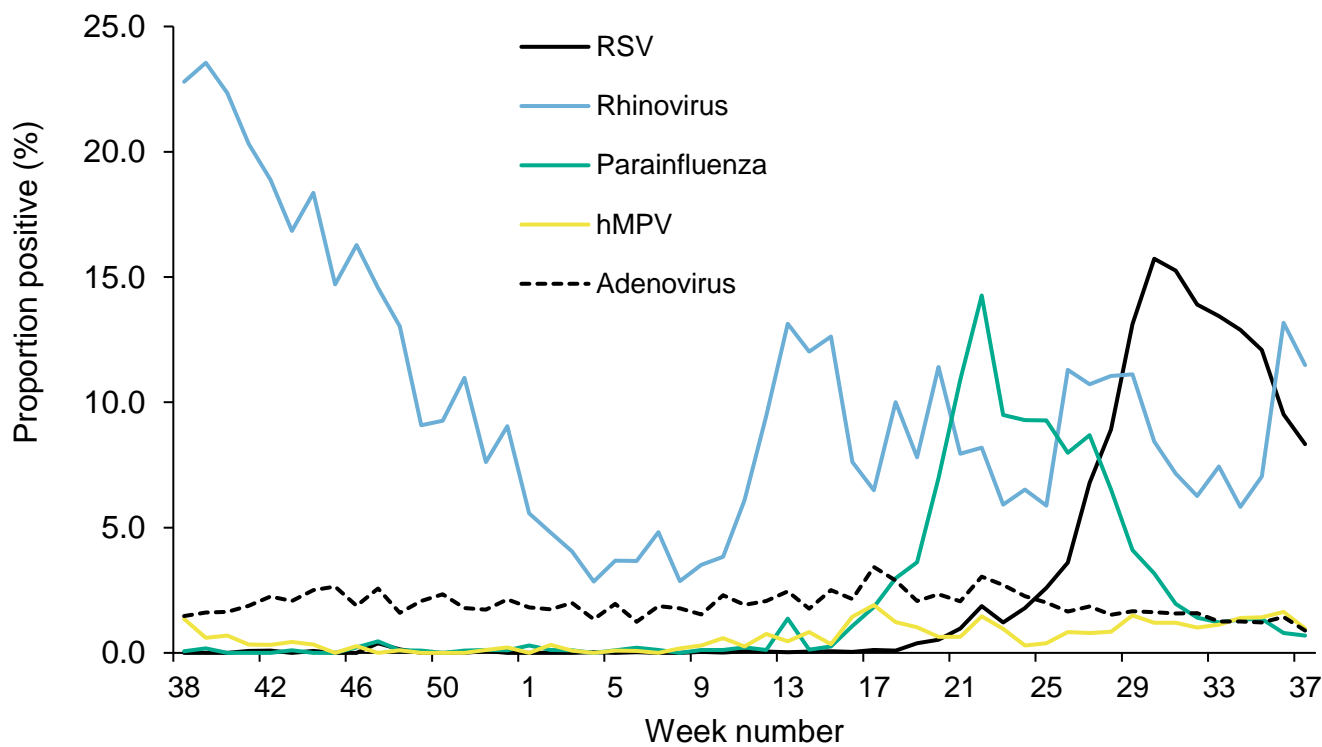
Figure 17: DataMart weekly positivity (%) for rhinovirus by age, England
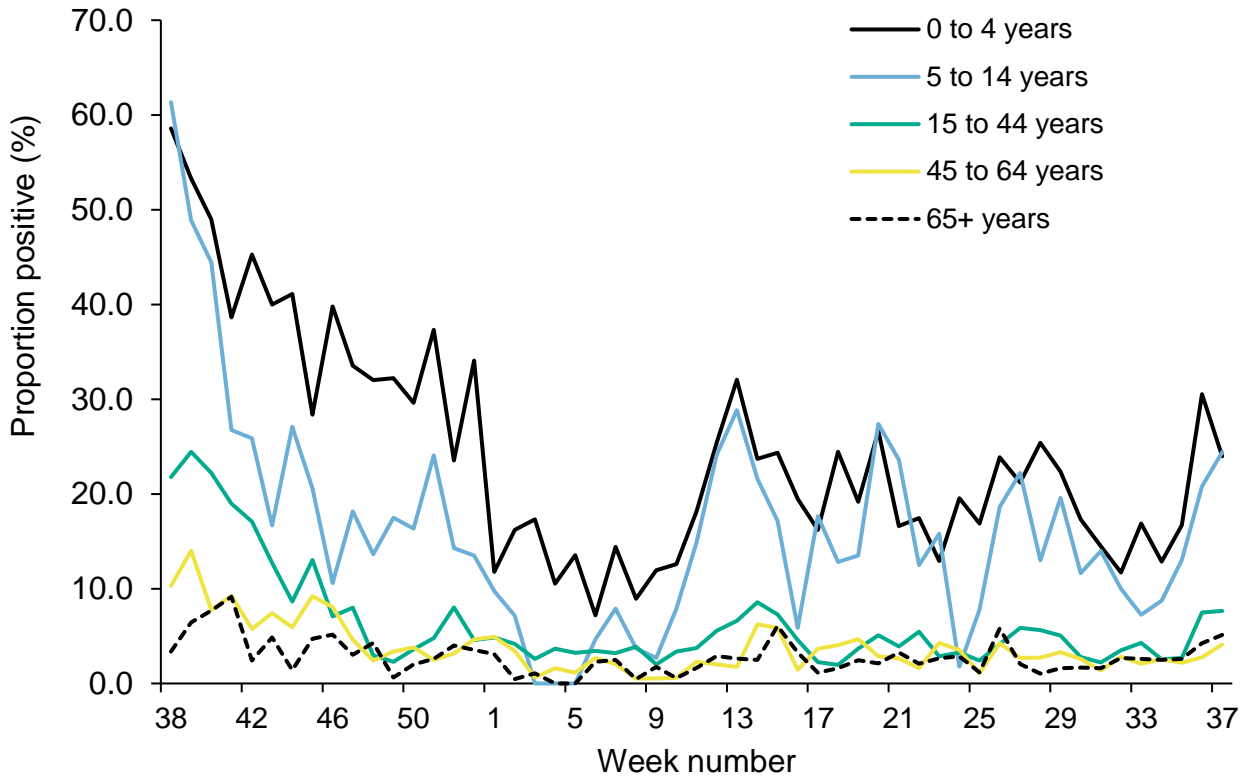
Figure 18: DataMart weekly positivity (%) for RSV by age, England
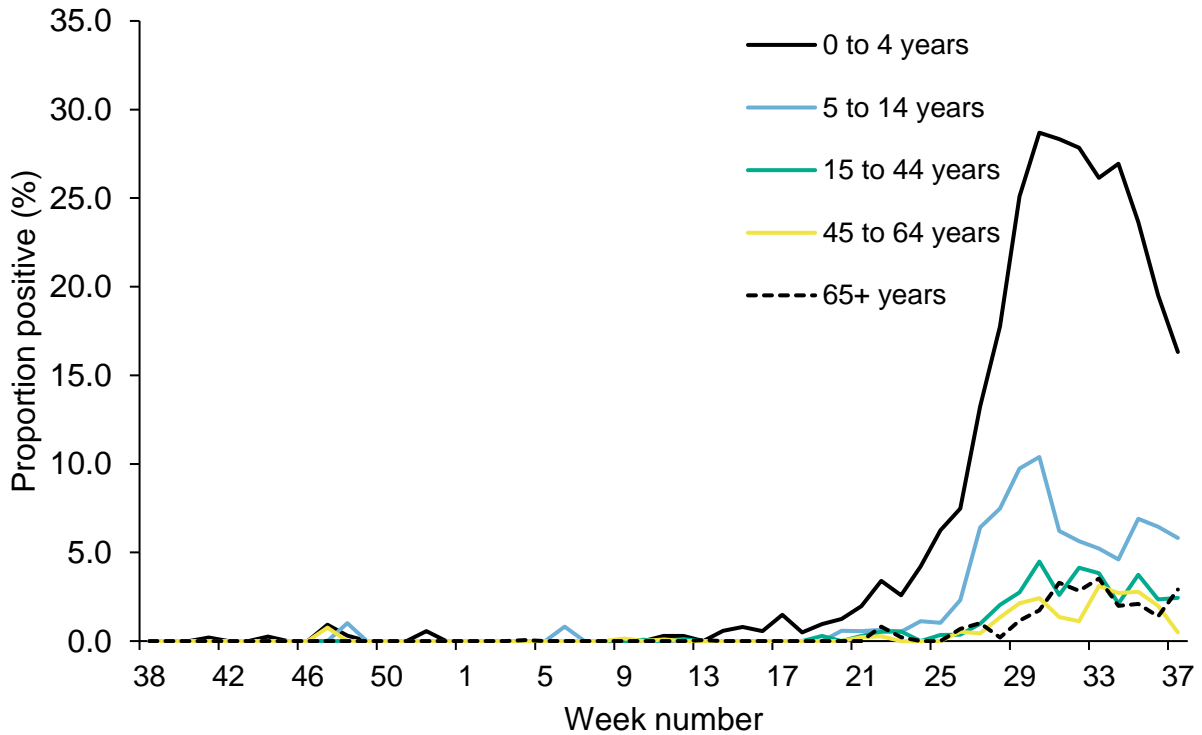
Community surveillance

Acute respiratory infection incidents

Here we present data on acute respiratory infection (ARI) incidents in different settings that are reported to PHE Health Protection Teams (HPTs) and entered onto an online web-based platform called HPZone. Incidents are suspected outbreaks of acute respiratory infections linked to a particular setting. All suspected outbreaks are further investigated by the HPT in liaison with local partners. A subset of these will meet the criteria of a confirmed outbreak, that is, where 2 or more laboratory confirmed cases (SARS-CoV-2, influenza or other respiratory pathogens) are linked to a particular setting. Incidents where suspected cases test negative for COVID-19 or other respiratory pathogens, or cases are subsequently found not to have direct links to the setting are discarded.

The number of ARI incidents in each setting with at least one laboratory confirmed case of COVID-19 (or other respiratory pathogen) are reported below. As outlined above, only a subset of these will go on to be confirmed as outbreaks.

Data for England, Scotland and Northern Ireland are included in the UK figures.

Data caveats:
1. The incidents captured on HPZone represent a subset of all ongoing ARI clusters and outbreaks in England rather than an exhaustive listing. A variety of arrangements are in place across PHE Centres, with local authorities and other stakeholders supporting HPTs in outbreak investigation in some areas without HPZone reporting. As a result, the number of outbreaks reported for some of the regions are underestimates.
2. For this academic year (2021 to 2022) the thresholds for reporting an outbreak in an educational setting have been revised. Clusters and outbreaks are now reported to the Health protection Team if either of the two following criteria are met:
- 5 cases or 10% test-confirmed cases of COVID-19 within 10 days (whichever is reached first), among students or staff
- Evidence of severe illness e.g. students or staff members admitted to hospital or a death as a result of a COVID–19 infection

For special education needs schools, residential schools and settings that operate with 20 or fewer children, pupils, students and staff at any one time, clusters and outbreaks are reported if the following criteria is met:
- 2 children, pupils, students and staff, who are likely to have mixed closely, test positive for COVID-19 within a 10-day period

For more information on managing COVID-19 in educational settings please refer to the framework found here. This should be taken into consideration when comparing 2021-2022 season data against 2020-2021 season data.

3. It should be noted that the denominator for the different settings will vary significantly. For example, there are fewer hospitals than workplaces. In addition, the propensity to report incidents to PHE also varies significantly by setting. This needs to be taken into account when interpreting the weekly number of reported incidents by setting and caution should be used when making comparisons between settings.

4. In light of the above, comparisons between Regions and settings are not advised as they may be misleading.

750 new ARI incidents have been reported in week 37 in the UK (Figure 19):

- 238 incidents were from care homes where 189 had at least one linked case that tested positive for SARS-CoV-2, and 2 tested positive for RSV
- 379 incidents were from educational settings where 268 had at least one linked case that tested positive for SARS-CoV-2
- 27 incidents were from hospitals, where 21 had at least one linked case that tested positive for SARS-CoV-2
- 23 incidents were from workplace settings where 22 had at least one linked case that tested positive for SARS-CoV-2
- 4 incidents were from food outlets or restaurants where all had at least one linked case testing positive for SARS-CoV-2
- 5 incidents were from prisons where 4 had at least one linked case testing positive for SARS-CoV-2
- 74 incidents were from other settings where 57 had at least one linked case that tested positive for SARS-CoV-2

Figure 19: Number of acute respiratory infection (ARI) incidents by setting, UK
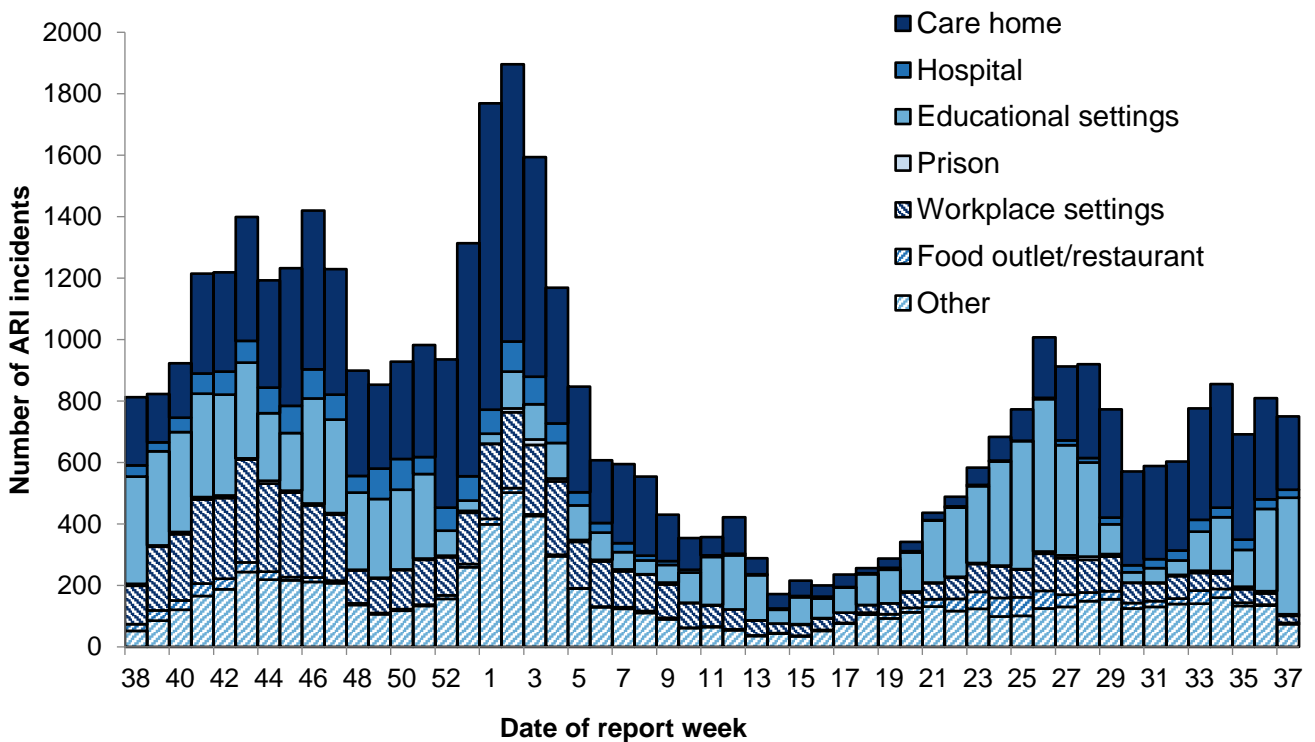
*Excludes data from Wales

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Figure 20: Number of acute respiratory infection (ARI) incidents by setting, England
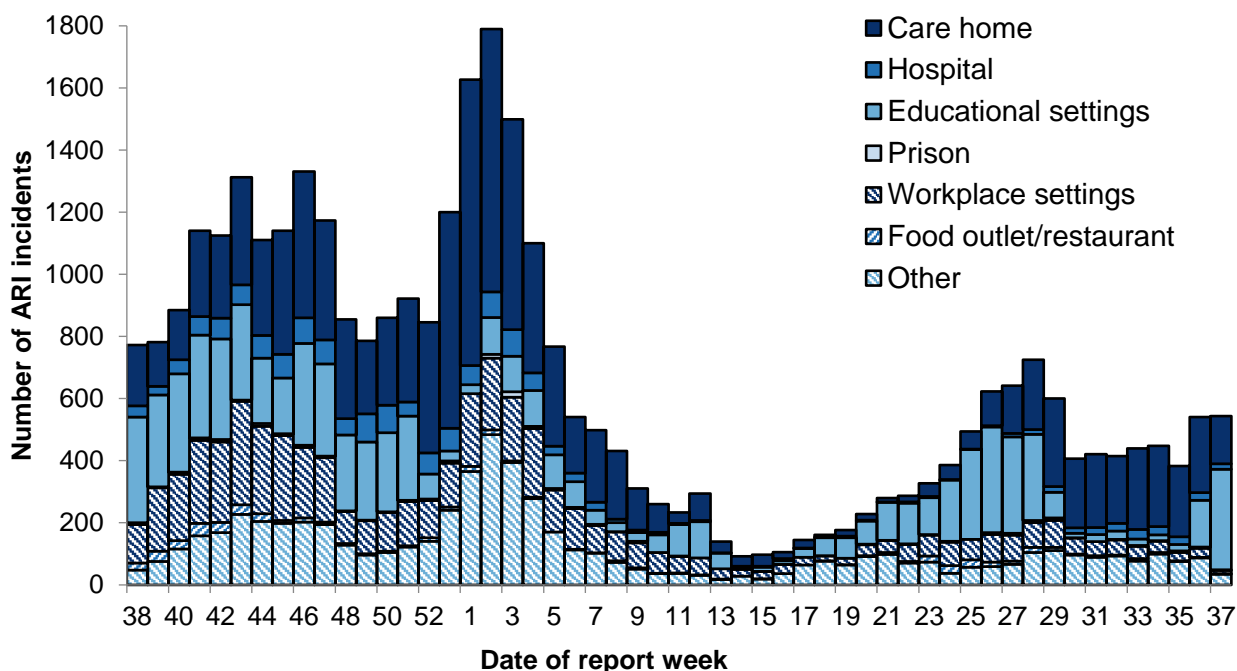
Figure 21: Number of acute respiratory infection (ARI) incidents in care homes by virus type, England
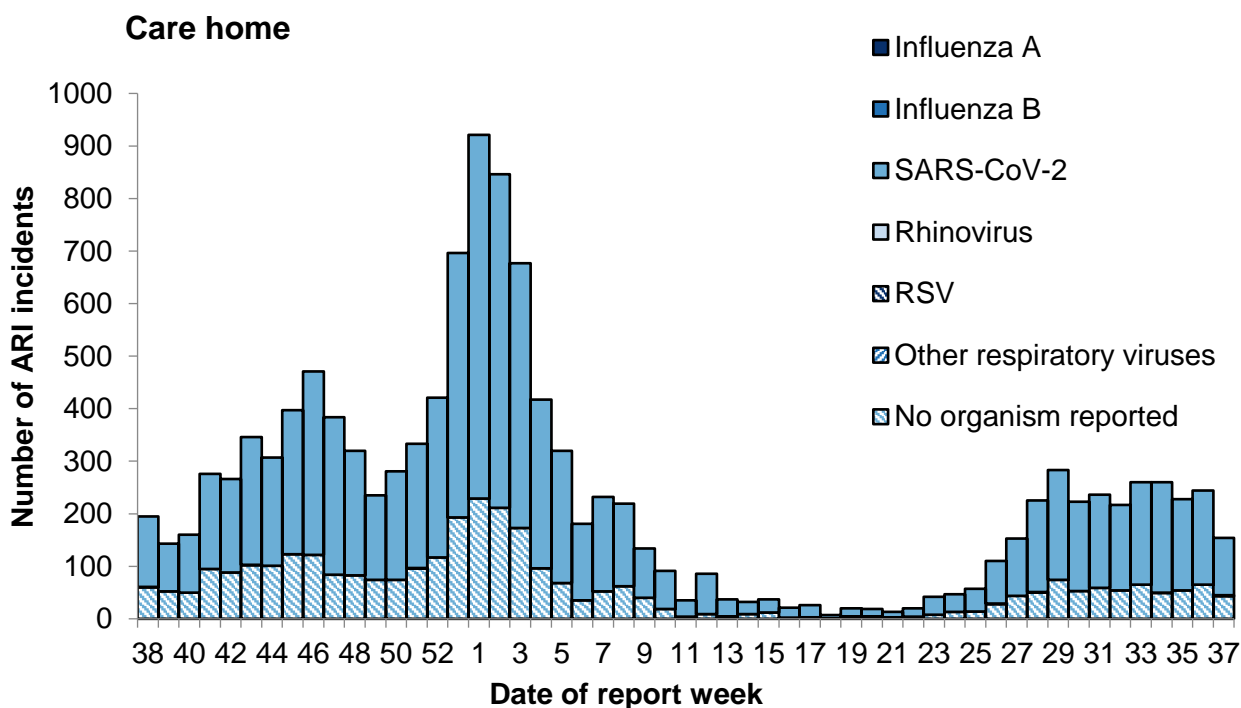
Figure 22: Number of acute respiratory infection (ARI) incidents in hospitals by virus type, England
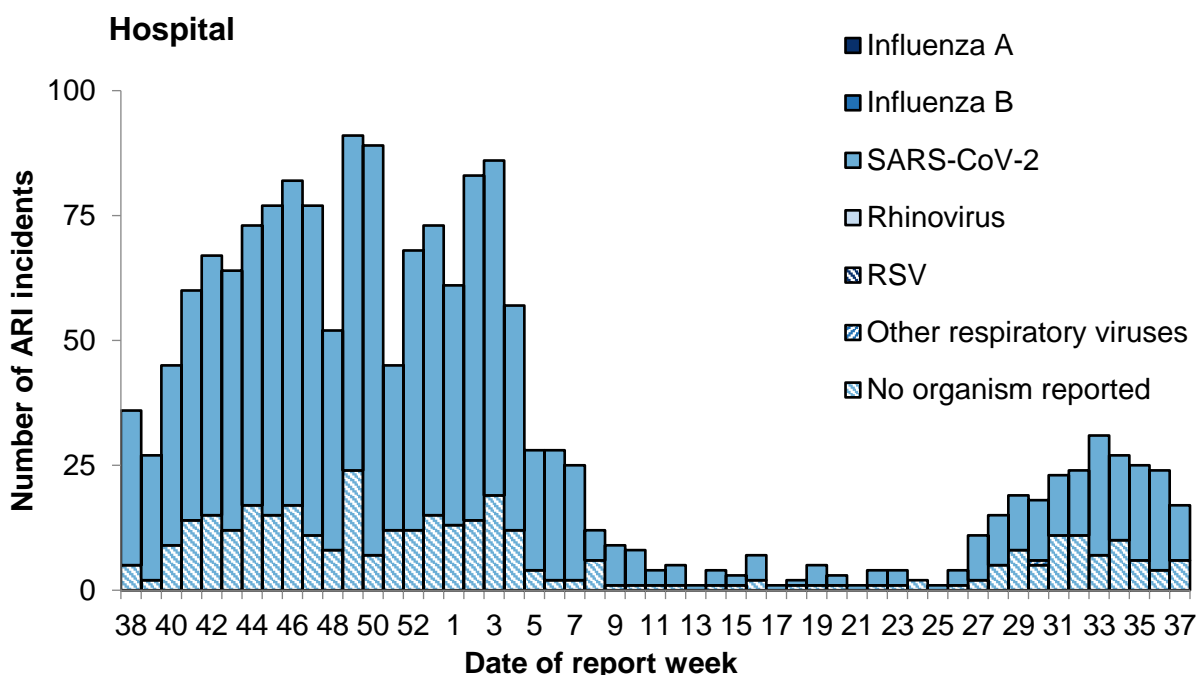
Figure 23: Number of acute respiratory infection (ARI) incidents in educational settings by virus type, England
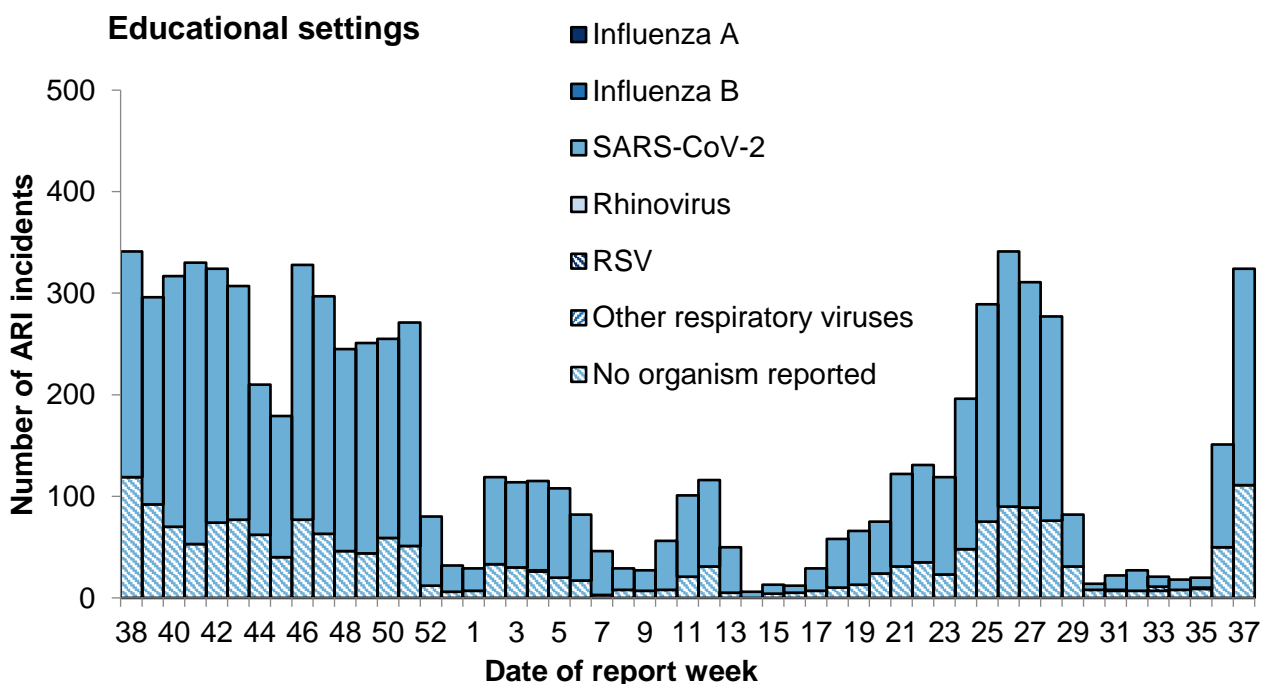
Figure 24: Number of acute respiratory infection (ARI) incidents in prisons by virus type, England
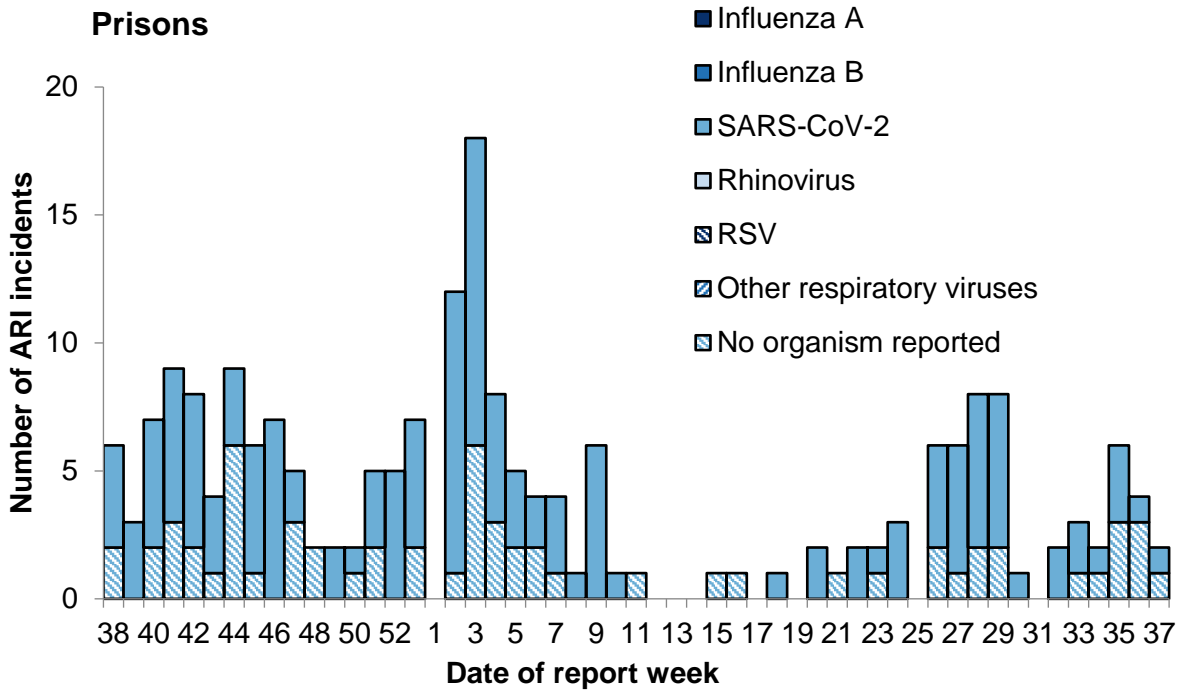
Figure 25: Number of acute respiratory infection (ARI) incidents in workplace settings by virus type, England
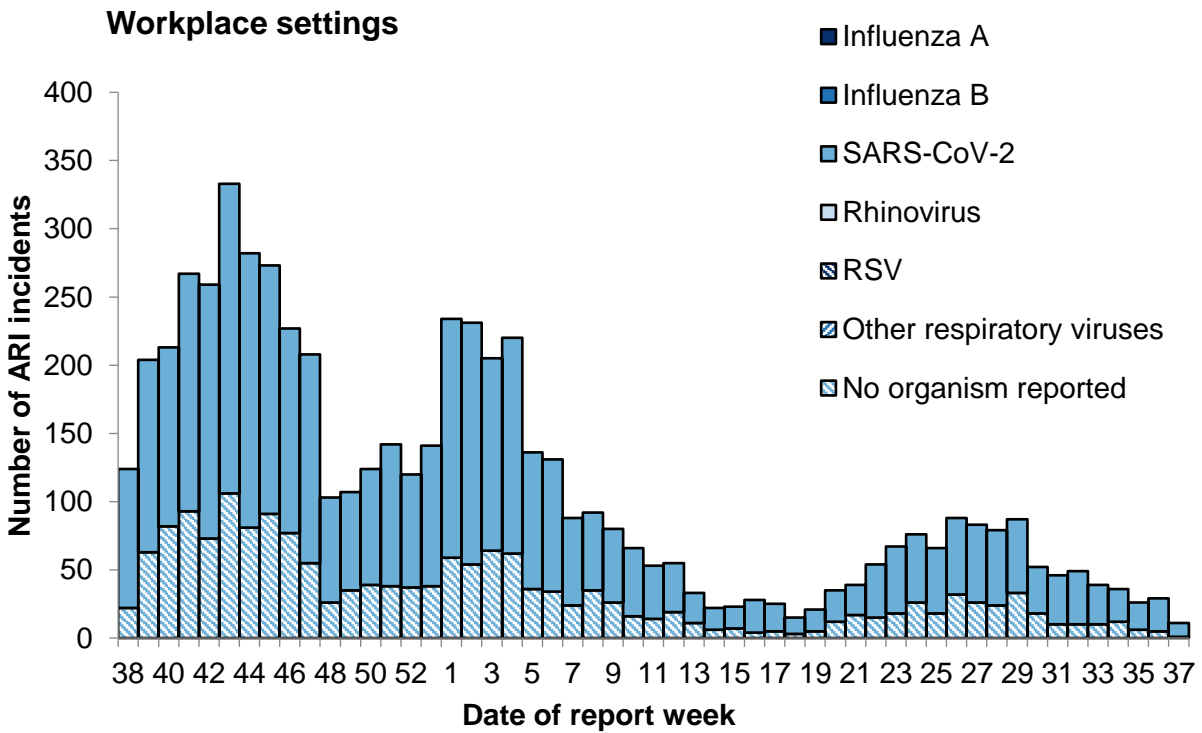
Figure 26: Number of acute respiratory infection (ARI) incidents in food outlet or restaurant settings by virus type, England
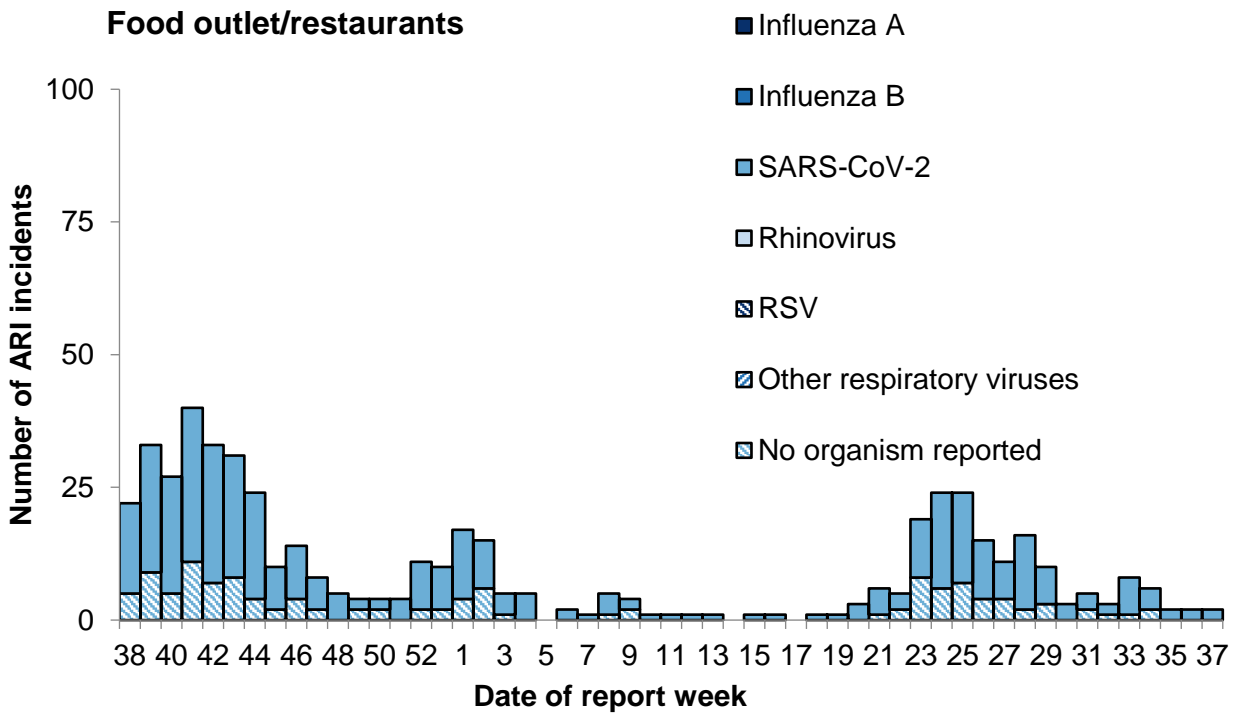
Figure 27: Number of acute respiratory infection (ARI) incidents in other settings by virus type from, England
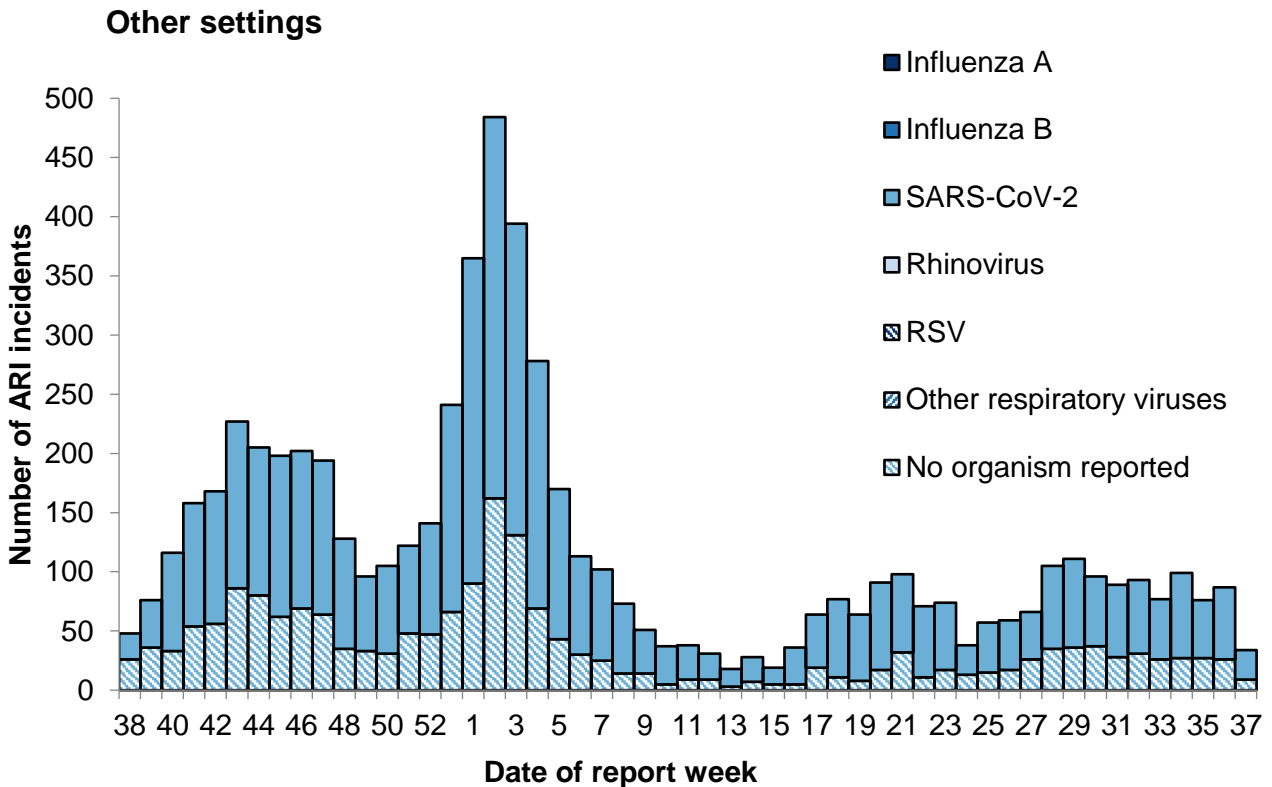
Table 2: Total number of situations and incidents by institution and PHE Centres over the past 4 weeks with the total number in the last week in brackets

PHE Centres	Care home	Hospital	Educational settings	Prisons	Workplace settings	Food outlet/ restaurant settings	Other settings	Total
East of England	80(15)	11(1)	4(3)	3(0)	1(0)	0(0)	29(4)	128(23)
East Midlands	98(19)	10(1)	53(28)	1(0)	21(0)	4(1)	28(4)	215(53)
London	50(7)	33(8)	136(97)	1(0)	3(0)	0(0)	20(2)	243(114)
North East	86(14)	0(0)	1(1)	0(0)	0(0)	0(0)	14(4)	101(19)
North West	67(22)	3(0)	38(23)	0(0)	51(8)	3(0)	47(5)	209(58)
South East	116(19)	13(4)	185(112)	6(2)	9(0)	0(0)	40(2)	369(139)
South West	218(31)	0(0)	25(14)	0(0)	4(0)	3(0)	42(5)	292(50)
West Midlands	56(6)	21(3)	41(27)	1(0)	11(3)	2(1)	39(2)	171(42)
Yorkshire and Humber	115(21)	2(0)	30(19)	2(0)	2(0)	0(0)	37(6)	188(46)
Total	886(154)	93(17)	513(324)	14(2)	102(11)	12(2)	296(34)	1916(544)

COVID-19 cases by type of residence

Table 3 shows the proportion of confirmed COVID-19 cases according to their type of residence. Property classifications are derived from Ordnance Survey AddressBase and are matched to address details within the laboratory data. Properties are identified by unique property reference number (UPRN) and basic land property unit (BLPU). Cases with poor or no address data which failed the address matching and are classed as 'undetermined'. No fixed abode and overseas addresses identified by recording in the laboratory data.

In week 37, the highest percentage of confirmed COVID-19 cases by type of residence was seen in residential dwellings (Table 3).

Table 3: Type of residence of confirmed COVID-19 cases by percentage of total weekly cases

Type of residence	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37
Residential dwelling (including houses, flats, sheltered accommodation)	91.4	90.6	94.0	95.4	95.3	95.8
Undetermined	3.9	3.5	2.9	2.4	2.5	2.1
Care/Nursing home	0.7	0.6	0.6	0.6	0.6	0.5
Residential institution (including residential education)	0.2	0.2	0.2	0.2	0.2	0.1
Other property classifications	0.6	0.7	0.7	0.6	0.6	0.6
House in multiple occupancy (HMO)	0.5	0.5	0.4	0.3	0.3	0.3
Medical facilities (including hospitals and hospices, and mental health)	2.7	3.8	1.2	0.5	0.5	0.5
Prisons, detention centres, secure units	0.1	0.1	0.1	0.1	0.1	0.1
Overseas address	0.0	0.0	0.0	0.0	0.0	0.0
No fixed abode	0.0	0.0	0.0	0.0	0.0	0.0

* Please note that some address misclassifications have been identified in the 'Medical Facilities' category for some recent weeks, thus making this group appear incorrectly larger. These are being investigated

FluSurvey

An internet-based surveillance system has been developed based on FluSurvey. FluSurvey is a web tool survey designed to monitor trends of influenza-like illness (ILI) in the community using self-reported respiratory symptoms from registered participants. The platform has been adapted to capture respiratory symptoms, exposure risk and healthcare seeking behaviours among registered participants to contribute to national surveillance of COVID-19 activity as well as influenza activity since week 44.
Note: ILI is defined as sudden onset of symptoms with at least one of fever (chills); malaise; headache; muscle pain and at least one of cough; sore throat; shortness of breath.

A total of 2,616 participants completed the weekly surveillance survey in week 37, of which 97 (3.7%) reported fever or cough and 34 (1.3%) reported influenza-like illness (ILI). The most commonly used healthcare services reported by respondents remains telephoning a GP practice (Figure 28).

Figure 28: FluSurvey participants self-reporting fever or cough and ILI symptoms, and trends in healthcare seeking behaviour among these participants, England
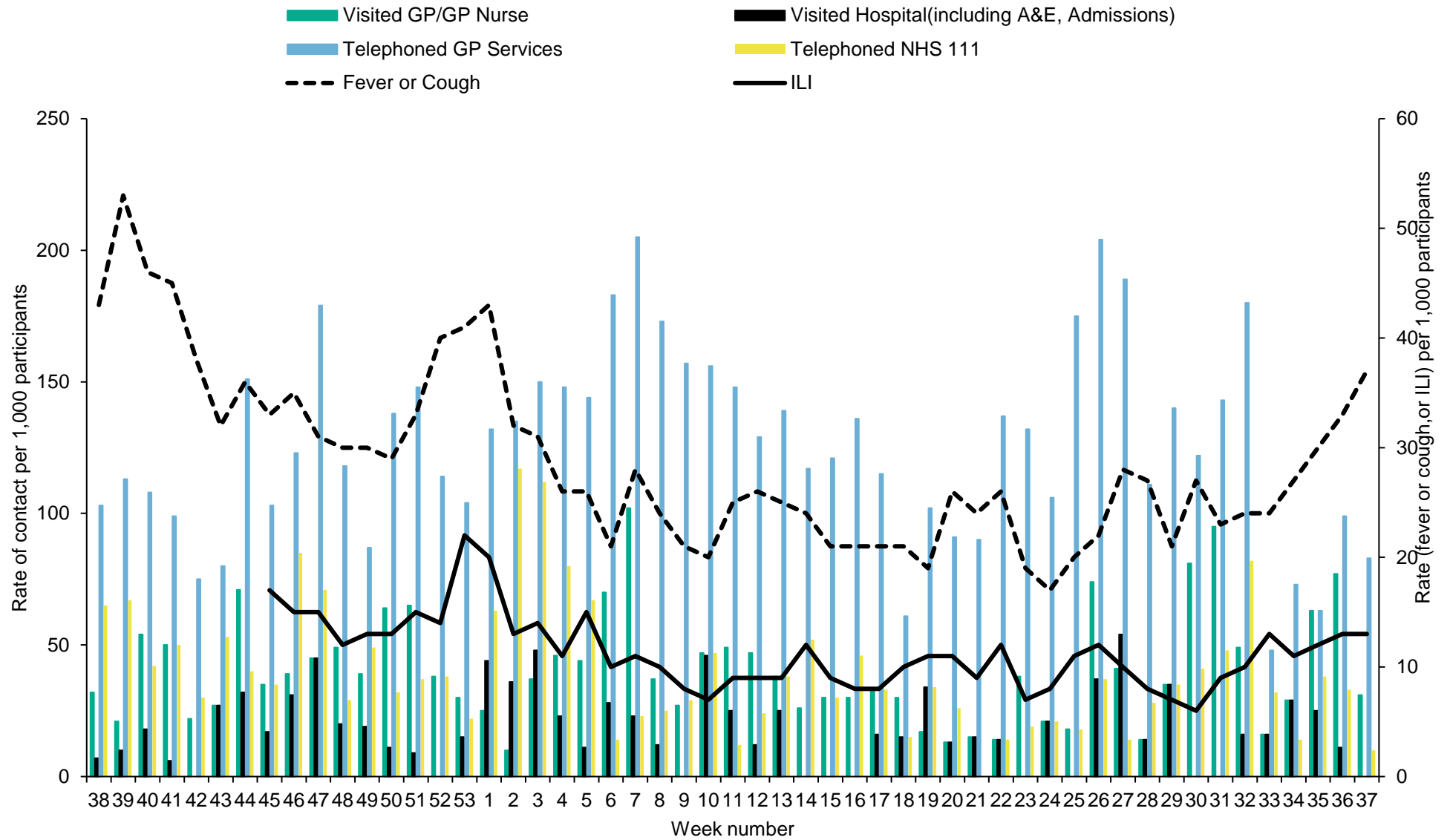
Google search queries

This is a web-based syndromic surveillance system which uses daily search query frequency statistics obtained from the Google Health Trends API. This model focuses on search queries about COVID-19 symptoms as well as generic queries about 'coronavirus' (for example 'COVID-19'). The search query frequency time series has been weighted based on symptom frequency as reported in other data sources. Frequency of searches for symptoms is compared with a baseline calculated from historical daily data. Further information on this model is available here.

During week 37, the overall and media-debiasing weighted Google search scores remained stable (Figure 29).

Figure 29: Normalised Google search score for COVID-19 symptoms, with weighted score for media-debiasing and historical trend, England
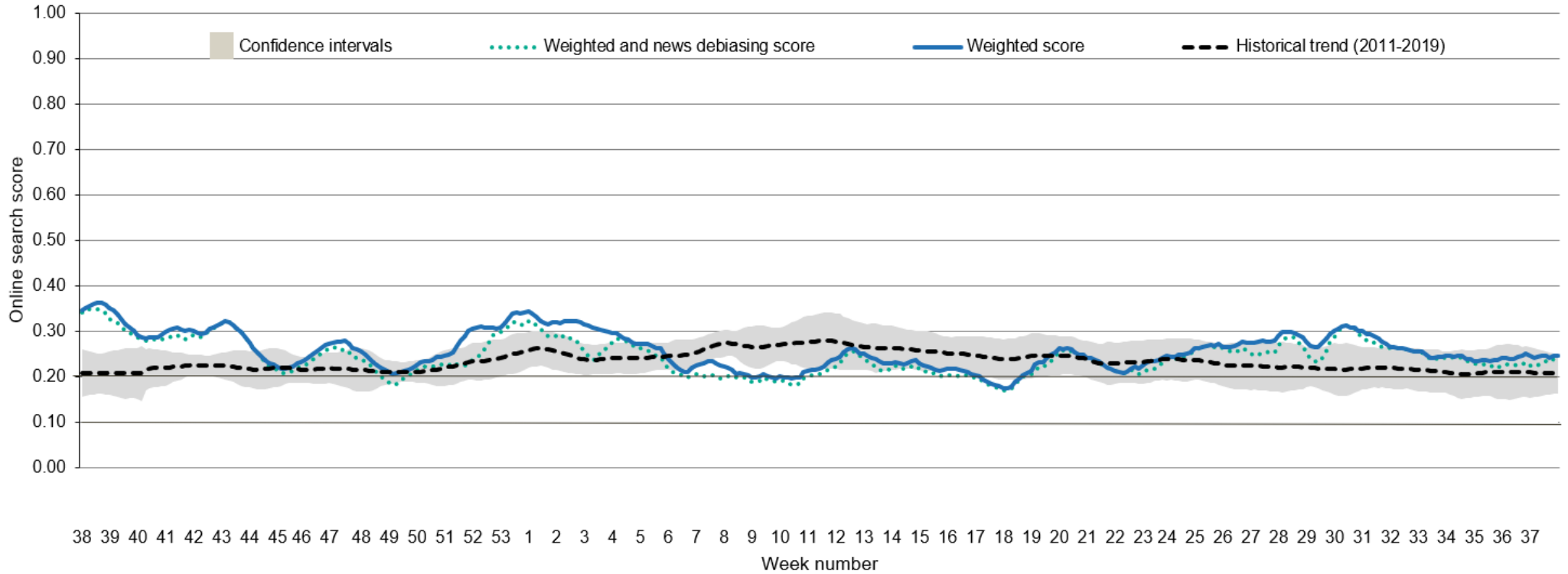
NHS 111

Please note that different syndromic surveillance indictors (NHS 111, GP in hours, GP out of hours and emergency department attendances) are presented here than have been included in previous versions of this report. All indictors previously presented will continue to be published in the PHE Syndromic Surveillance bulletins.

The NHS 111 service monitors daily trends in phone calls made to the service in England, to capture trends in infectious diseases such as influenza and norovirus.

Up to 19 September, NHS 111 calls for cold/flu and cough increased (Figure 30 and 31).

Please note that NHS 111 callers (from 11 May 2020) who are assessed as having probable COVID-19 symptoms are now triaged using symptom specific pathways such as cold or flu, which are included in routine syndromic indicators.

Further information about these caveats is available from the PHE Remote Health Advice Syndromic Surveillance bulletin.

Figure 30: NHS 111 telephony indicators (and 7-day moving average) for number of daily cold/flu calls, England (a) nationally and (b) by age group

(a)

Cold or flu 20/09/2020 - 19/09/2021
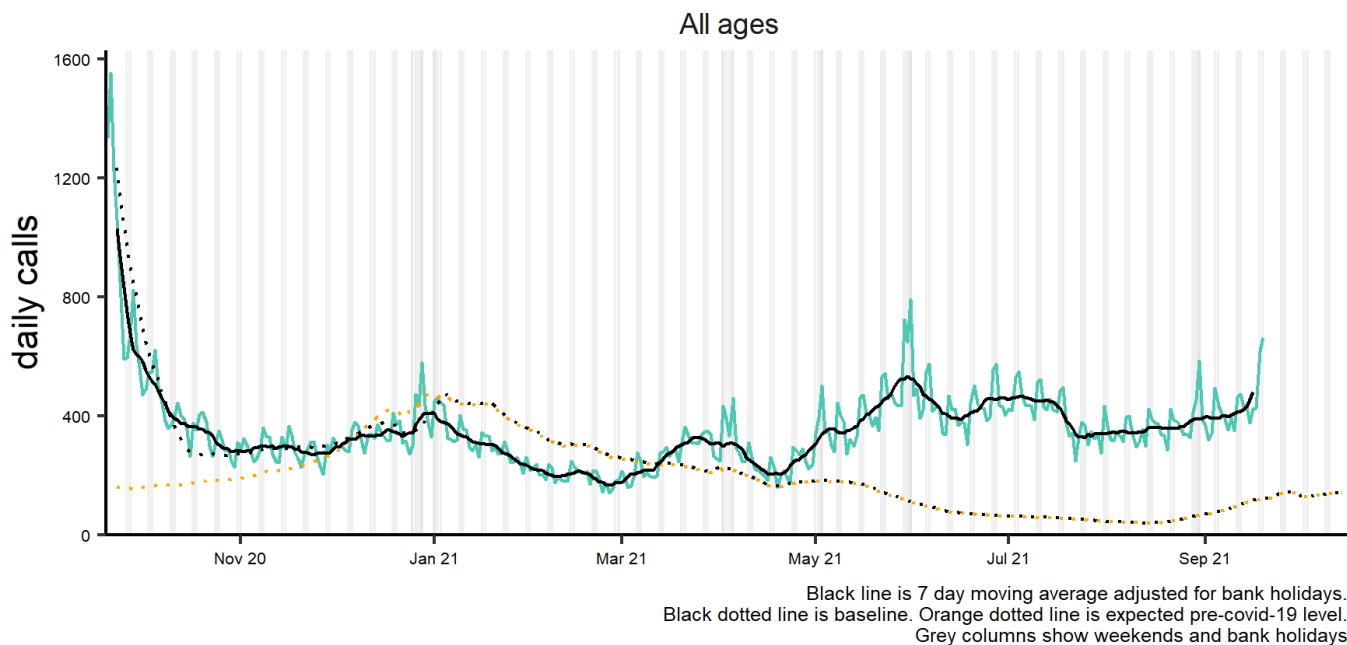
(b)

Cold or flu by age group (years) 20/09/2020 - 19/09/2021
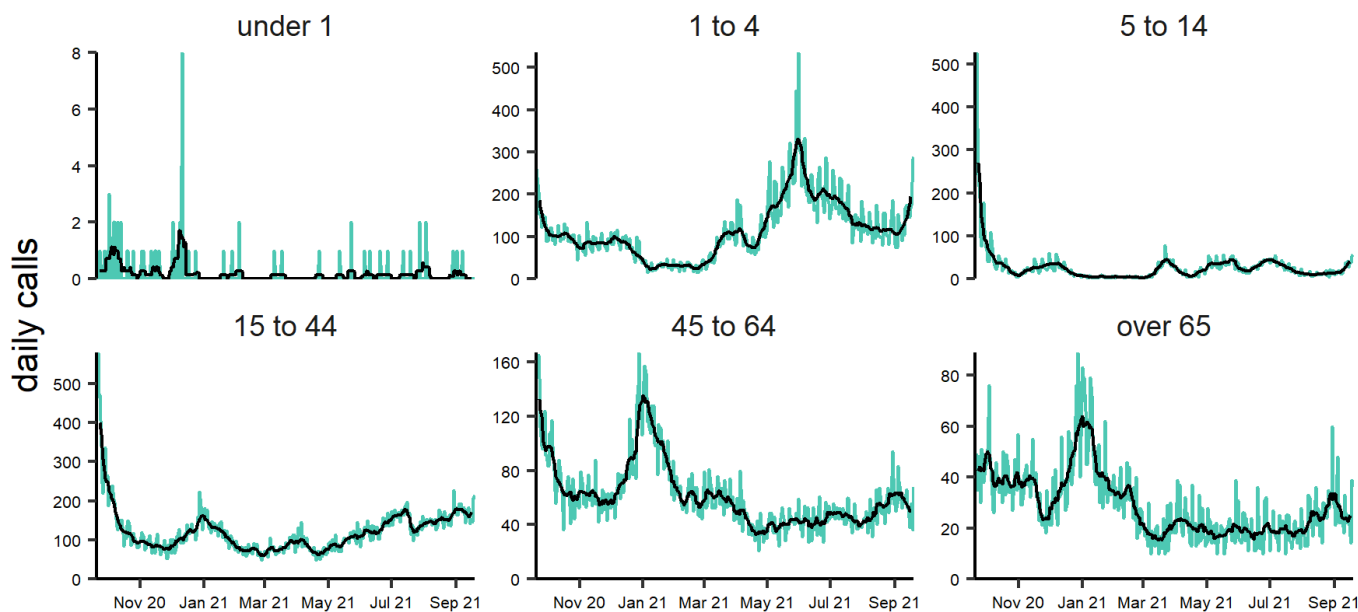
Figure 31: NHS 111 telephony indicators (and 7-day moving average) for number of daily cough calls, England (a) nationally and (b) by age group

(a)

Cough 20/09/2020 - 19/09/2021

All ages

Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.
Grey columns show weekends and bank holidays.
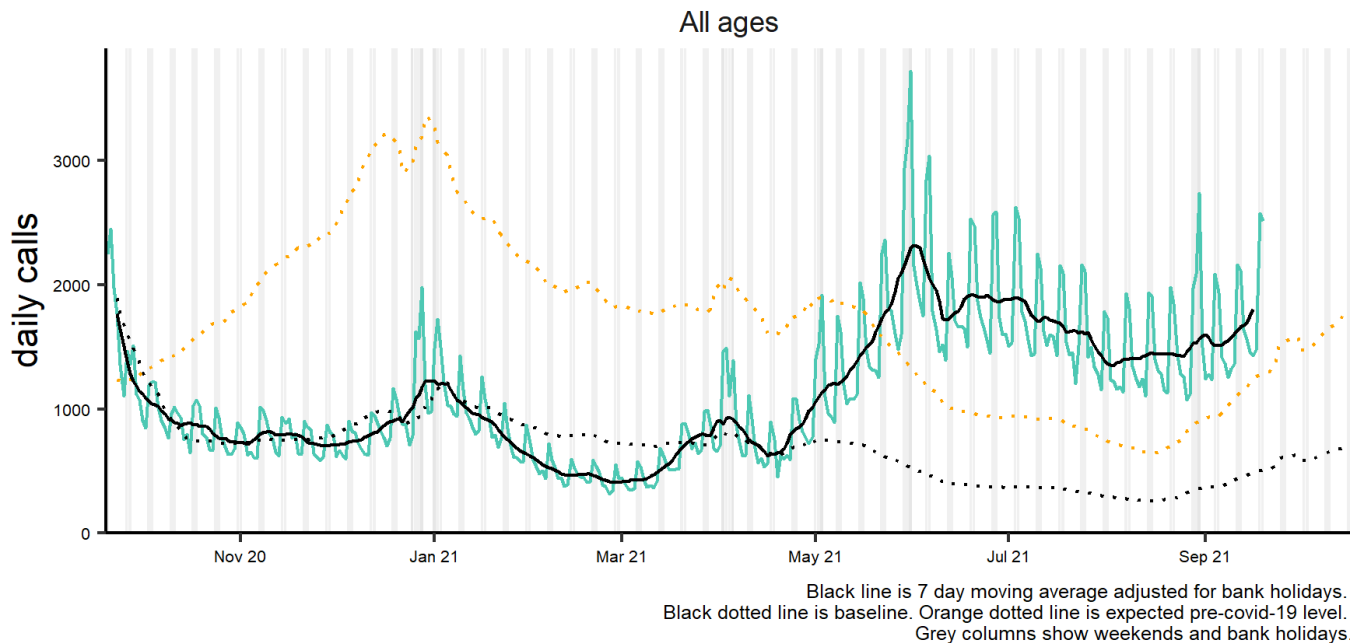
(b)

Cough by age group (years) 20/09/2020 - 19/09/2021
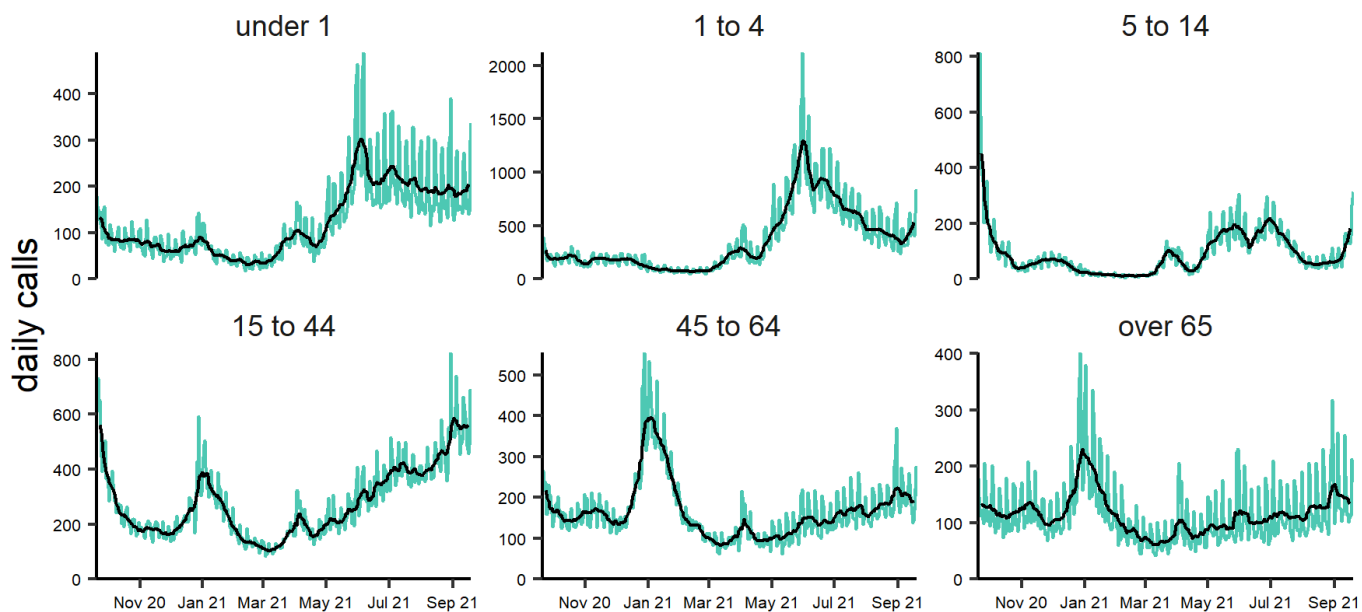
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.

Primary care surveillance

RCGP (England)

The weekly ILI consultation rate through the RCGP surveillance was 1.2 per 100,000 registered population in participating GP practices in week 37 compared to 1.1 per 100,000 in the previous week. This is below the baseline threshold (12.2 per 100,000) (Figure 32). By age group, the highest rates were seen in the 15 to 44-year olds (1.7 per 100,000). The Lower Respiratory Tract Infections (LRTI) consultation rate was at 41.4 per 100,000 in week 37, compared to the rate of 33.3 per 100,000 in the previous week. The COVID-19-like indicator consultation rate was at 173.7 per 100,000 in week 37 compared to a rate of 180.7 per 100,000 in the previous week (Figure 33).

Figure 32: RCGP ILI consultation rates, all ages, England
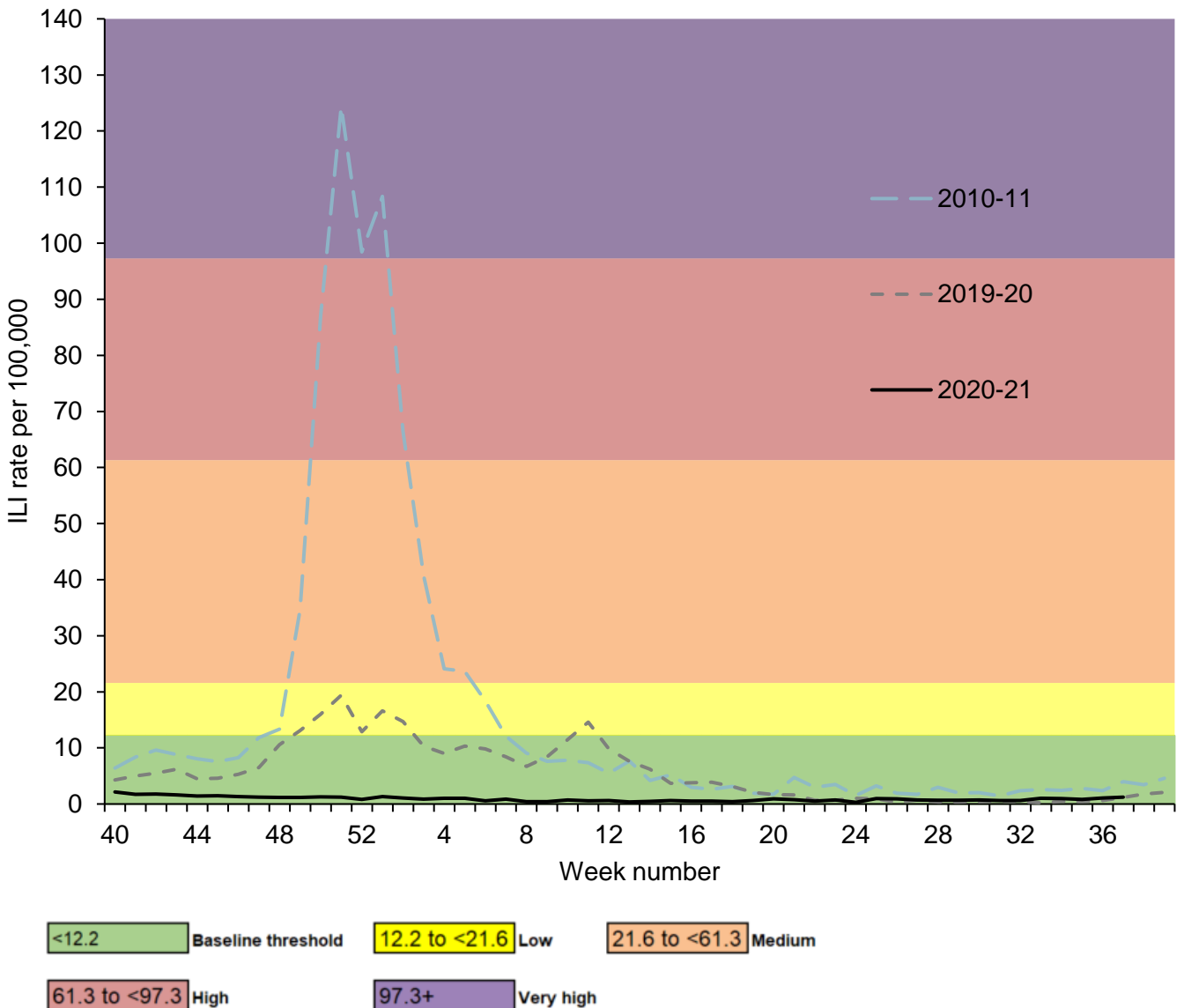
Figure 33: RCGP ILI, LRTI and COVID-19-like indicator consultation rates, England
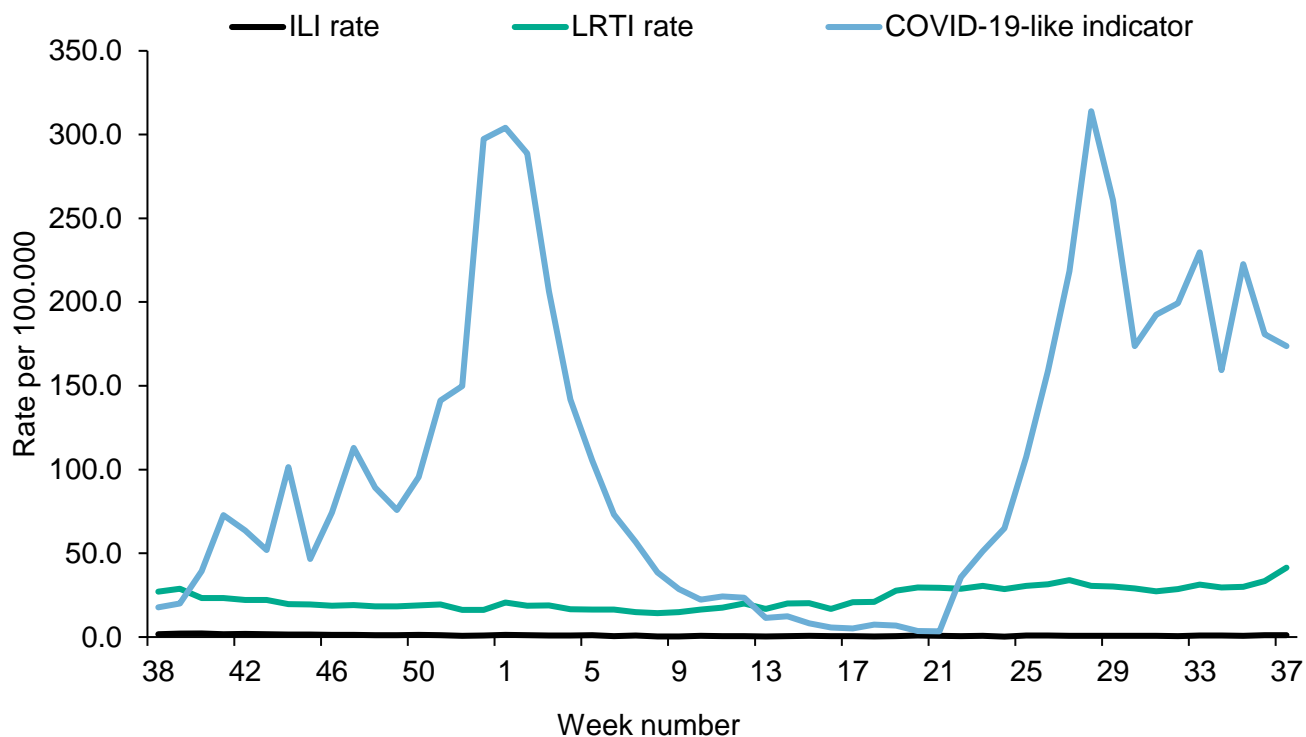
UK

Overall, weekly ILI consultations rates were below baseline levels in all UK schemes (Table 4).

By age group, the highest rates were seen in the 45 to 64-year olds in Scotland (1.1 per 100,000) and the 15 to 44-year olds in Northern Ireland (1.4 per 100,000).

Table 4: GP ILI consultations in the UK for all ages with MEM thresholds applied

GP ILI consultation rates (all ages)	Week number																	
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
England (RCGP)	0.9	0.7	0.5	0.7	0.3	1.0	0.9	0.7	0.7	0.7	0.7	0.6	0.6	1.0	1.0	0.8	1.1	1.2
Wales	0.5	0.0	0.5	0.7	0.3	0.3	0.3	0.5	1.5	0.8	0.3	1.0	0.6	0.9	0.8	2.7	2.3	
Scotland	0.2	0.2	0.3	0.2	0.5	0.4	0.6	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.7	0.8	0.7
Northern Ireland	0.5	0.4	0.4	0.6	0.6	0.6	1.0	0.9	0.9	0.8	0.9	0.7	1.0	1.1	0.7	0.7	1.2	0.9

Baseline threshold	Low	Medium	High	Very high
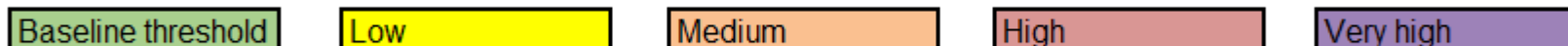
The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity (based on 10 seasons excluding 2009 to 2010), in a standardised approach across Europe. For MEM threshold values for each country, please visit the PHE webpage Sources of UK flu data: influenza surveillance in the UK.

GP In Hours, Syndromic Surveillance

The GP In Hours (GPIH) syndromic surveillance system monitors the number of GP visits during regular hours of known clinical indicators.

Up to 19 September, GP in-hours consultations for influenza-like illness remained stable (Figure 34).

Further indicators and information about caveats are available from the PHE GP In Hours Syndromic Surveillance bulletin.

Figure 34: GPIH clinical indicators for influenza-like illness GP consultations, England (a) nationally, (b) by age group and (c) by PHE Centre

(a)

Influenza-like illness 20/09/2020 - 19/09/2021

Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.
Grey columns show weekends and bank holidays.
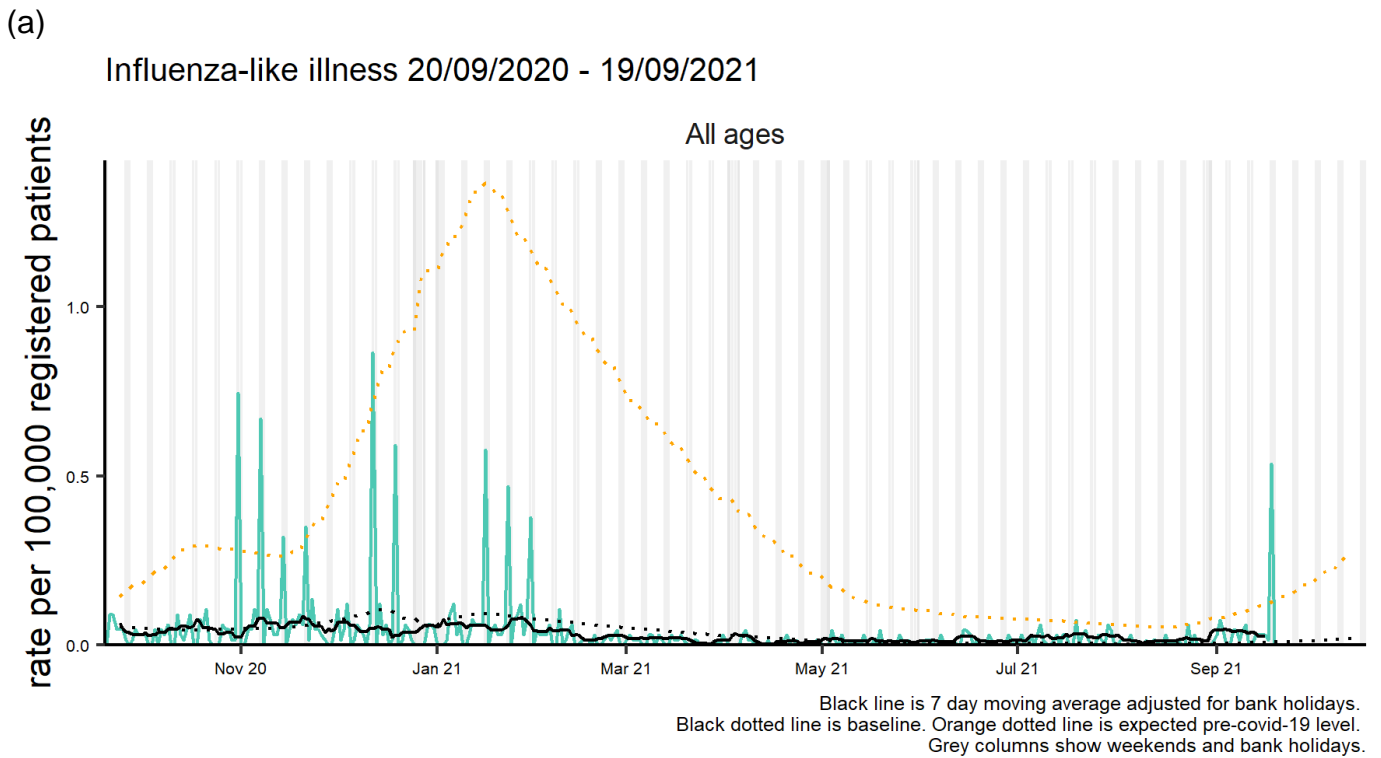
(b)

Influenza-like illness by age group (years) 20/09/2020 - 19/09/2021
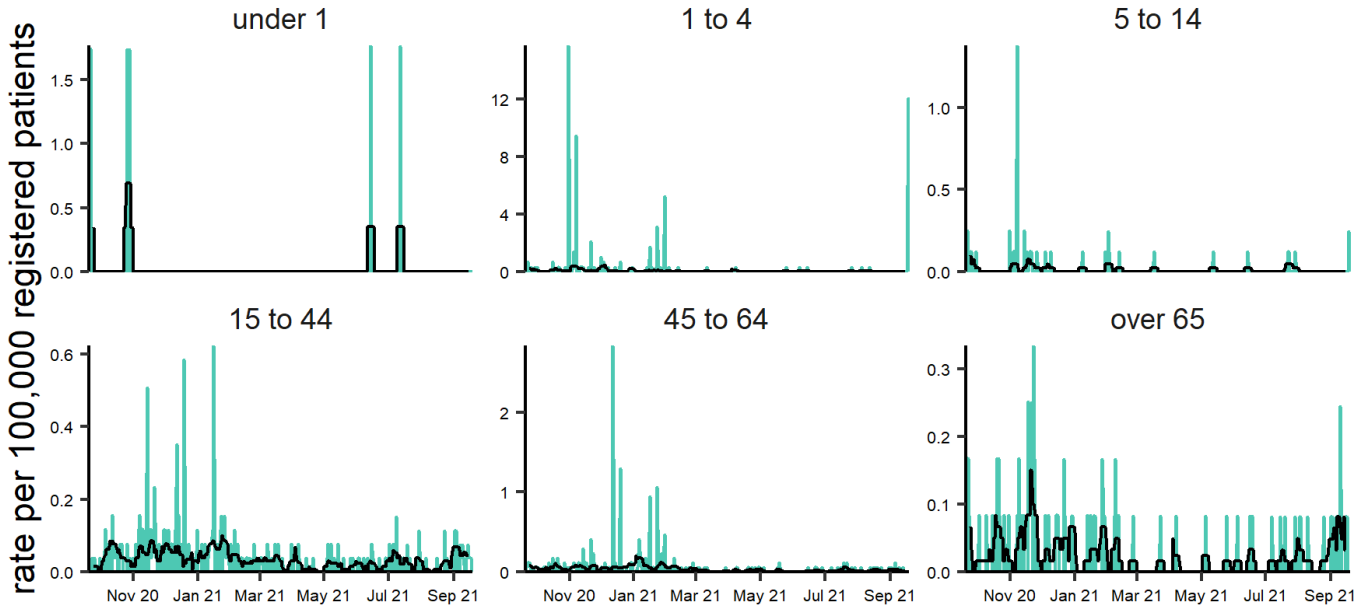
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.

(c)

Influenza-like illness by PHE centre 20/09/2020 - 19/09/2021

NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.

GPIH Baselines are modelled from historical data to give current seasonally expected levels.
GP consultations rates decreased during 2020 due to changes in guidance on accessing health care, therefore separate modelled estimates are provided to show seasonally expected levels pre-covid-19.

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GP Out of Hours, Syndromic Surveillance

The GP Out of Hours (GPOOH) syndromic surveillance system monitors the numbers of daily unscheduled visits and calls to GPs during evenings, overnight, on weekends and on public holidays. This system covers around 55% of England's out of hour activity.

Up to 19 September, GP out-of-hours and unscheduled care consultations for ARI and ILI increased (Figure 35 and 36).

Figure 35: GPOOH number of daily contacts for all ages for influenza-like illness, England

Influenza-like illness 20/09/2020 - 19/09/2021

Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.
Grey columns show weekends and bank holidays.
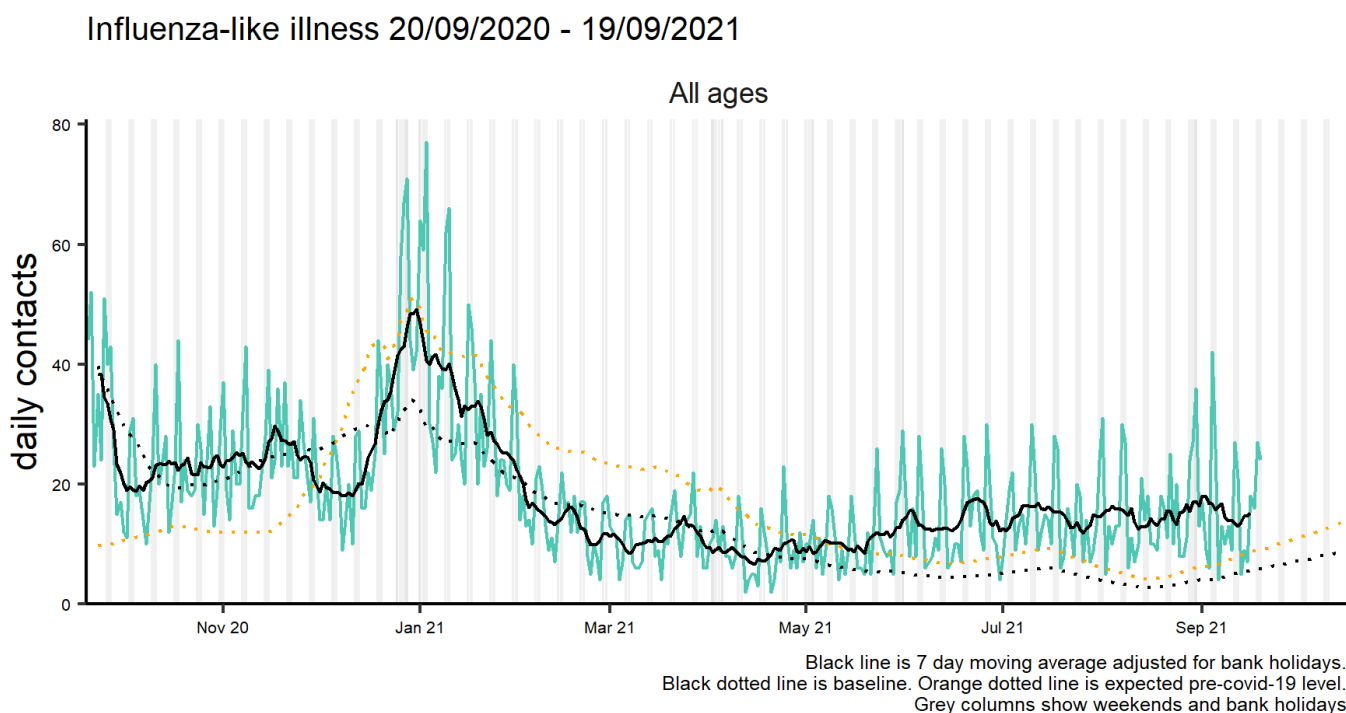
Figure 36: GPOOH number of daily contacts for acute respiratory infections, England (a) nationally and (b) by age group

(a)

Acute respiratory infection 20/09/2020 - 19/09/2021

All ages

Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.
Grey columns show weekends and bank holidays.
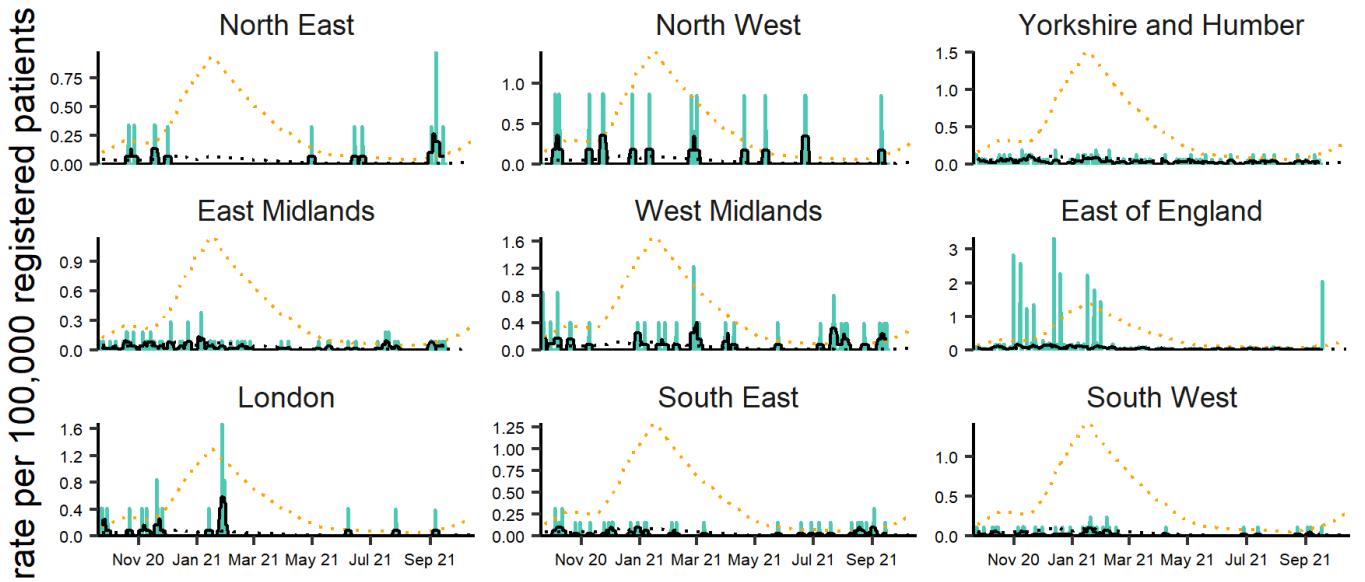
(b)

Acute respiratory infection by age group (years) 20/09/2020 - 19/09/2021

NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.

Sentinel swabbing scheme in the UK

In week 37 2021, 14 samples tested positive for SARS-CoV-2 with an overall positivity of 14.6% (14 out of 96) compared to 23.3% (17 out of 73) in the previous week, through the UK GP sentinel swabbing schemes (Figure 37).

In week 37, 13 samples tested positive for RSV, with an overall positivity of 19.4% (13 out of 67) compared to 12.0% (6 out of 50) in the previous week.

A graph for influenza will be included when a positive specimen is identified through the scheme.

Samples up to week 41 2020 were only tested for SARS-CoV-2.

Figure 37: Number of positive samples and weekly positivity (%) for (a) COVID-19 and (b) RSV, UK GP sentinel swabbing scheme

(a)
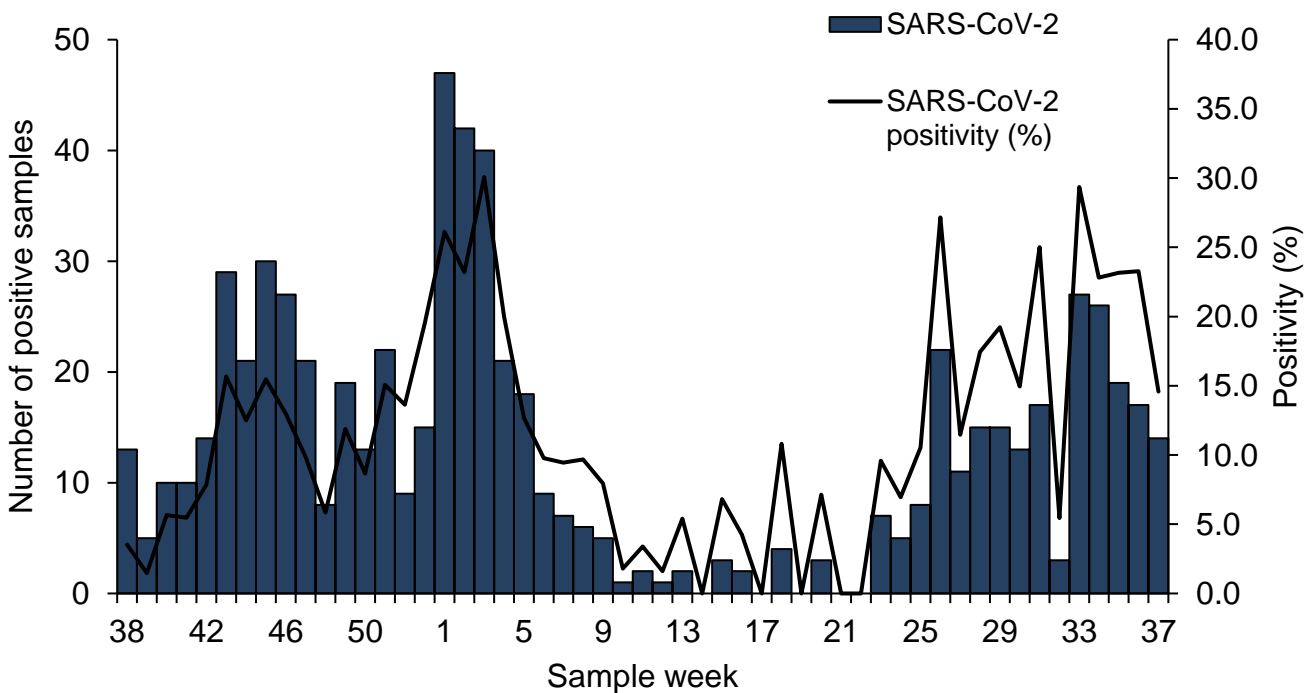
(b)
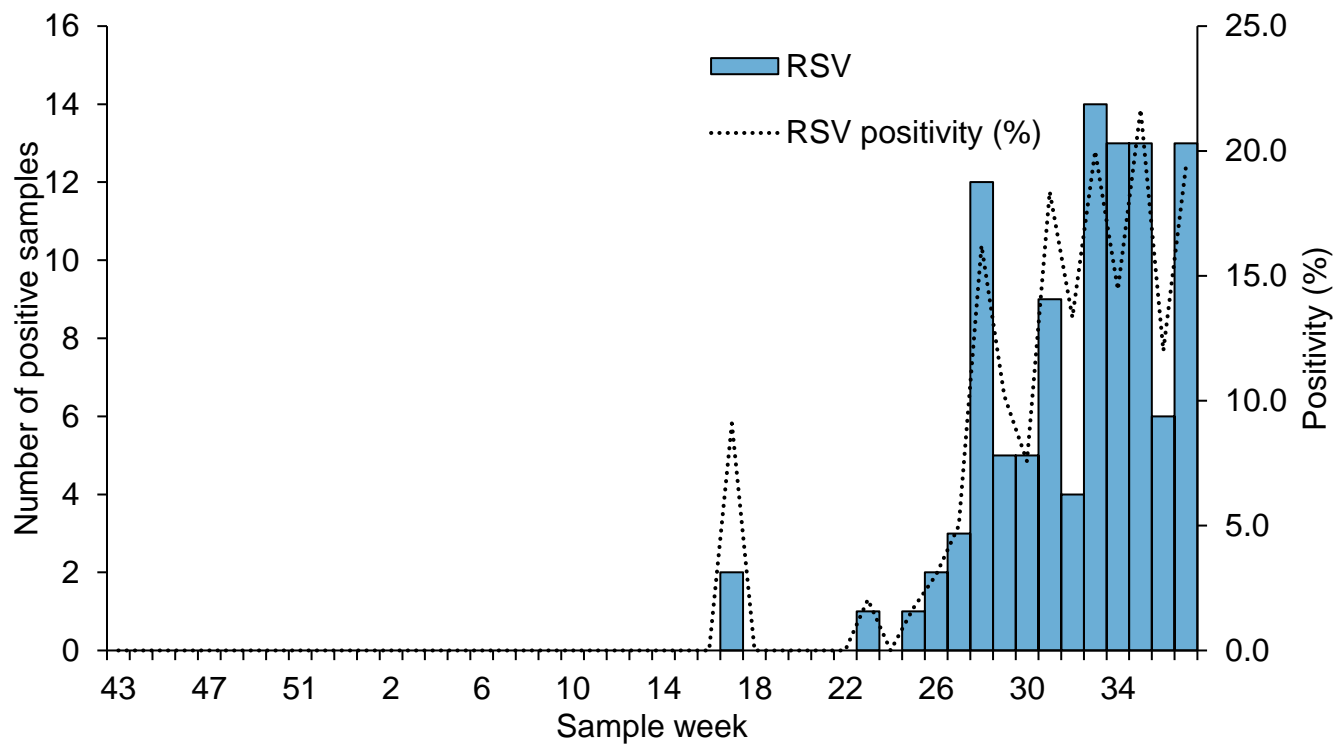
*For the most recent week, more samples are expected to be tested therefore the graph in Figure 37 should be interpreted with caution

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

Secondary care surveillance

SARI Watch

The Severe Acute Respiratory Infection (SARI) Watch surveillance system was established in 2020 to report the number of laboratory-confirmed influenza and COVID-19 cases admitted to hospital and critical care units (ICU and HDU) in NHS acute trusts across England. This has replaced the USISS Mandatory and Sentinel data collections for influenza surveillance used in previous seasons, and the COVID-19 hospitalisations in England surveillance system (CHESS) collections for COVID-19 surveillance.

The weekly rate of new admissions of COVID-19, influenza and RSV cases is based on the trust catchment population of those NHS Trusts who made a new return. This may differ from other published figures such as the total number of people currently in hospital with COVID-19.

Trends in hospital and critical care admission rates need to be interpreted in the context of testing recommendations.

Hospitalisations, SARI Watch

In week 37, the overall weekly hospital admission rate for COVID-19 decreased. There were no new hospital admissions to sentinel Trusts for influenza in week 37.

The hospitalisation rate for COVID-19 was at 6.36 per 100,000 in week 37 compared to 7.37 per 100,000 in the previous week.

By PHE centre, the highest hospital admission rate for COVID-19 was observed in the North East. By age groups, the highest hospital admission rate for confirmed COVID-19 was in the 85-year olds and over.

Figure 38: Weekly overall hospital admission rates of new COVID-19 and influenza positive cases per 100,000 population reported through SARI Watch, England
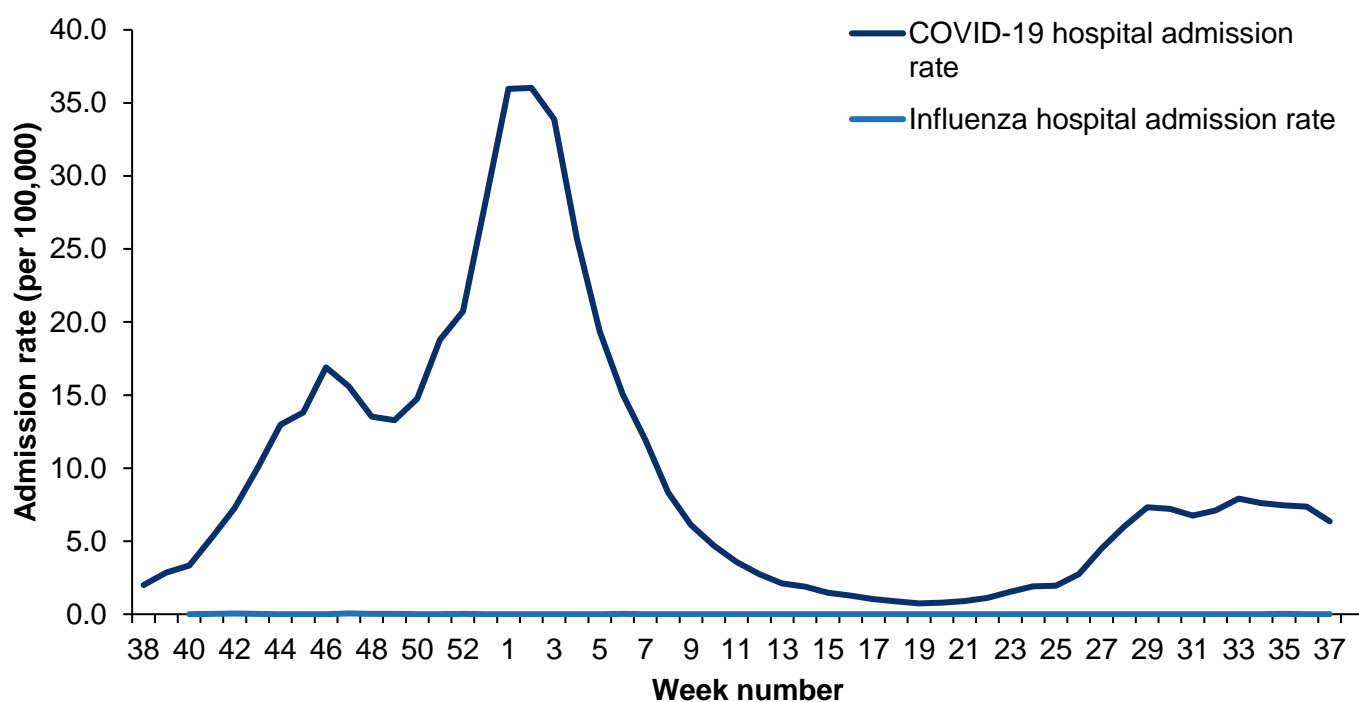
* influenza hospital admission rate is reported from week 40 2020 onwards
* influenza hospital admission rate based on 19 sentinel NHS trusts for week 37
* COVID-19 hospital admission rate based on 111 NHS trusts for week 37
* SARI Watch data are provisional

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Figure 39: Weekly overall influenza hospital admission rates per 100,000 trust catchment population with MEM thresholds, SARI Watch, England

<0.99	Baseline threshold	0.99 to <2.65	Low	2.65 to <7.87	Medium
7.87 to <12.73	High	12.73+	Very high		
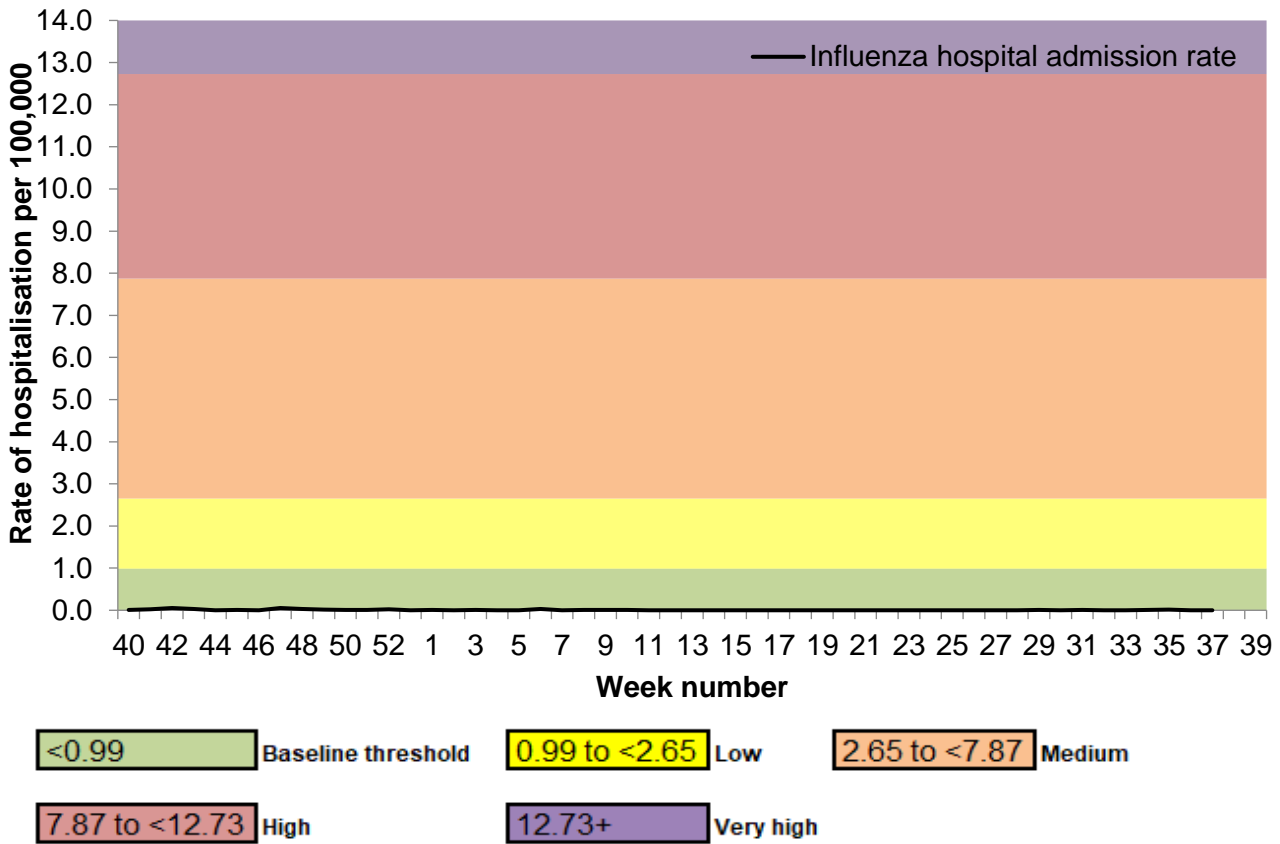
* the MEM thresholds used are those from the 2019 to 2020 season due to the pandemic

Figure 40: Weekly influenza hospital admissions by influenza type, SARI Watch, England

50
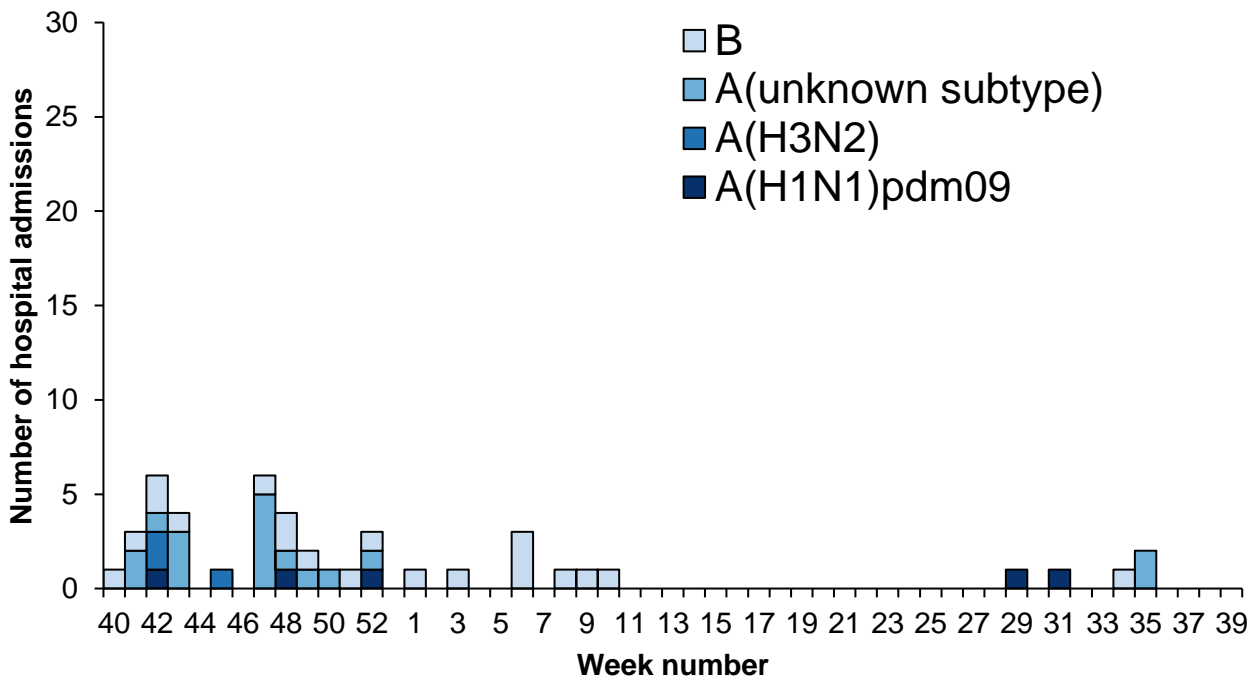
Figure 41: Weekly hospital admission rate by PHE Centre for new (a) COVID-19 positive cases and (b) influenza reported through SARI Watch

(a)

(b)
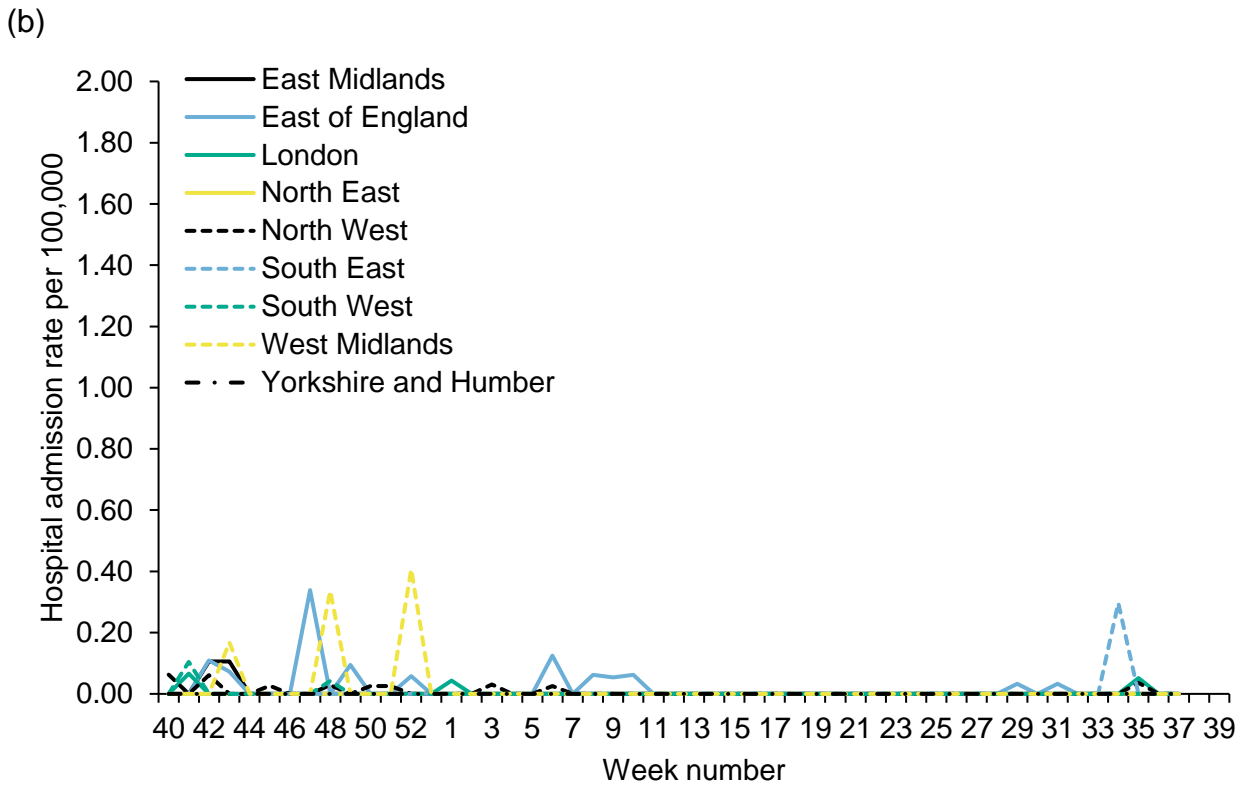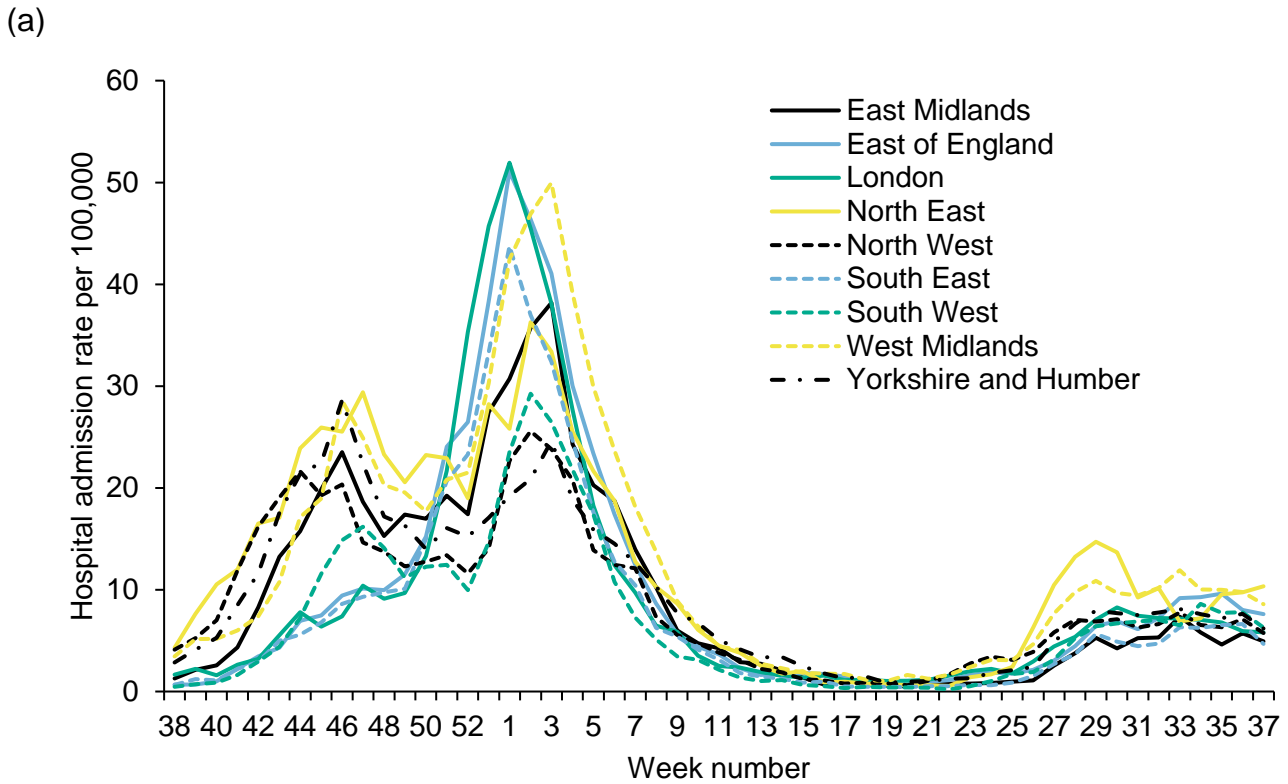
Figure 42: Weekly hospital admission rate by age group for new (a) COVID-19 positive cases and (b) influenza reported through SARI Watch

(a)

(b)
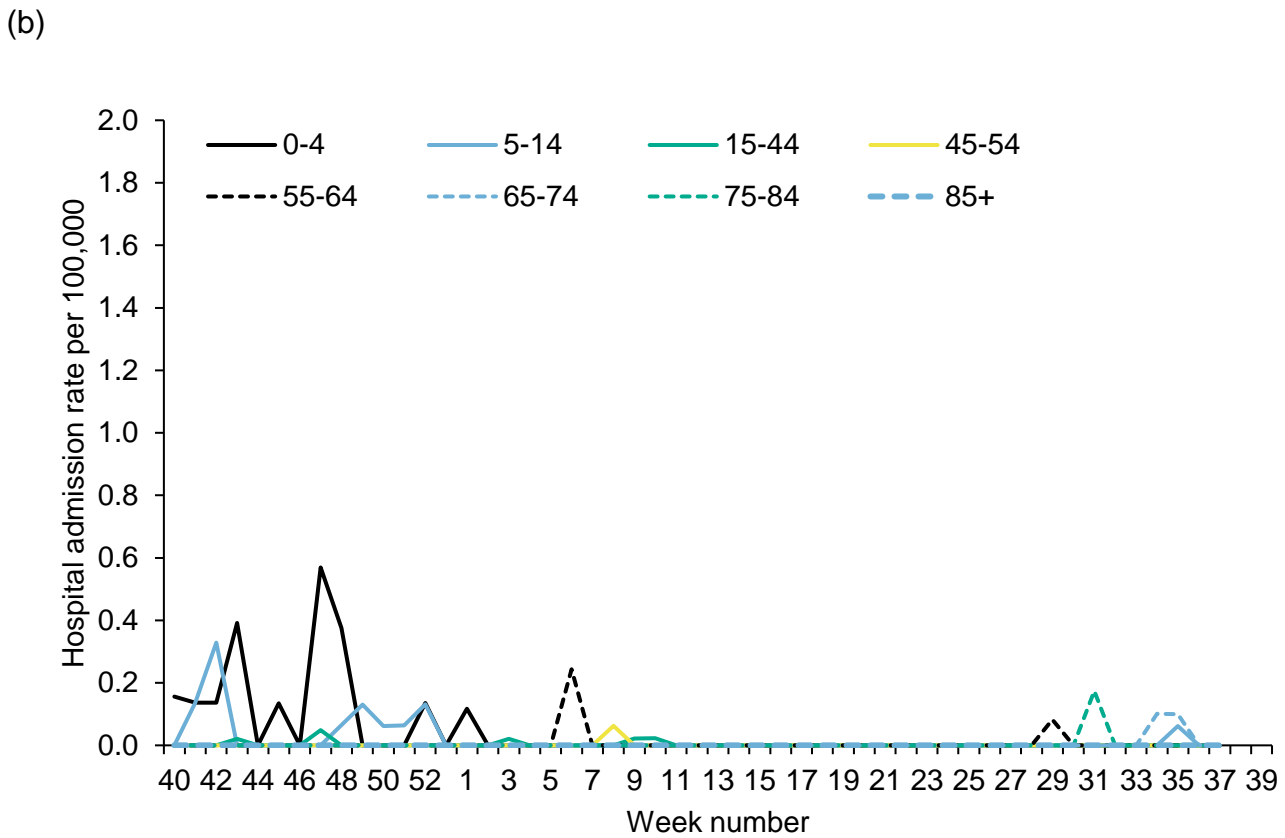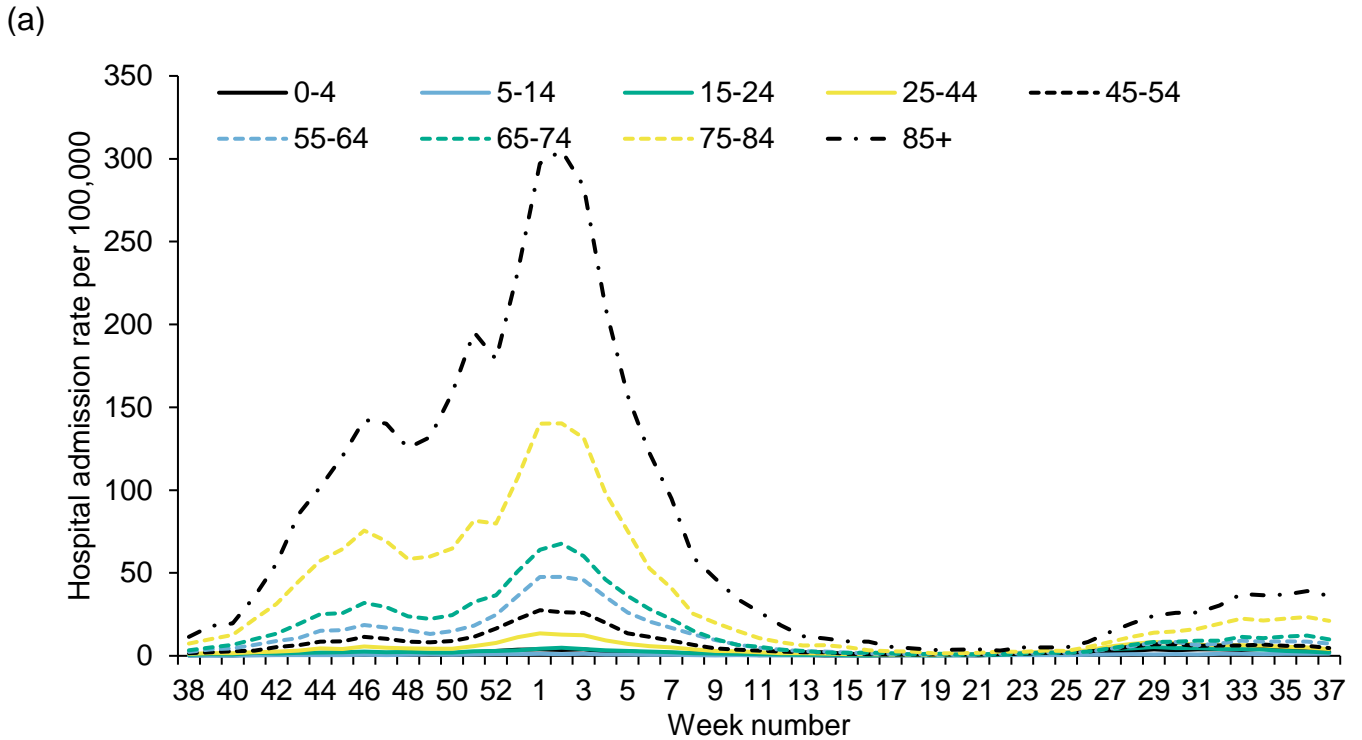
ICU or HDU admissions, SARI Watch

In week 37, the overall weekly ICU or HDU admission rates for COVID-19 remained stable. There were no new ICU or HDU admissions for influenza in week 37.

The ICU or HDU rate for COVID-19 was at 0.51 per 100,000 in week 37 compared to 0.56 per 100,000 in the previous week.

By PHE Centre, the highest ICU or HDU admission rates for COVID-19 were observed in the East of England. By age groups, the highest ICU or HDU admission rates for COVID-19 were observed in the 65 to 74-year olds.

Figure 43: Weekly overall ICU or HDU admission rates of new COVID-19 and influenza positive cases per 100,000 population reported through SARI Watch, England
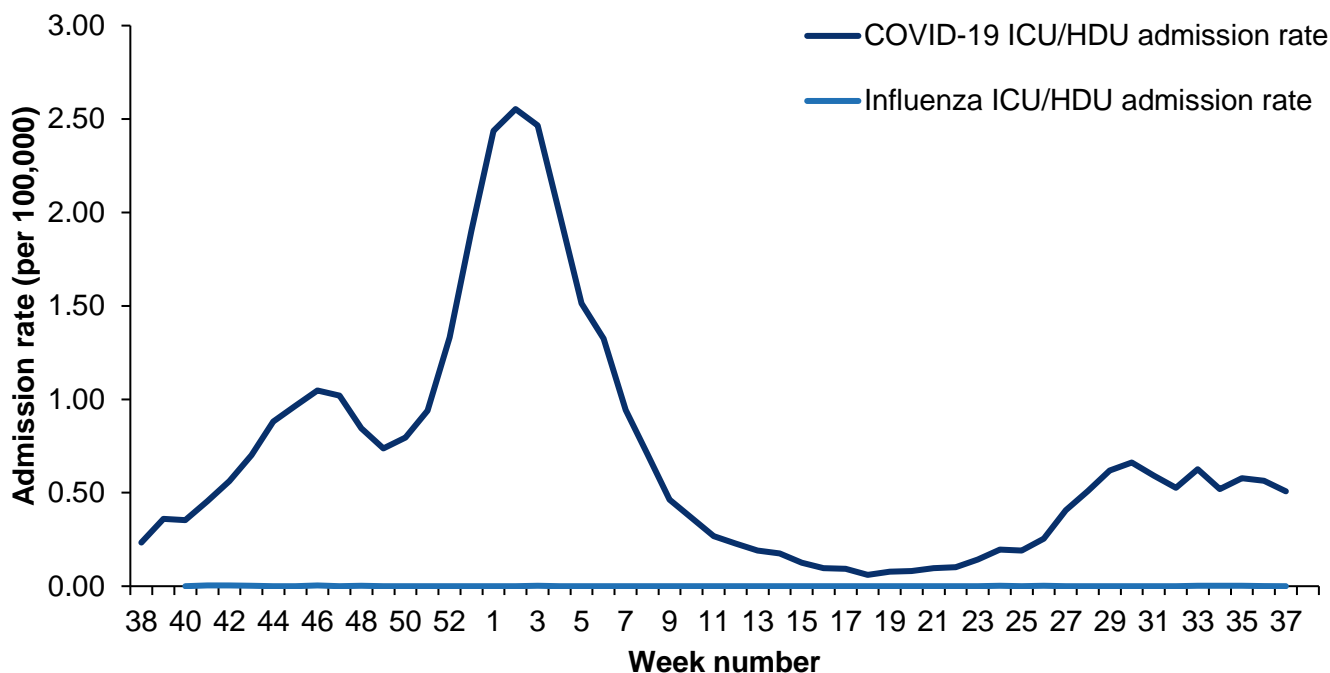

* influenza ICU or HDU admission rate is reported from week 40 2020 onwards
* influenza ICU or HDU admission rate based on 83 NHS trusts for week 37
* COVID-19 ICU or HDU admission rate based on 108 NHS trusts for week 37
* SARI Watch data are provisional

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Figure 44: Weekly overall influenza ICU or HDU admission rates per 100,000 trust catchment population with MEM thresholds, SARI Watch, England

<0.11	Baseline threshold	0.11 to <0.32	Low	0.32 to <0.64	Medium
0.64 to <0.88	High	0.88+	Very high		
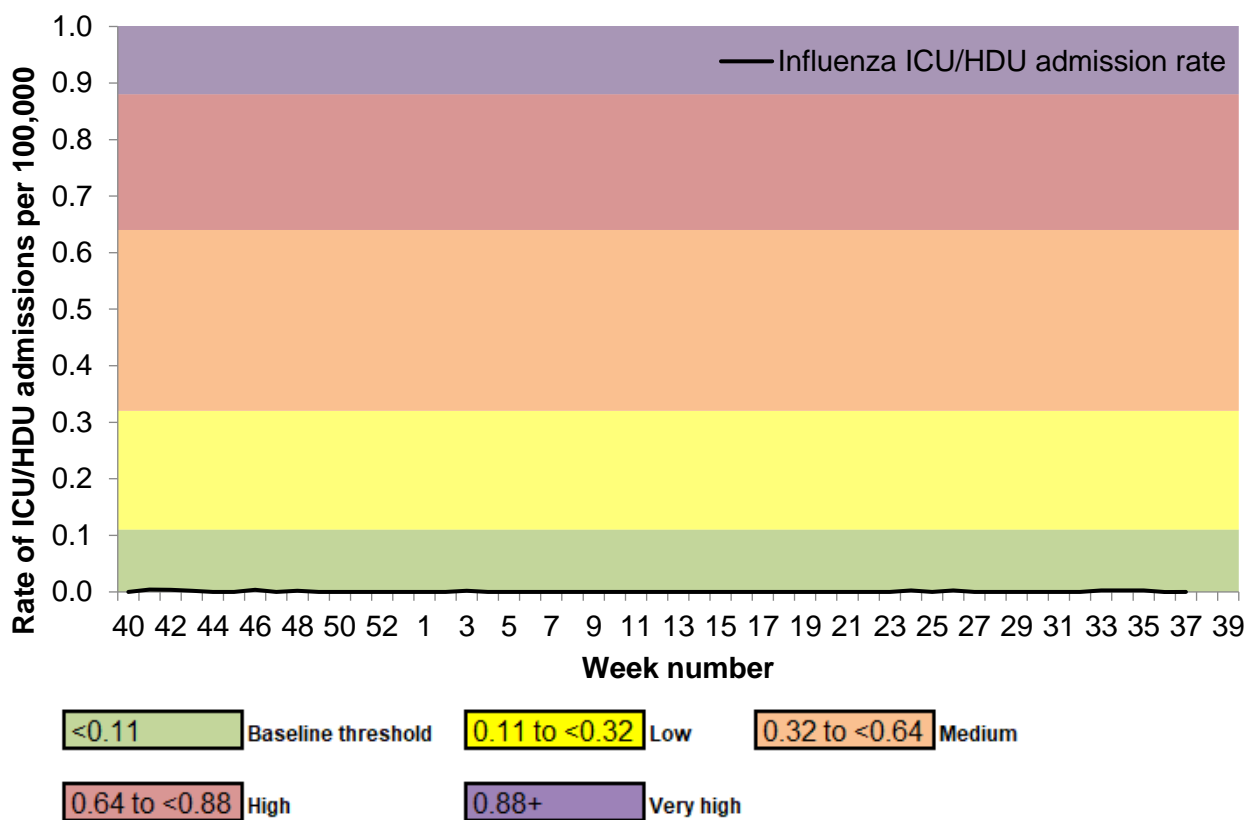
Figure 45: Weekly influenza ICU or HDU admissions by influenza type, SARI Watch, England
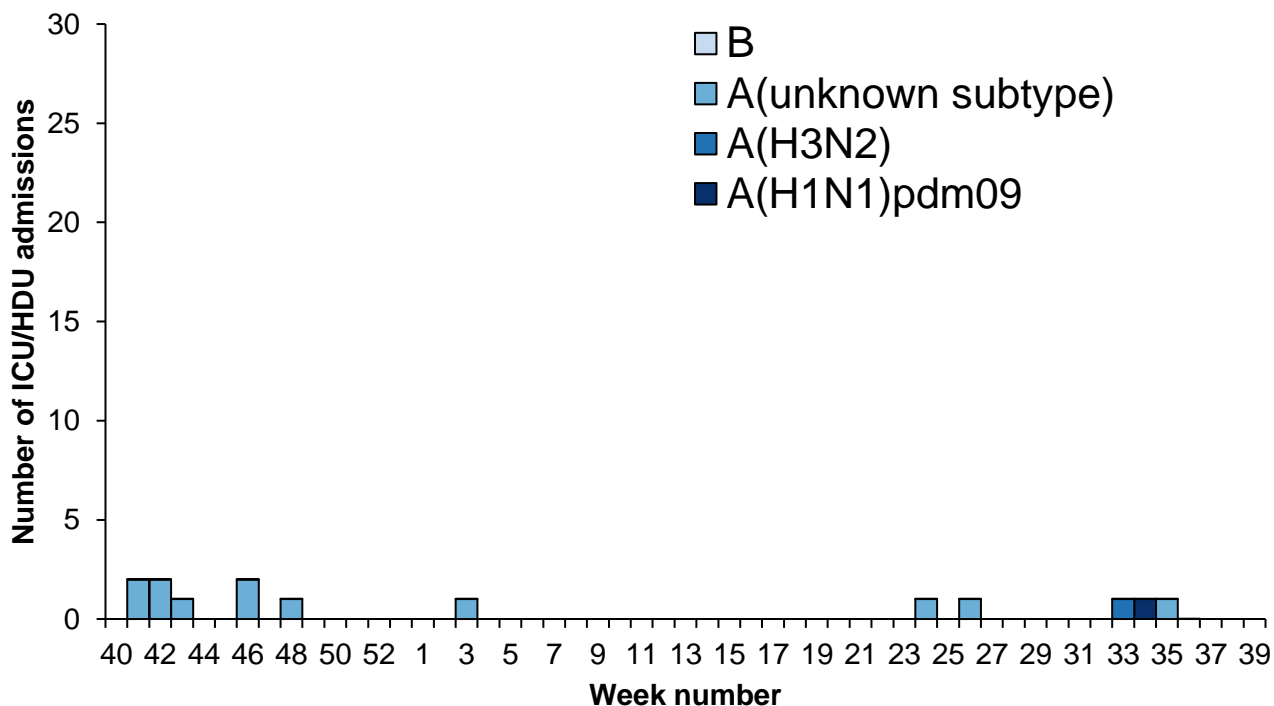
Figure 46: Weekly ICU or HDU admission rate by PHE Centre for new (a) COVID-19 positive cases and (b) influenza, reported through SARI Watch

(a)

(b)
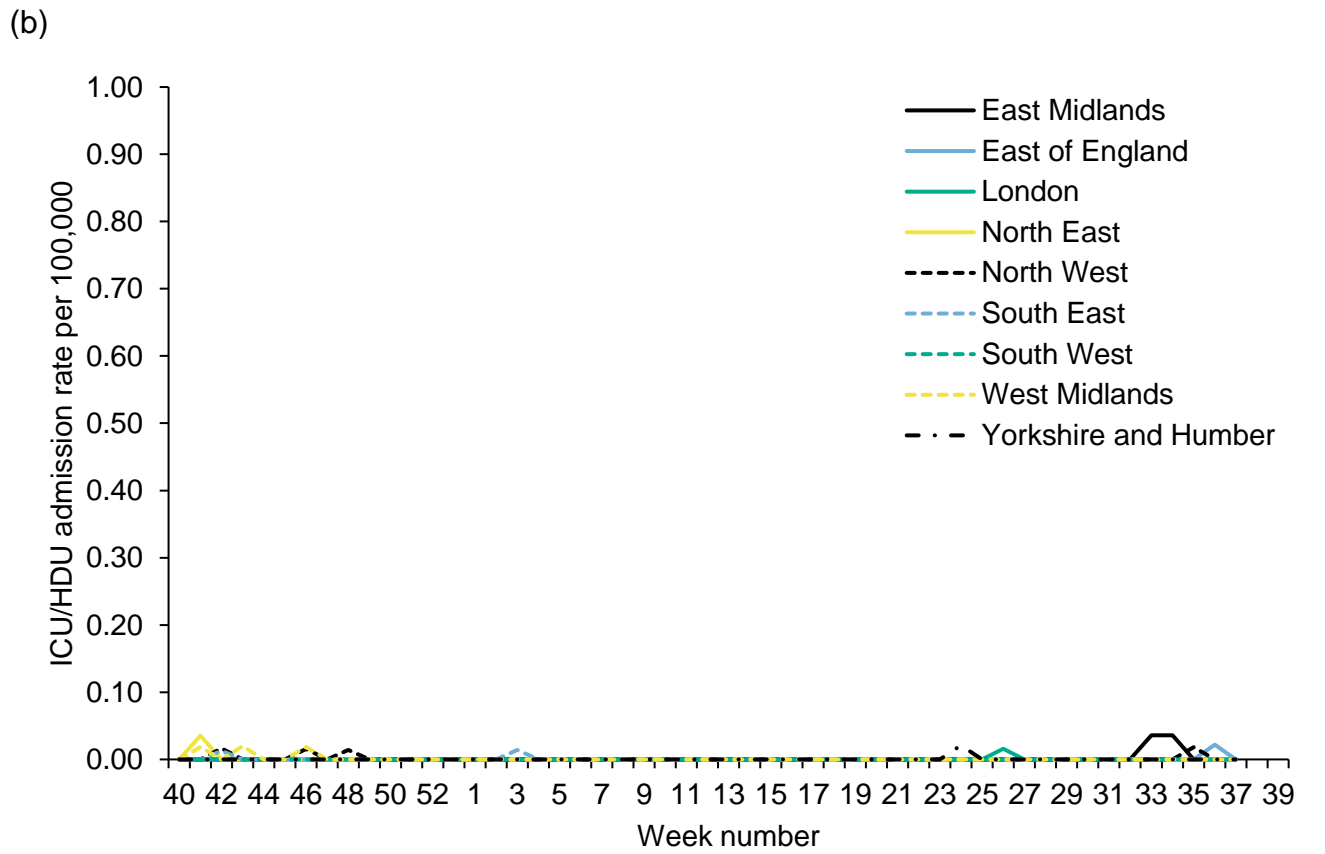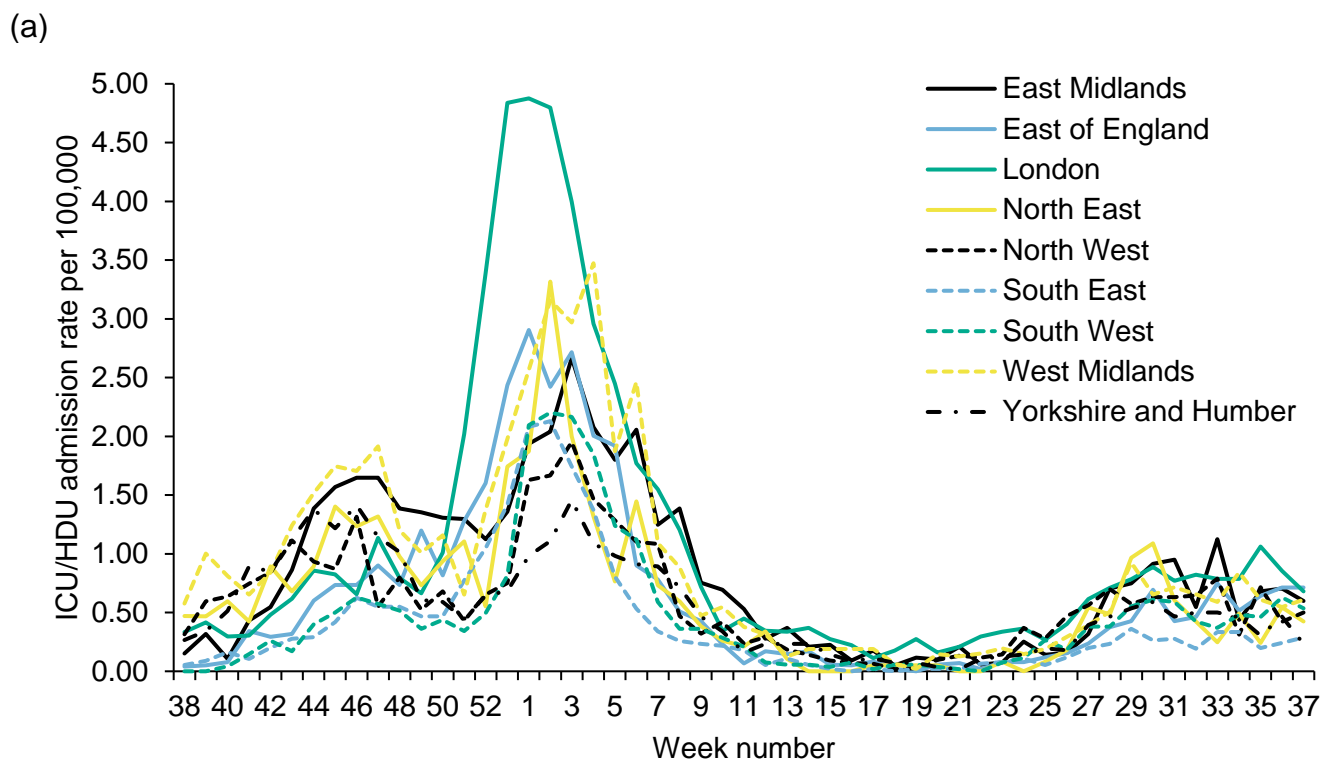
Figure 47: Weekly ICU or HDU admission rate by age group for new (a) COVID-19 positive cases and (b) influenza, reported through SARI Watch

(a)
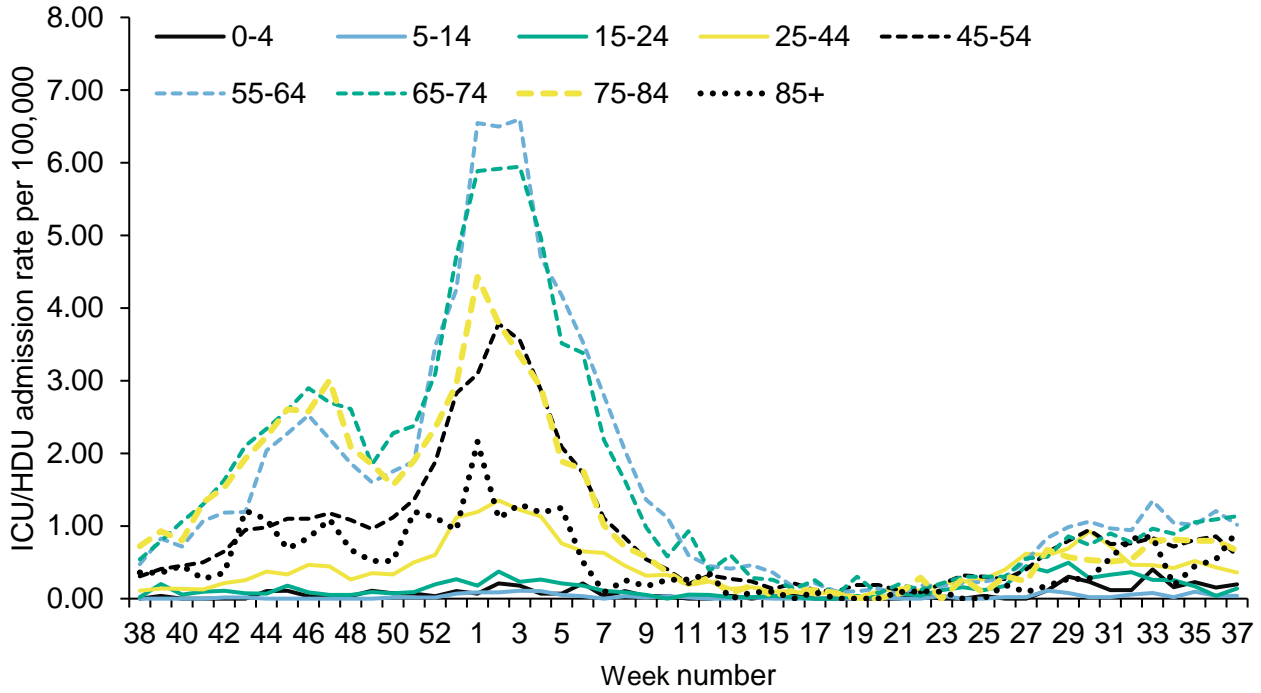
(b)
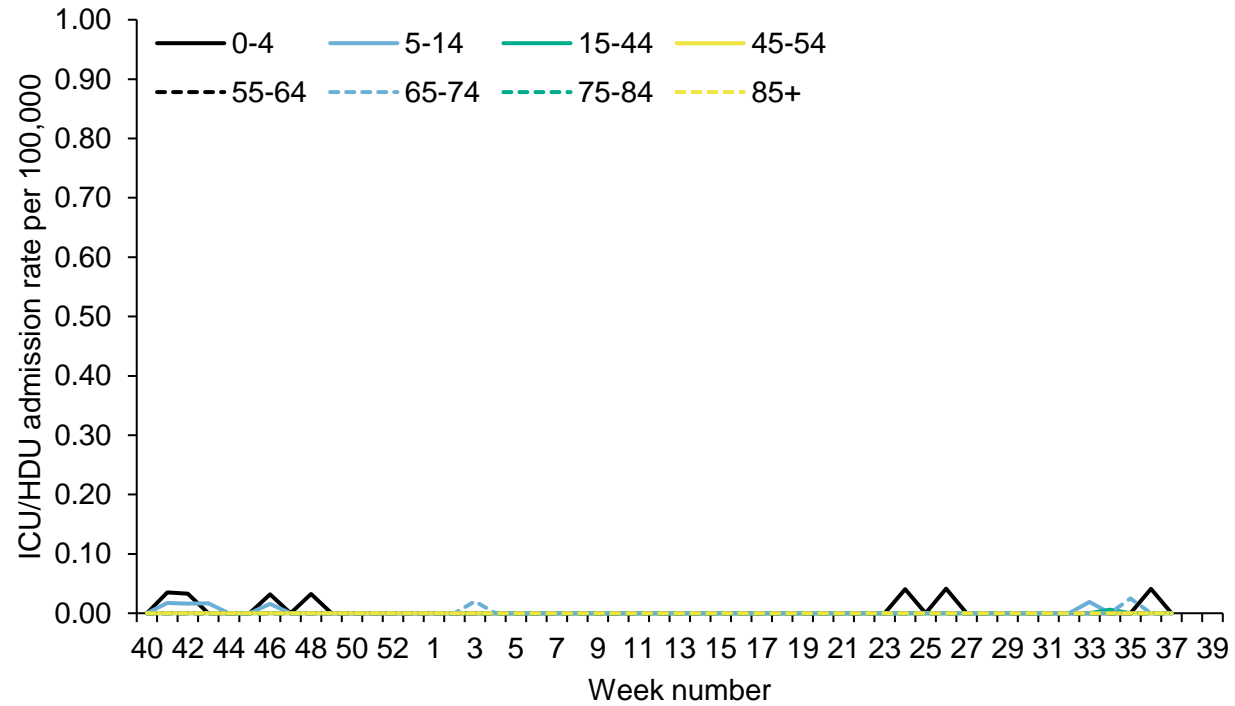
ECMO, SARI Watch

From week 38 2020, a total of 366 laboratory confirmed COVID-19 admissions have been reported from the 6 Severe Respiratory Failure (SRF) centres in the UK.

There was 1 new laboratory confirmed COVID-19 admission reported in week 37 (Figure 48).

Figure 48: Laboratory confirmed ECMO admissions (COVID-19, influenza and non-COVID-19 confirmed) to Severe Respiratory Failure centres in the UK

* SARI Watch data are provisional

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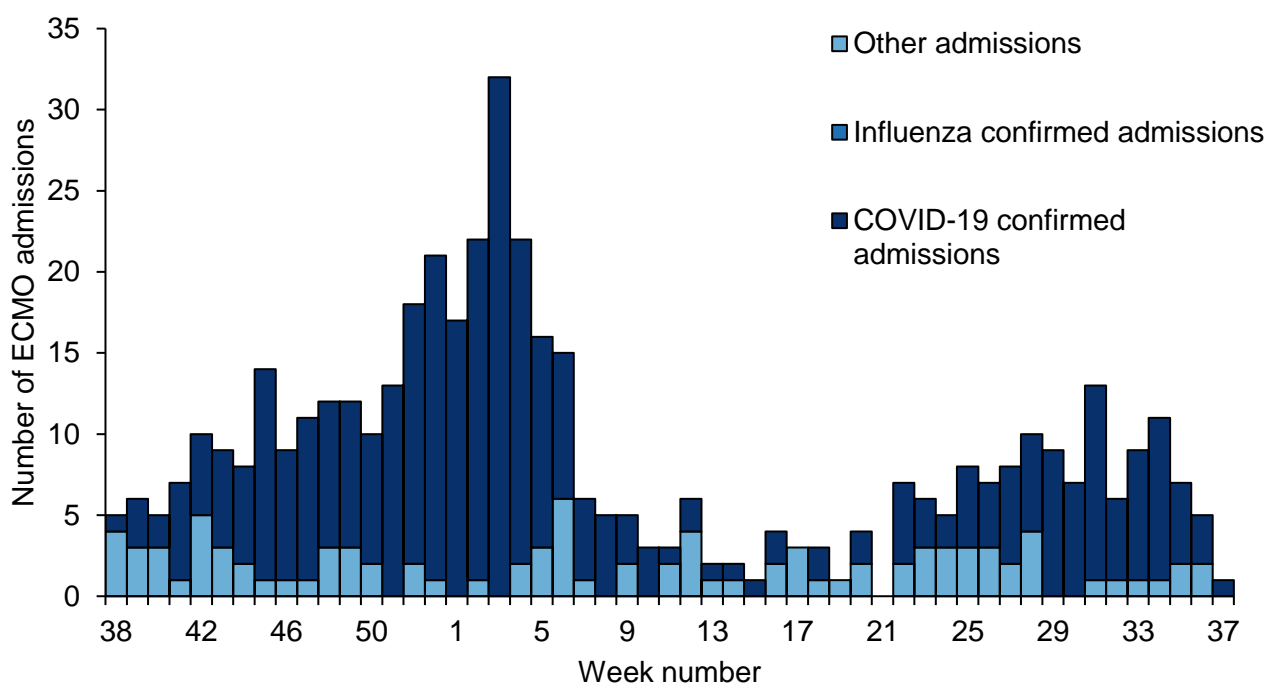
RSV admissions, SARI Watch

Data on hospitalisations, including ICU/HDU admissions, with Respiratory Syncytial Virus (RSV) are shown below. RSV SARI Watch surveillance is sentinel.

Figure 49: Weekly overall hospital admission rates (including ICU/HDU) of RSV positive cases per 100,000 population reported through SARI Watch, England
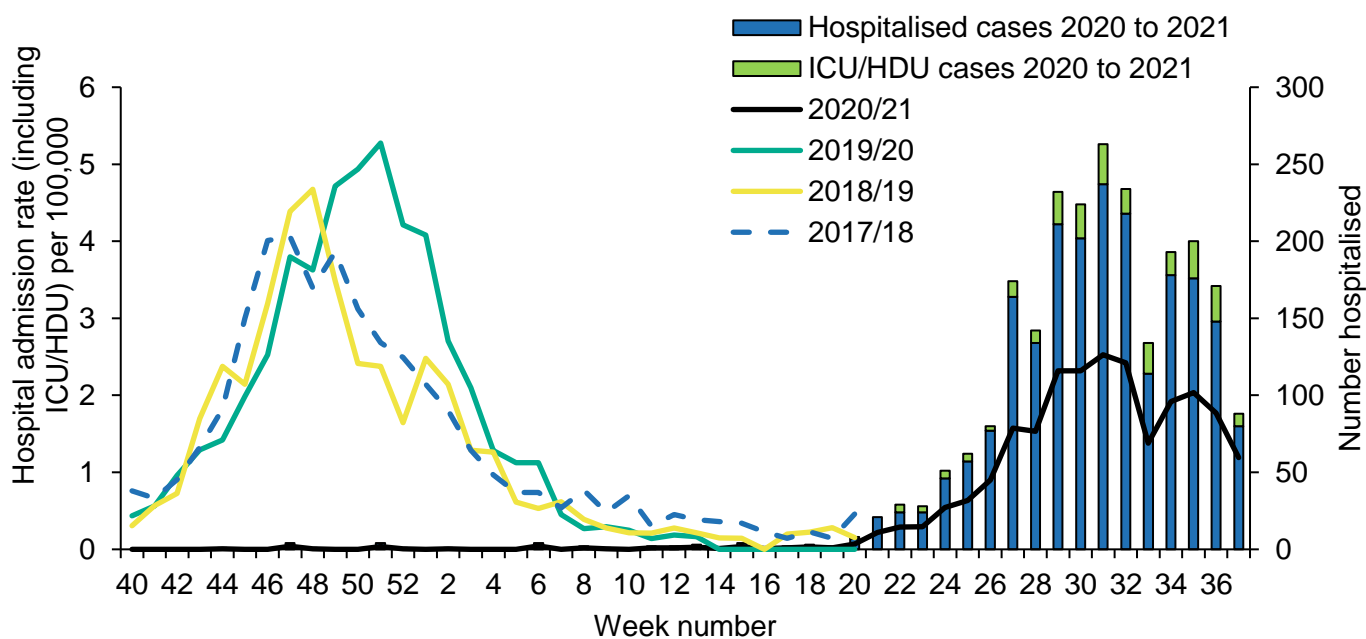
* Please note that in previous seasons, RSV SARI Watch surveillance has run from week 40 to week 20. In the 2020 to 2021 season this was extended to run throughout the year, to allow for surveillance of out-of-season trends

Figure 50: Weekly hospitalisation (including ICU/HDU) admission rates by age group for new RSV cases reported through SARI Watch in 2020 to 2021, England
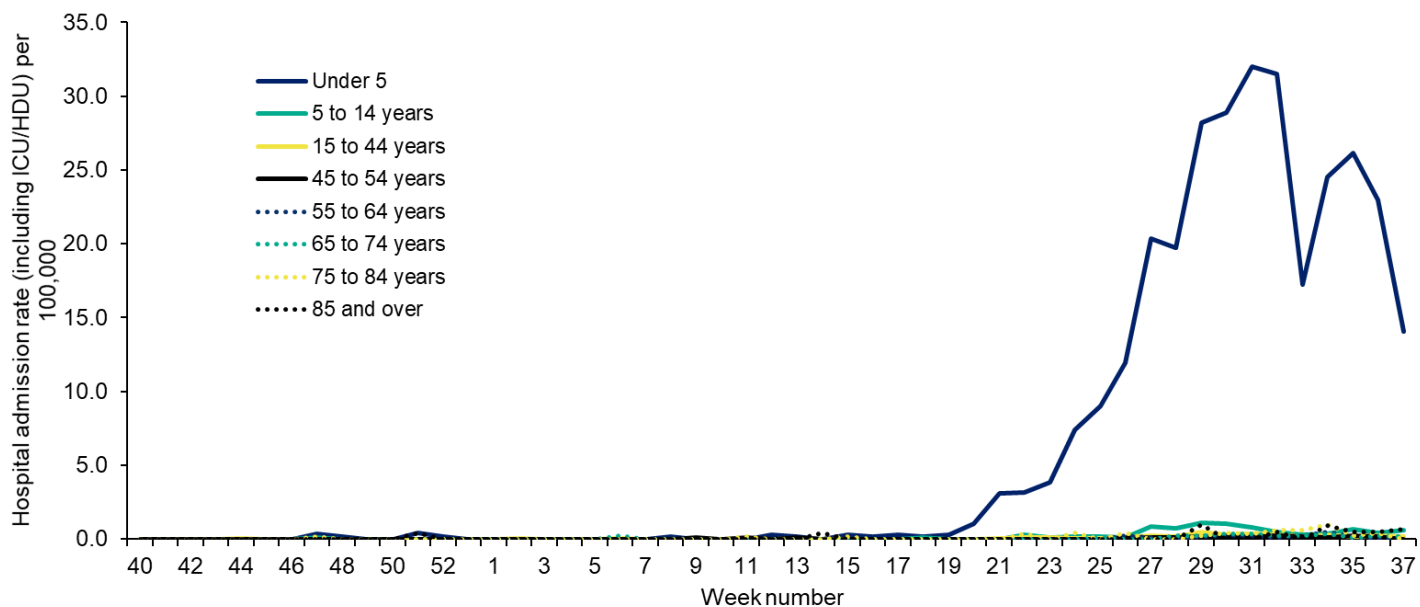
* Please note that rates are based on the number of hospitalised cases divided by the Trust catchment population, multiplied by 100,000
* SARI Watch data are provisional

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Emergency Department attendances, Syndromic surveillance

The Emergency Department Syndromic Surveillance System (EDSSS) monitors the daily visits in a network of emergency departments across England.

Up to 19 September 2021, the daily number of ED attendances as reported by 105 EDs for COVID-19-like infection decreased, and for acute respiratory infection increased in children under the age of 14 (Figure 51).

Please note: the COVID-19-like ED indicator is an underestimation of the number of COVID-19 attendances as it only includes attendances with a COVID-19-like diagnosis as their primary diagnosis. The EDSSS COVID-19-like indicator should therefore be used to monitor trends in ED attendances and not to estimate actual numbers of COVID-19 ED attendances. Further information about these caveats is available from the PHE Emergency Department Syndromic Surveillance bulletin.

Figure 51: Daily ED attendances for COVID-19-like infections, England (a) nationally, (b) by age group and (c) by PHE Centre

(a)

Covid-19-like 20/09/2020 - 19/09/2021

Black line is 7 day moving average adjusted for bank holidays. Grey columns show weekends and bank holidays.
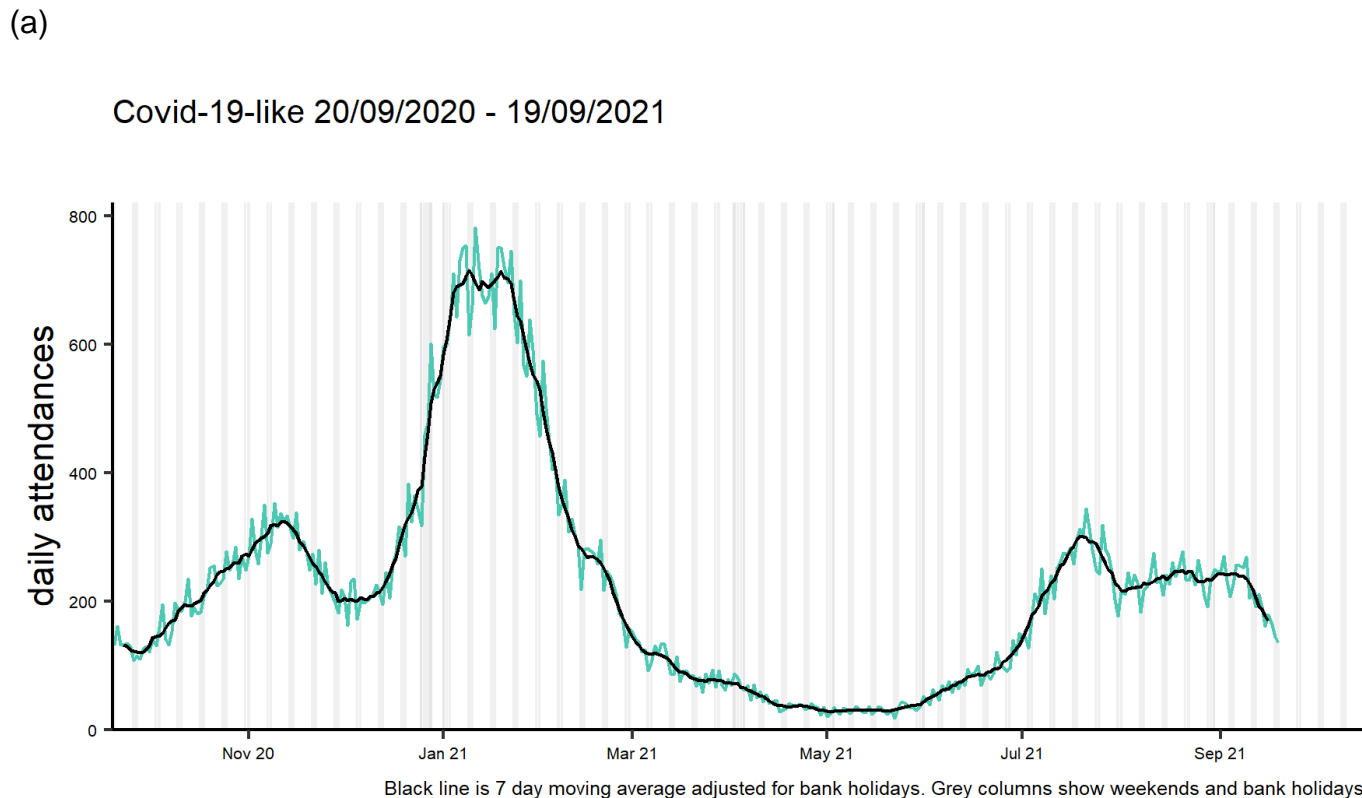
(b)

Covid-19-like by age group (years) 20/09/2020 - 19/09/2021
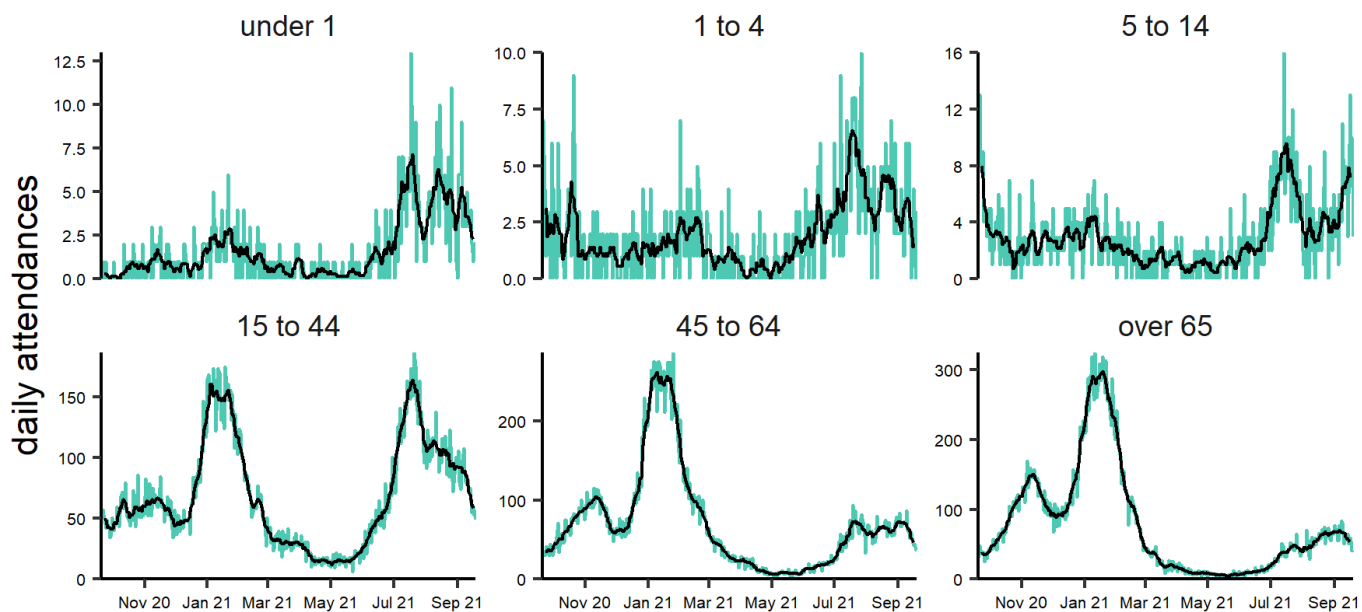
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.

(c)

Covid-19-like by PHE centre 20/09/2020 - 19/09/2021
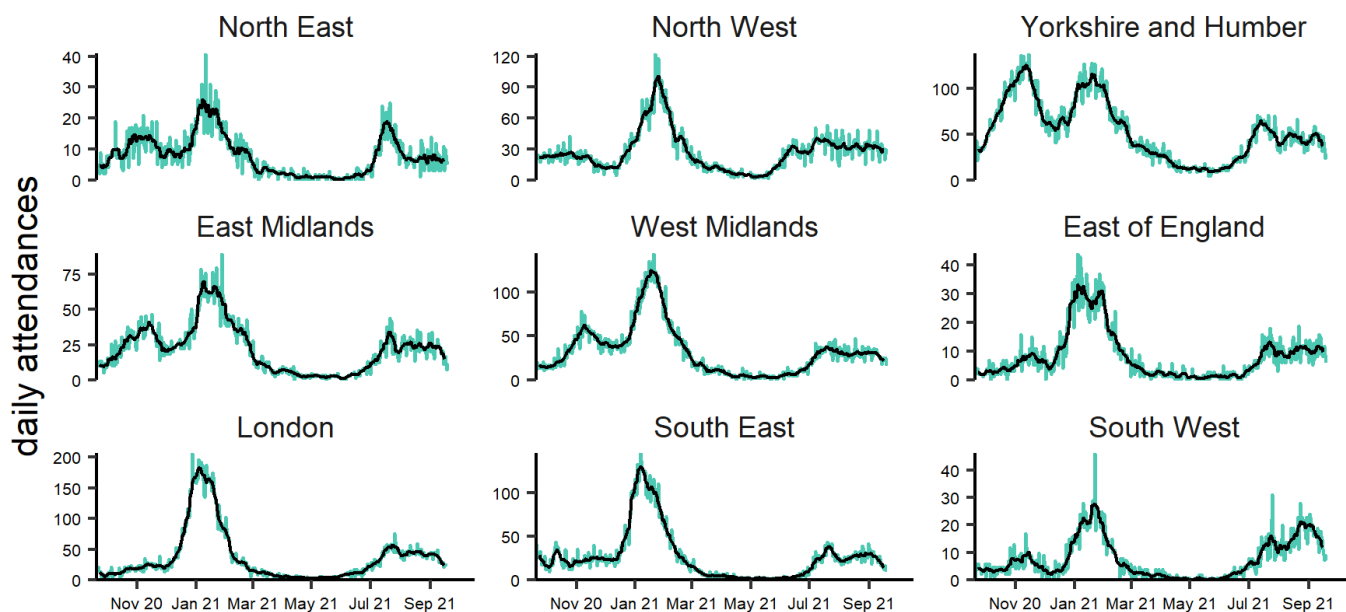
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.

Figure 52: Daily ED attendances for acute respiratory infections, England (a) nationally, (b) by age group and (c) by PHE Centre

(a)

Acute respiratory infection 20/09/2020 - 19/09/2021
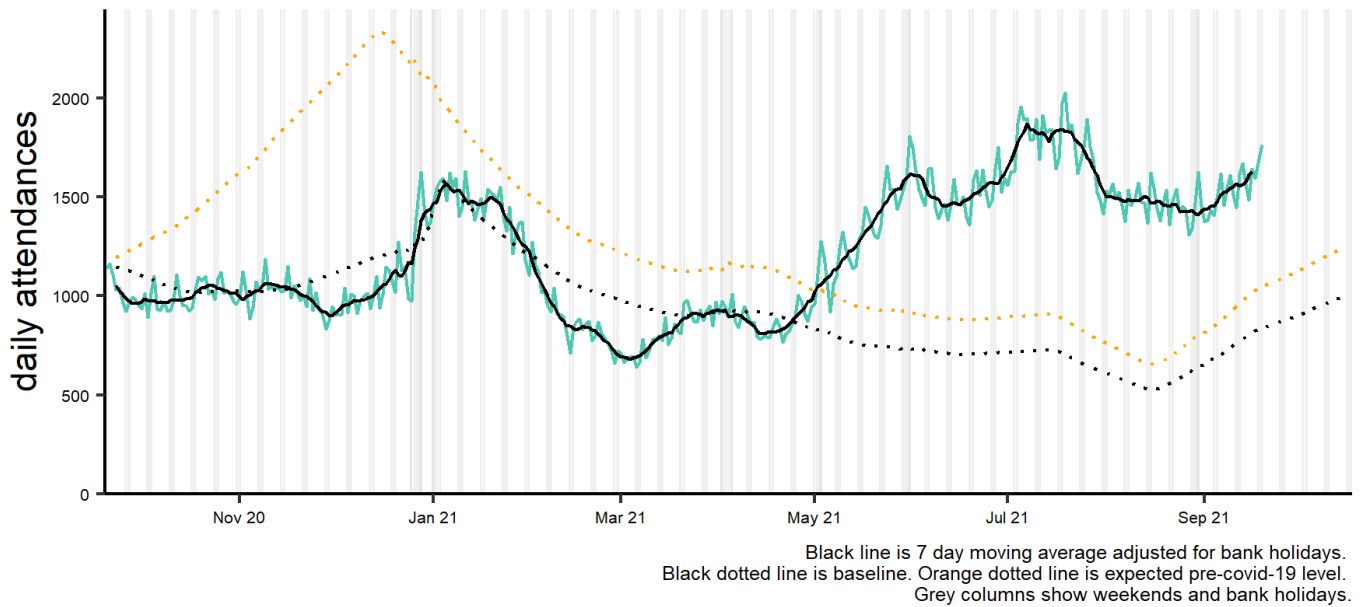
Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.
Grey columns show weekends and bank holidays.

(b)

Acute respiratory infection by age group (years) 20/09/2020 - 19/09/2021
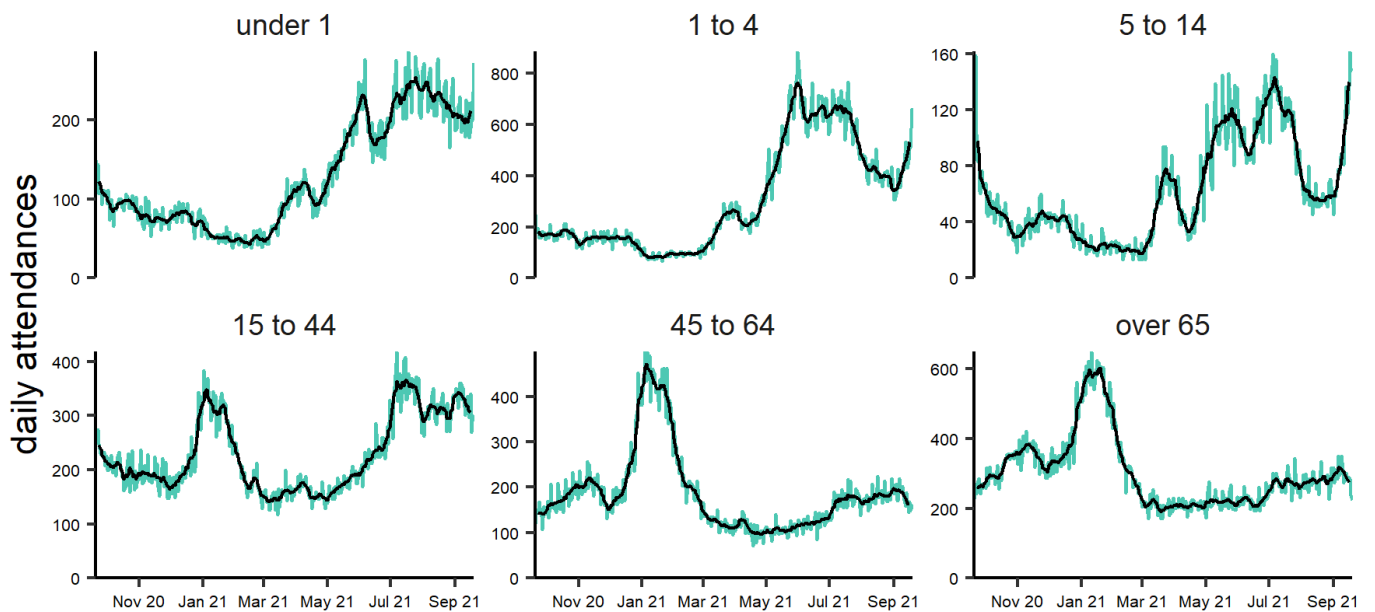
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays.

(c)

Acute respiratory infection by PHE centre 20/09/2020 - 19/09/2021
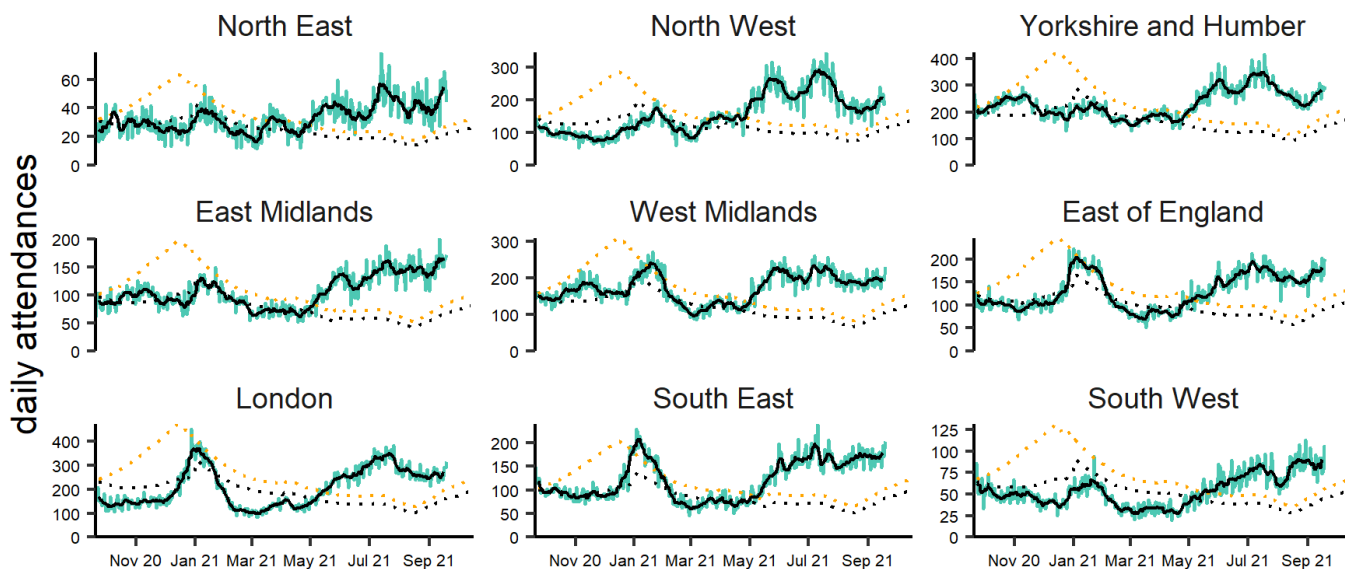
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON. Black line is 7 day moving average adjusted for bank holidays. Black dotted line is baseline. Orange dotted line is expected pre-covid-19 level.

Mortality surveillance

Cumulative COVID-19 deaths

Changes to the definitions of COVID-19 related deaths in England are described in more detail in an accompanying PHE technical summary.

The current definitions used for mortality surveillance of COVID-19 in England are:

(a) 28 day definition: A death in a person with a laboratory-confirmed positive COVID-19 test and died within (equal to or less than) 28 days of the first positive specimen date
(b) 60 day definition: A death in a person with a laboratory-confirmed positive COVID-19 test and either: died within 60 days of the first specimen date OR died more than 60 days after the first specimen date only if COVID-19 is mentioned on the death certificate

The introduction of these definitions will affect the numbers which have been presented in past reports and therefore Figure 53 represents these differences by definition.

Figure 53: Number of deaths since by week of death and time since laboratory confirmation of COVID-19, England
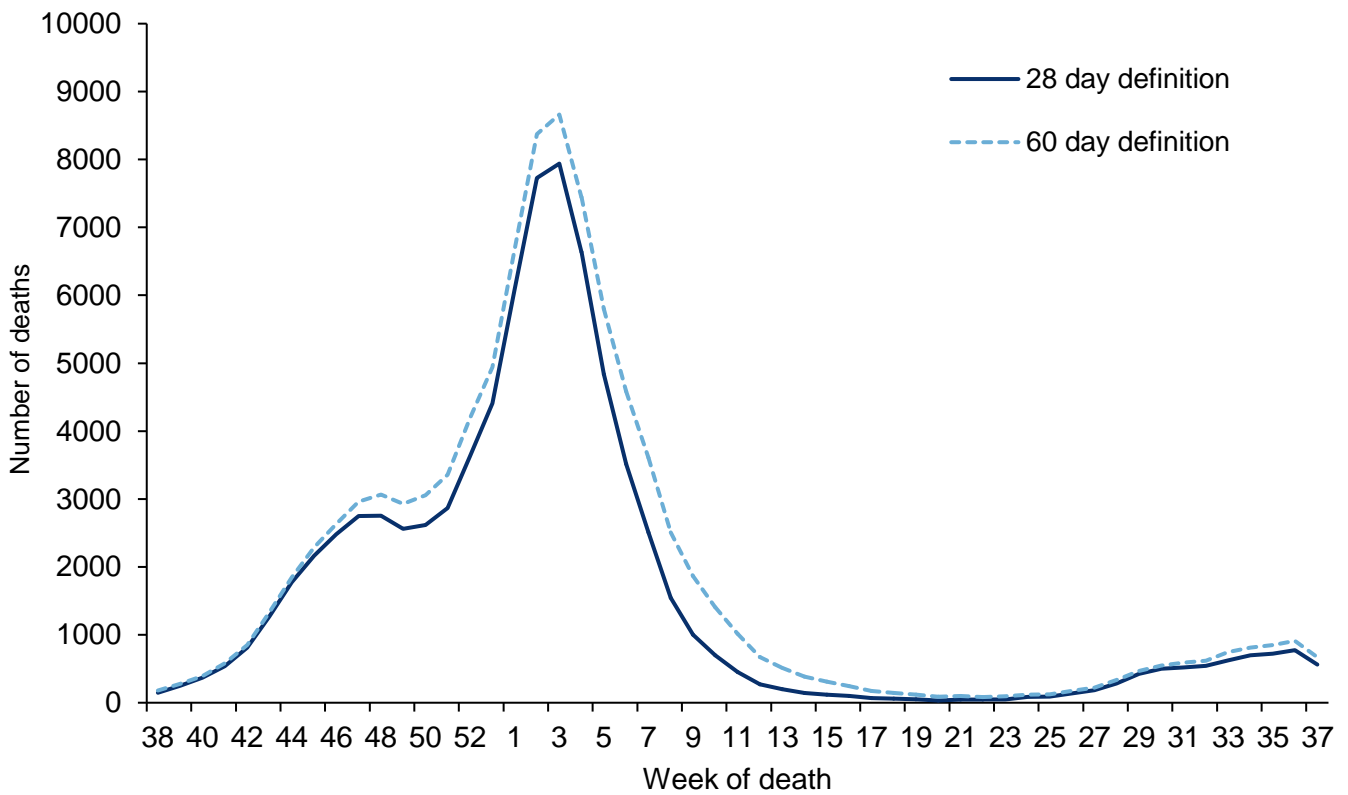
*The data are shown by the week of death. This gives the most accurate analysis of this time progression, however, for the most recent weeks' numbers more deaths are expected to be registered therefore this should be interpreted with caution

Figure 54: Age-sex pyramid of laboratory confirmed COVID-19 deaths, for the past year
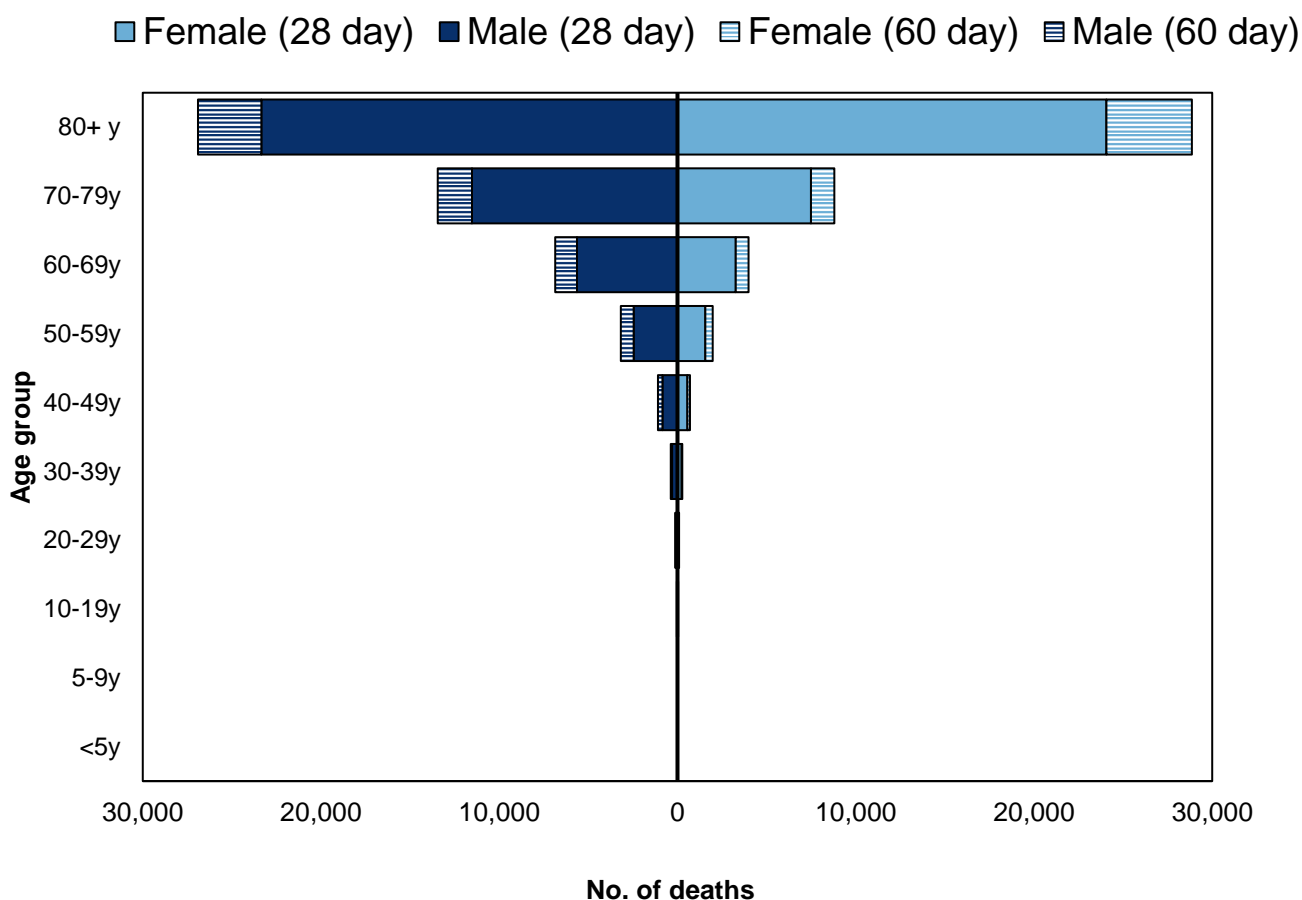
Table 5: Ethnic group (%) of COVID-19 deaths and time since laboratory confirmation of COVID-19, England, for the past year

Ethnicity	28 day definition	60 day definition
White	88.7	88.7
Asian / Asian British	7.4	7.4
Black / African / Caribbean / Black British	2.9	2.9
Mixed / Multiple ethnic groups	0.5	0.5
Other ethnic group	0.5	0.5

Table 6: Cumulative number of COVID-19 deaths since and time since laboratory confirmation of COVID-19 by PHE Centres, for the past year

PHE Centres	28 day definition	60 day definition
North East	4,330	5,139
North West	12,886	15,344
Yorkshire and Humber	8,190	9,686
West Midlands	9,695	11,575
East Midlands	7,727	9,157
East of England	10,194	12,041
London	10,082	12,143
South East	12,516	14,841
South West	5,413	6,314

Figure 55: Cumulative mortality rate of COVID-19 cases per 100,000 population tested under Pillars 1 and 2 for the past 4 weeks by (a) 28 day definition and (b) 60 day definition

(a)

(b)

London Detail

From the week of 9th August 2021, incidence rate calculations by UTLA will use 2020 ONS mid-year population estimates.

COVID-19 mortality rate by UTLA (60 days cut off)
24 August 2021 - 21 September 2021
No Mortality
0.01 - 2.99
3.00 - 4.74
4.75 - 7.49
7.50 - 9.99
≥ 10.00
Data suppressed

Contains Ordnance Survey data © Crown copyright and database right 2021.
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Created by PHE, GIS Team

Daily excess all-cause mortality (England)

Deaths occurring from 1 January 2020 to 15 September 2021 were assessed to calculate the daily excess above a baseline using age-group and region specific all cause deaths as provided daily by the General Register Office (GRO). The deaths were corrected to allow for delay to registration based on past data on these delays and the baseline was from the same day of the year in the previous 5 years plus or minus 7 days with an extrapolated time trend, and with 2 and 3 standard deviation (SD) limits shown (Figure 56).

Weeks in which at least 2 days exceeded the 3SD threshold are shown in Table 7 and the daily difference from the baseline by age and region is given in Figure 56.

Note that as these data are by date of death with delay corrections, numbers are subject to change each week, particularly for more recent days.

The current week's model supersedes models presented in previous week.

Excess all-cause mortality was observed in week 36, overall, in the over 75-year olds and in London, the North West, South West, West Midlands and Yorkshire and Humber. Week 36 included a heatwave period of three days with high temperatures (mean Central England Temperature >20c) which may have contributed to the excess. The excess mortality noted in week 33 2020 and week 29 2021 coincide with heat waves (Figure 56, 57 and Table 7).

Figure 56: Daily excess all-cause deaths in all ages, England, 1 January 2020 to 15 September 2021
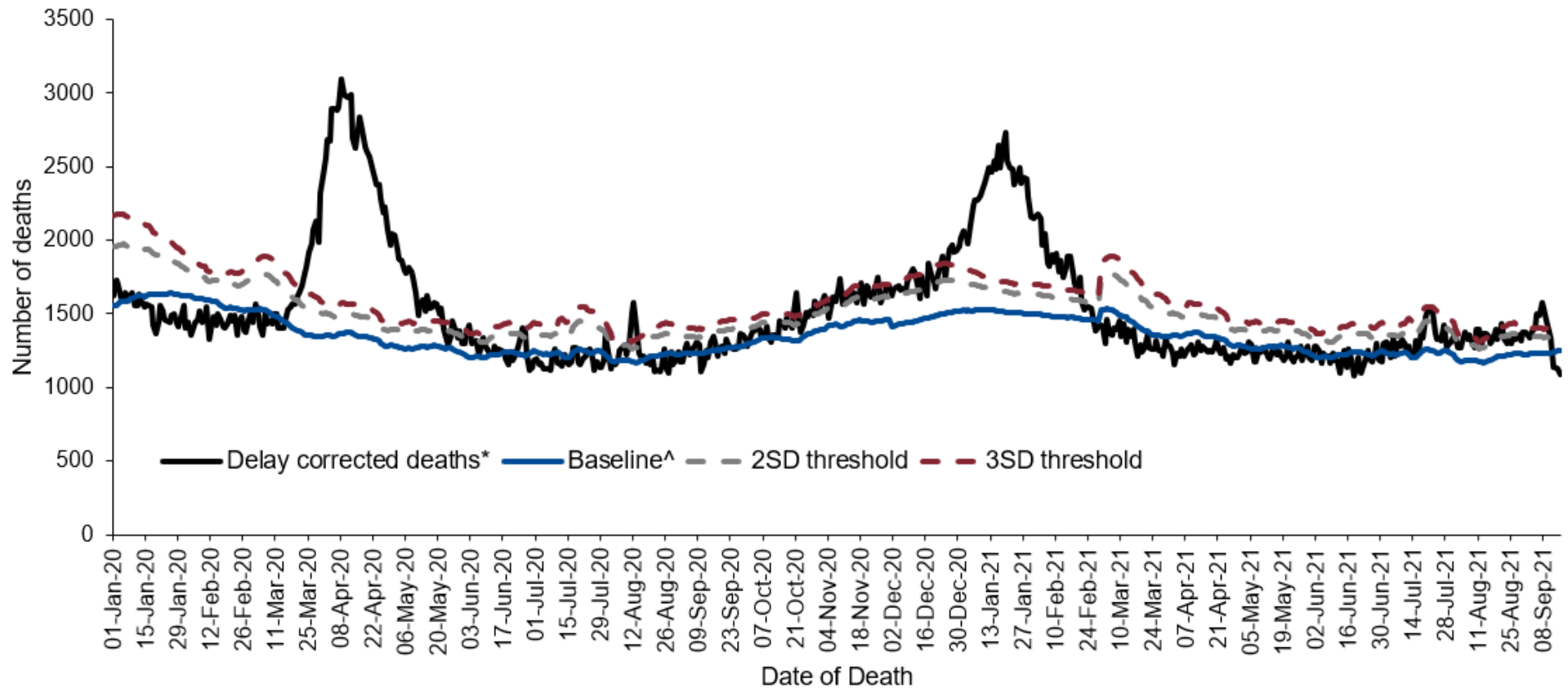
^Baseline calculation:

January to November 2020: same day in previous 5 years plus or minus 1 week with a linear trend.

December 2020 to February 2021: past 3 low flu years plus or minus 2 weeks, no trend.

March 2021 onwards: same baseline as 2020

* corrected for delay to registration from death

Other measures of excess mortality published by PHE are the Fingertips excess mortality in England report, which uses ONS death registration data; and the PHE all-cause mortality surveillance report, which uses the EuroMOMO model to measure excess deaths.

Table 7: Excess all-cause deaths by (a) age group and (b) PHE centres, England

(a)

Age Group	Excess detected in week 36 2021?	Weeks in excess from week 10 to 53 2020	Weeks in excess from week 01 to 36 2021
All	✓	13 to 21, 33, 43, 45 to 46, 50, 52 to 53	01 to 07, 31 to 32, 35 to 36
under 25	x	None	None
25 to 44	x	14 to 16	None
45 to 64	x	12 to 19, 49 to 50, 52 to 53	01 to 08, 29 to 30
65 to 74	x	13 to 19, 48, 52 to 53	01 to 07
75 to 84	✓	13 to 21, 33, 45, 49, 52 to 53	01 to 07, 32, 36
85+	✓	13 to 21, 33, 53	01 to 07, 36

(b)

PHE Centres	Excess detected in week 36 2021?	Weeks in excess from week 10 to 53 2020	Weeks in excess from week 01 to 36 2021
East of England	x	14 to 19, 52, 53	01 to 07
East Midlands	x	13 to 19, 48	01 to 07
London	✓	12 to 19, 33, 52 to 53	01 to 06, 36
North East	x	14 to 21	02 to 04
North West	✓	13 to 19, 33, 42 to 47	01 to 07, 32, 35 to 36
South East	x	13 to 21, 33, 50 to 53	01 to 07
South West	✓	13 to 19, 33	01 to 07, 29, 36
West Midlands	✓	13 to 20, 45, 48	01 to 07, 29, 36
Yorkshire and Humber	✓	14 to 21, 23, 43, 45 to 50	02 to 04, 32, 35 to 36

Figure 57: Daily excess all-cause deaths by (a) age group and (b) PHE centres, England, 1 March 2020 to 15 September 2021

(a)

(b)
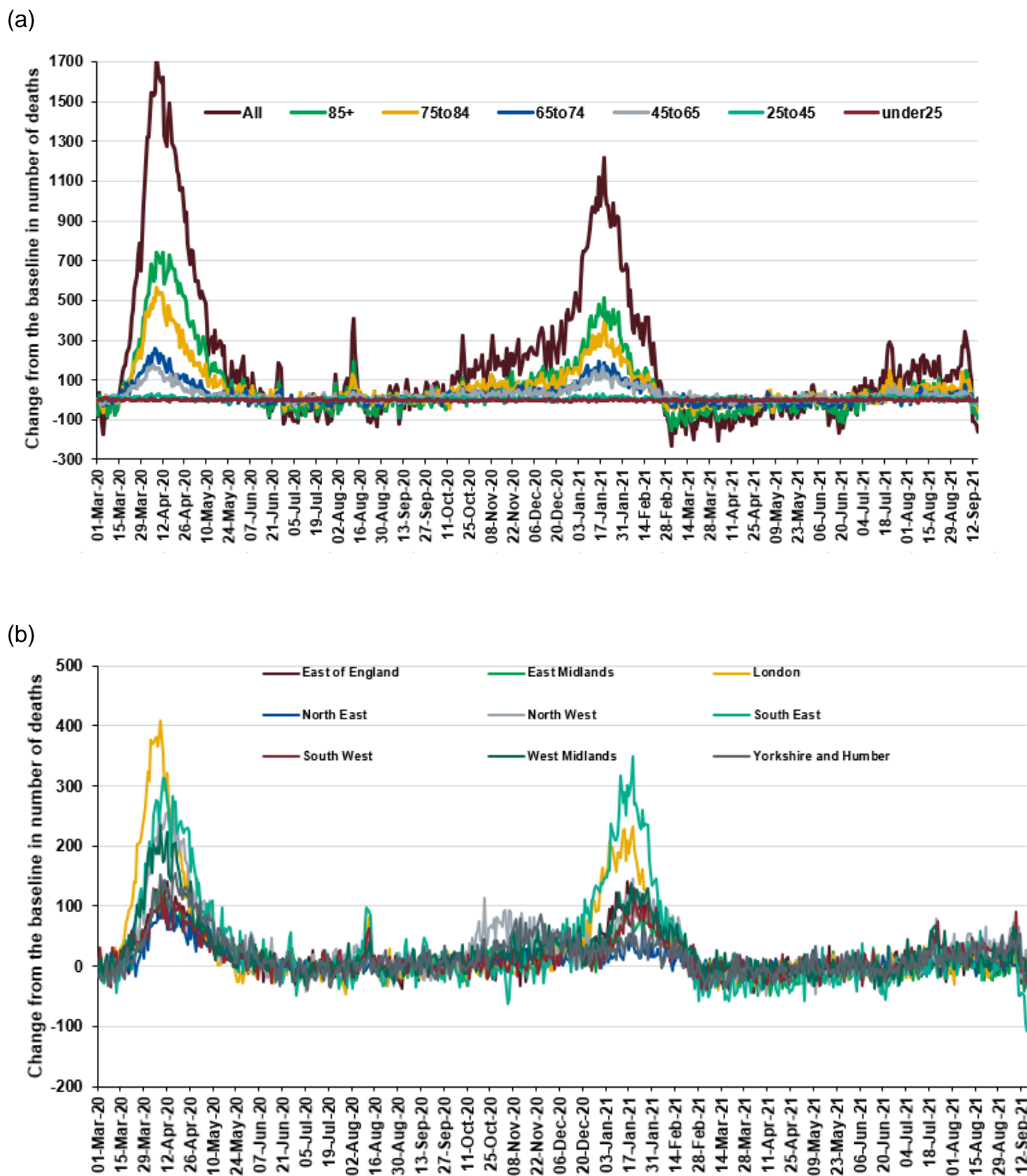
Microbiological surveillance

SARS-CoV-2 variants

PHE conducts surveillance of SARS-CoV-2 variants. Further information including an overview of variants, information on new variants and detailed surveillance of particular variants of concern can be found here, and in the latest technical briefing here.

Antimicrobial susceptibility

Table 8 shows in the 12 weeks up to week 37 2021, the proportion of all lower respiratory tract isolates of Streptococcus pneumoniae, Haemophilus influenza, Staphylococcus aureus, MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community-acquired pneumonia (CAP) and the choice of antibiotics reflects the British Thoracic Society empirical guidelines for management of CAP in adults.

Table 8: Antimicrobial susceptibility surveillance in lower respiratory tract

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	1,258	82
	Macrolides	1,398	79
	Tetracycline	1,356	80
H. influenzae	Amoxicillin/ampicillin	5,401	58
	Co-amoxiclav	5,879	65
	Macrolides	1,662	6
	Tetracycline	5,952	97
S. aureus	Methicillin	4,336	93
	Macrolides	5,002	71
MRSA	Clindamycin	250	50
	Tetracycline	289	70
MSSA	Clindamycin	3,064	77
	Tetracycline	3,773	93

* Macrolides = erythromycin, azithromycin and clarithromycin

Data source: PHE's SGSS AMR module, please note that this is different to the data source used in the reports published between weeks 41 2020 to 05 2021 inclusive of the 2020 to 2021 influenza season when the SGSS CDR module was used instead due to a PHE SGSS AMR data infrastructure issue which has now been resolved. Therefore, the above results are not directly comparable to the results reported between weeks 41

2020 and 05 2021. The AMR module of SGSS was used during the 2019 to 2020 influenza season. There has been a reduction in the total number of bacterial positive lower respiratory tract clinical samples reported to PHE since mid-March 2020

COVID-19 sero-prevalence surveillance

The results from testing samples provided by healthy adult blood donors aged 17 years and older, supplied by the NHS Blood and Transplant (NHS BT collection) between weeks 35 2020 and week 36 2021 are summarised. This programme has previously involved testing approximately 1,000 donor samples from 2 different NHS regions each week. As of week 44 2020, approximately 250 samples from each geographic NHS region are tested each week. The COVID-19 vaccination campaign began on the 8 December 2020 (week 50) with a phased roll out by age and risk group.

Seroprevalence in Adults aged 17 years and older (Blood Donors)

The results presented here are based on testing blood donor samples with Roche nucleoprotein (N) and Roche spike (S) antibody assays.

Nucleoprotein (Roche N) assays only detect post-infection antibodies, whereas spike (Roche S) assays will detect both post-infection antibodies and vaccine-induced antibodies. Thus, changes in seropositivity for the Roche N assay will reflect the effect of natural infection. Increases in seropositivity as measured by S antibody will reflect both infection and vaccination. Antibody responses to both targets will reflect infection or vaccination occurring at least 2 to 3 weeks previously given the time taken to generate a COVID-19 antibody response. Donors have been asked to defer donations for at least 7 full days post vaccination.

This report presents Roche N and Roche S seropositivity estimates on the same set of samples, using a 4-week rolling prevalence for national and age group estimates and a 12-week rolling prevalence for regional estimates. Seroprevalence estimates reported are based on seropositivity which are unadjusted for the sensitivity and specificity of the assays used.

National prevalence

Overall population weighted (by age group, sex and NHS region) antibody prevalence among blood donors aged 17 years and older in England was 18.9% (95% CI 17.9% - 20.0%) using the Roche N assay and 97.8% (95% CI 97.2% - 98.2%) using the Roche S assay for the period 16 August to 10 September (weeks 33 to 36 2021). 1,263/6,906 were Roche N positive and 6,683/6,807 samples were Roche S positive. This compares with 18.5% (95% CI 17.5% - 19.5%) Roche N seropositivity and 97.6% (95% CI 97.2% - 98.0%) Roche S seropositivity for the period of 19 July 2021 to 13 August 2021 (weeks 29 to 32 2021).

75

Seropositivity (weighted by region, age group and sex) varies over time. Figure 58 shows the overall 4-weekly rolling proportion seropositive over time for the Roche N and Roche S assays. Seropositivity estimates are plotted weekly using the mid-point of a rolling 4-weekly period.

Regional prevalence of infection over time

Seropositivity (weighted by age group and sex) using the Roche N assay which detects infection only, varies by region (Figure 59).

Regional seropositivity estimates are plotted using the mid-point of a 12-weekly rolling period that reduces to 8 weekly in the most recent weeks to allow for a more representative current estimate of seropositivity. Previously, regional Roche N seropositivity was reported using a 4-week rolling period; however, this was changed due to the difficulty interpreting regional trends when using a 4-weekly window, given the fluctuation in sampling locations each week for some regions.

In London, the 12-weekly rolling seropositivity increased from 23.5% (95% CI 21.9% - 25.1%) in weeks 17 to 28 2021 to 25.7% (95% CI 23.8% - 27.6%) in weeks 29 to 36 2021.

Data from the Midlands show the proportion seropositive increased from 15.8% (95% CI 14.5% - 17.0%) in weeks 17 to 28 2021 to 19.9% (95% CI 17.9% - 22.1%) in weeks 29 to 36 2021.

Seropositivity in the North East and Yorkshire region increased from 14.6% (95% CI 13.3% - 16.0%) in weeks 17 to 28 2021 to 19.6% (95% CI 17.7% - 21.7%) in weeks 29 to 36 2021.

Data from the North West show that seropositivity has increased from 20.5% (95% CI 18.9% - 22.2%) in weeks 17 to 28 2021 to 22.0% (95% CI 20.1% - 24.0%) in weeks 29 to 36 2021.

Seropositivity increased in the South East region from 11.6% (95% CI 10.5% - 12.9%) in weeks 17 to 28 2021 to 14.2% (95% CI 12.6% - 16.0%) in weeks 29 to 36 2021.

In the South West region, seropositivity increased from 9.1% (95% CI 8.0% - 10.3%) in weeks 17 to 28 2021 to 11.9% (95% CI 10.4% - 13.5%) in weeks 29 to 36 2021.

In the East of England, seropositivity increased from 13.8% (95% CI 12.6% - 15.0%) in weeks 17 to 28 2021 to 15.1% (95% CI 13.6% - 16.8%) in weeks 29 to 36 2021.

London has consistently seen the highest Roche N seropositivity with the lowest observed in the South West.

Prevalence by age group

Seropositivity estimates by age group using the Roche N and Roche S assays are presented below. Prevalence for all age groups for weeks 41 to 44 has been excluded due to a change in sampling strategy from week 44 which resulted in a small number of samples from older age groups in some regions which makes interpretation of trends for this period difficult.

Based on testing samples using the Roche N assay (Figure 60) as a marker of infection, the highest seropositivity has consistently been observed in those aged 17-29 and the lowest in those aged 70 to 84. Small Roche N increases have recently been observed in the 30 to 39-year olds from 20.2% (95% CI 18.0%- 22.6%) in weeks 29 to 32 to 21.9% (95% CI 19.5% - 24.5%) in weeks 33 to 36. Similarly, small increases were also observed in individuals aged 60 to 69 from 11.4% (95% CI 9.8% – 13.3%) in weeks 29 to 32 to 13.0% (95% CI 11.2% - 15.1%) in weeks 33 to 36. Roche N seropositivity is plateauing across all other age groups.

The sharp increases in seropositivity across all age groups using the Roche S assay reflect the presence of antibodies induced by vaccination (Figure 60).

Roche S seropositivity increased earliest in those aged 70 to 84 and since week 13 plateaued, reaching 99.3% (95% CI 96.4% - 99.9%) in weeks 33 to 36 2021. Seropositivity in those aged 60 to 69 has also plateaued since week 16 reaching 98.9% (95% CI 98.0% - 99.4%) in weeks 33 to 36 2021. A plateauing in Roche S seropositivity since week 19 has been observed in those aged 50-59 reaching 99.2% (95% CI 98.6% - 99.5%) in weeks 33-36 2021. A plateauing in seropositivity has been observed in the 40 to 49-year olds since week 23 reaching 98.0% (95% CI 97.0% – 98.7%) in weeks 33-36. Plateauing has been observed in the 30 to 39-year olds from week 28 reaching 97.1% (95% CI 96.0%- 98.0%) in weeks 33-36. A plateauing in seropositivity has recently been observed in the 17 to 29-year olds reaching 95.3% (95% CI 93.0% - 96.9%) in weeks 33-36 2021.

Seropositivity estimates for S antibody in blood donors are likely to be higher than would be expected in the general population and this probably reflects the fact that donors are more likely to be vaccinated. Seropositivity estimates for N antibody will underestimate the proportion of the population previously infected due to (i) blood donors are potentially less likely to be exposed to natural infection than age matched individuals in the general population (ii) waning of the N antibody response over time and (iii) recent observations from PHE surveillance data that N antibody titres appear to be lower in individuals who acquire infection following two doses of vaccination.

Vaccination has made an important contribution to the overall Roche S increases observed since the roll out of the vaccination programme, initially amongst individuals aged 50 years and above who were prioritised for vaccination as part of the phase 1 programme and more recently in younger adults as part of phase 2 of the vaccination programme. Roche S seropositivity is now >95% across all adult age groups.

Figure 58: Overall 4-weekly rolling SARS-CoV-2 antibody seroprevalence (% seropositive) in blood donors
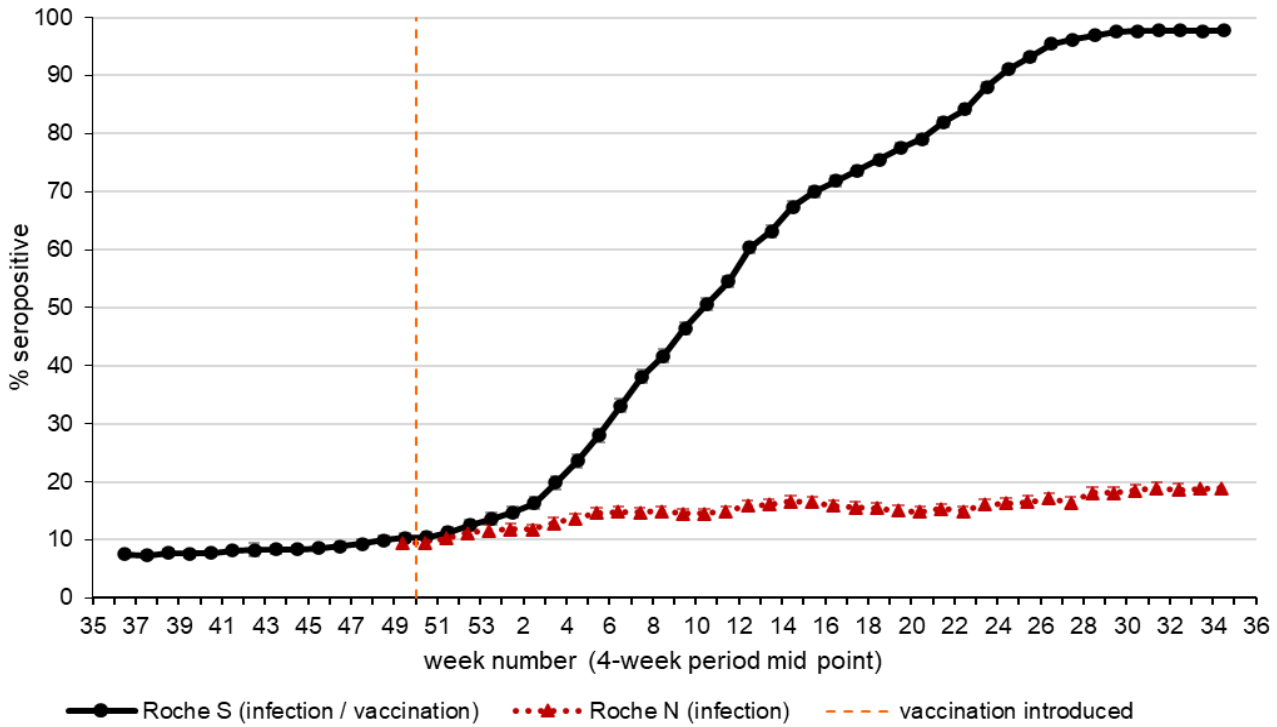
Figure 59: 12-weekly rolling SARS-CoV-2 antibody seroprevalence (% seropositive) in blood donors by region, using Roche N test; error bars show 95% confidence intervals
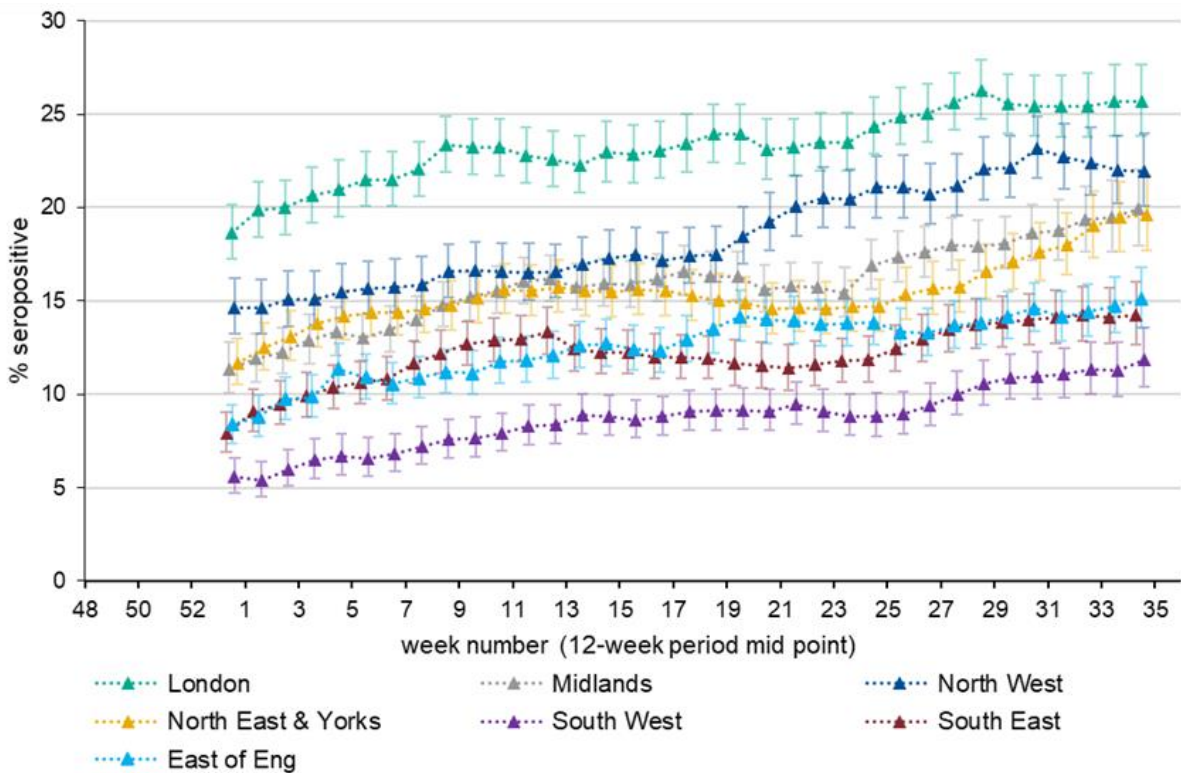
Figure 60: Population weighted 4-weekly rolling SARS-CoV-2 antibody seroprevalence (% seropositive) in blood donors from the Roche S and Roche N assays by a) age groups 17 to 29, 30 to 39 and 40 to 49, b) age group 50 to 59, 60 to 69 and 70 to 84

(a)

(b)
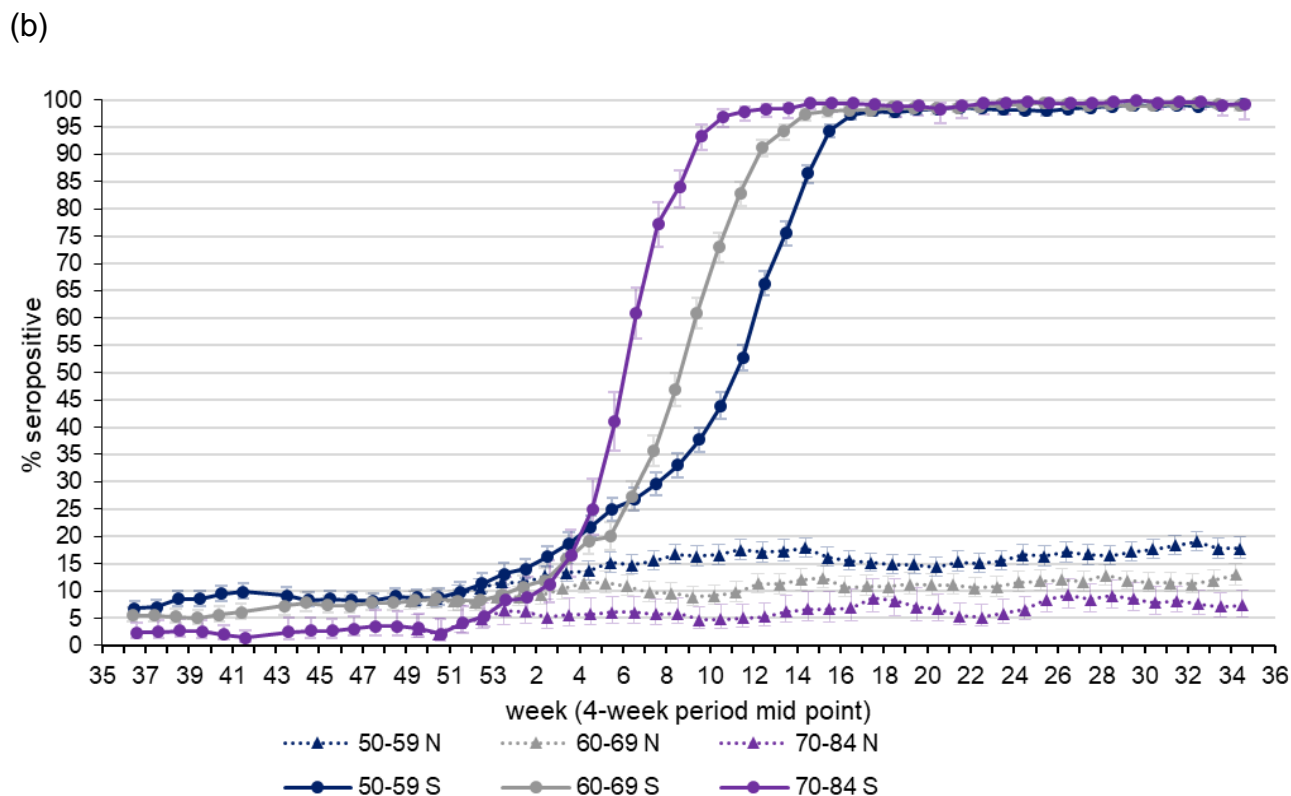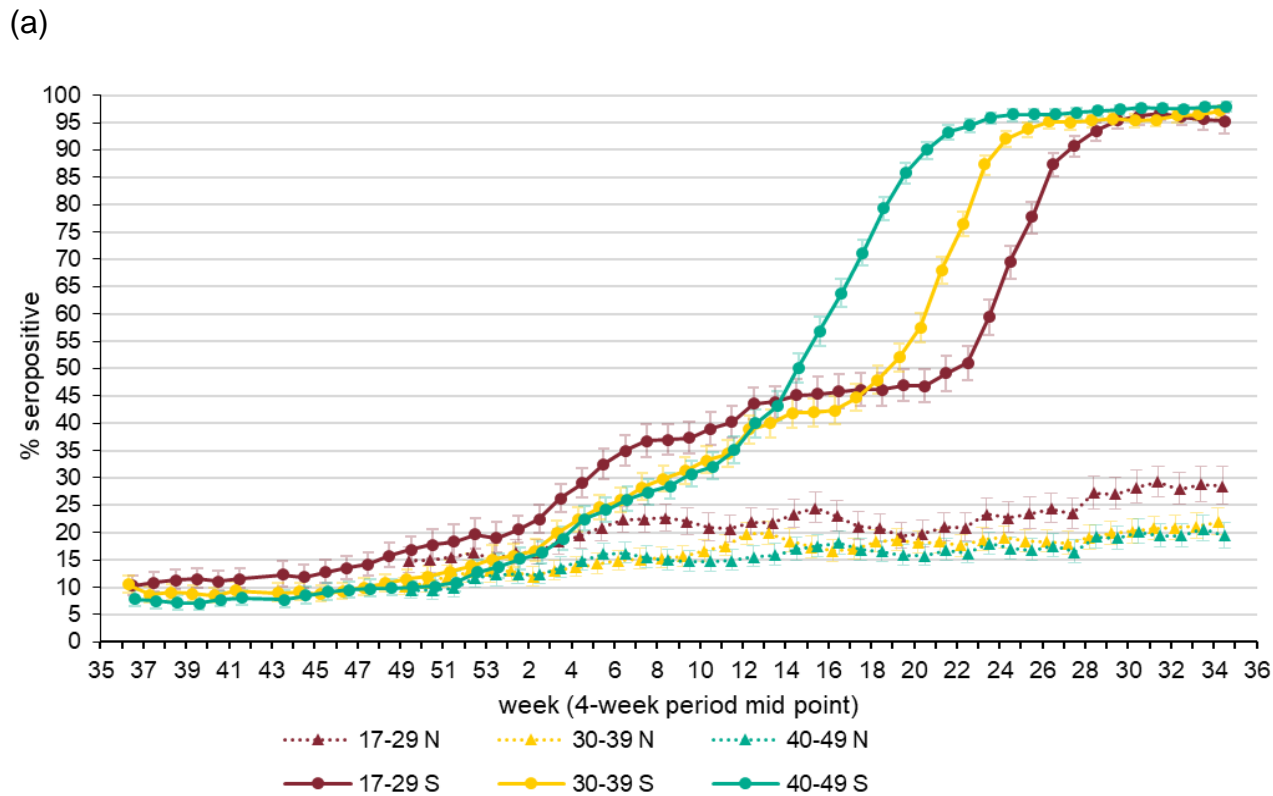
COVID-19 vaccination
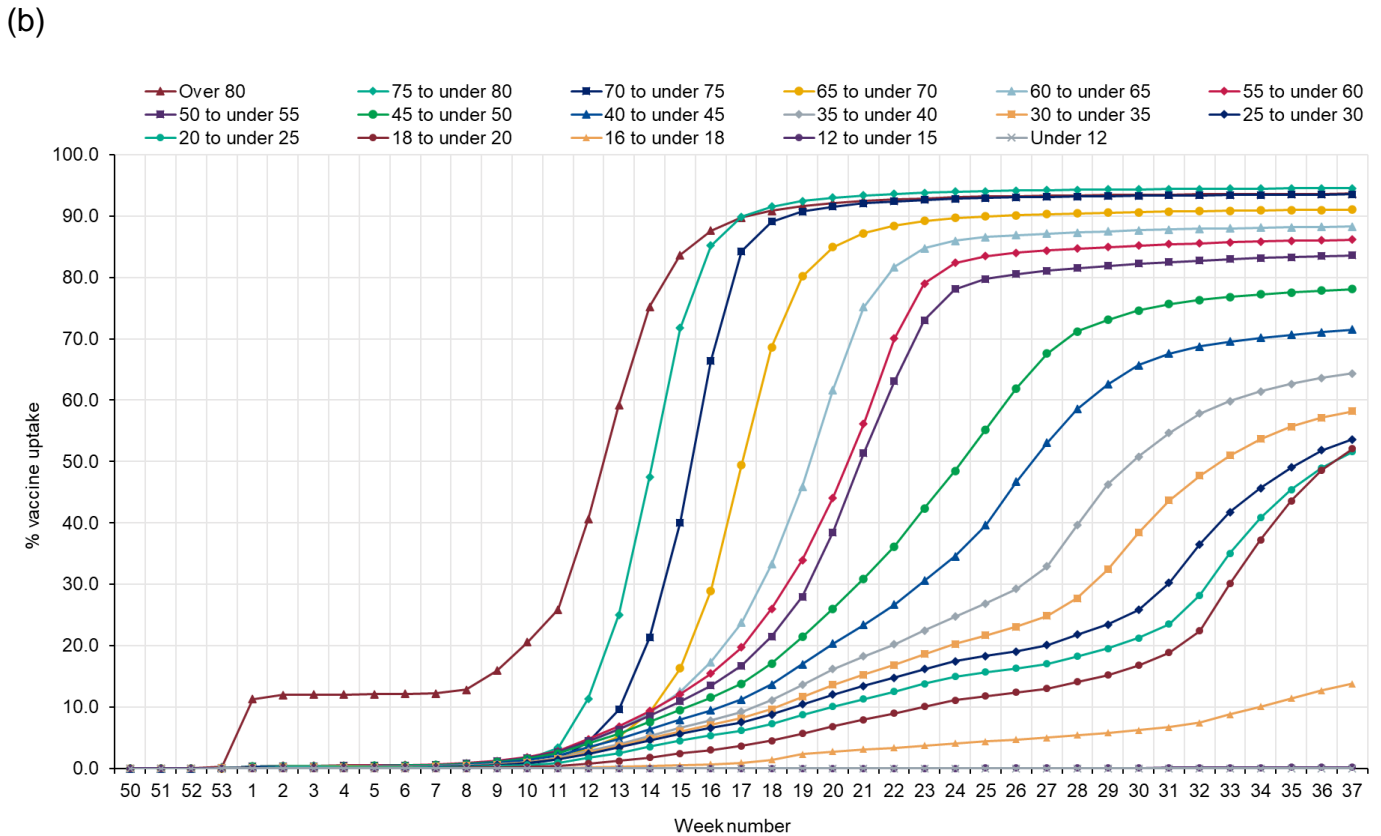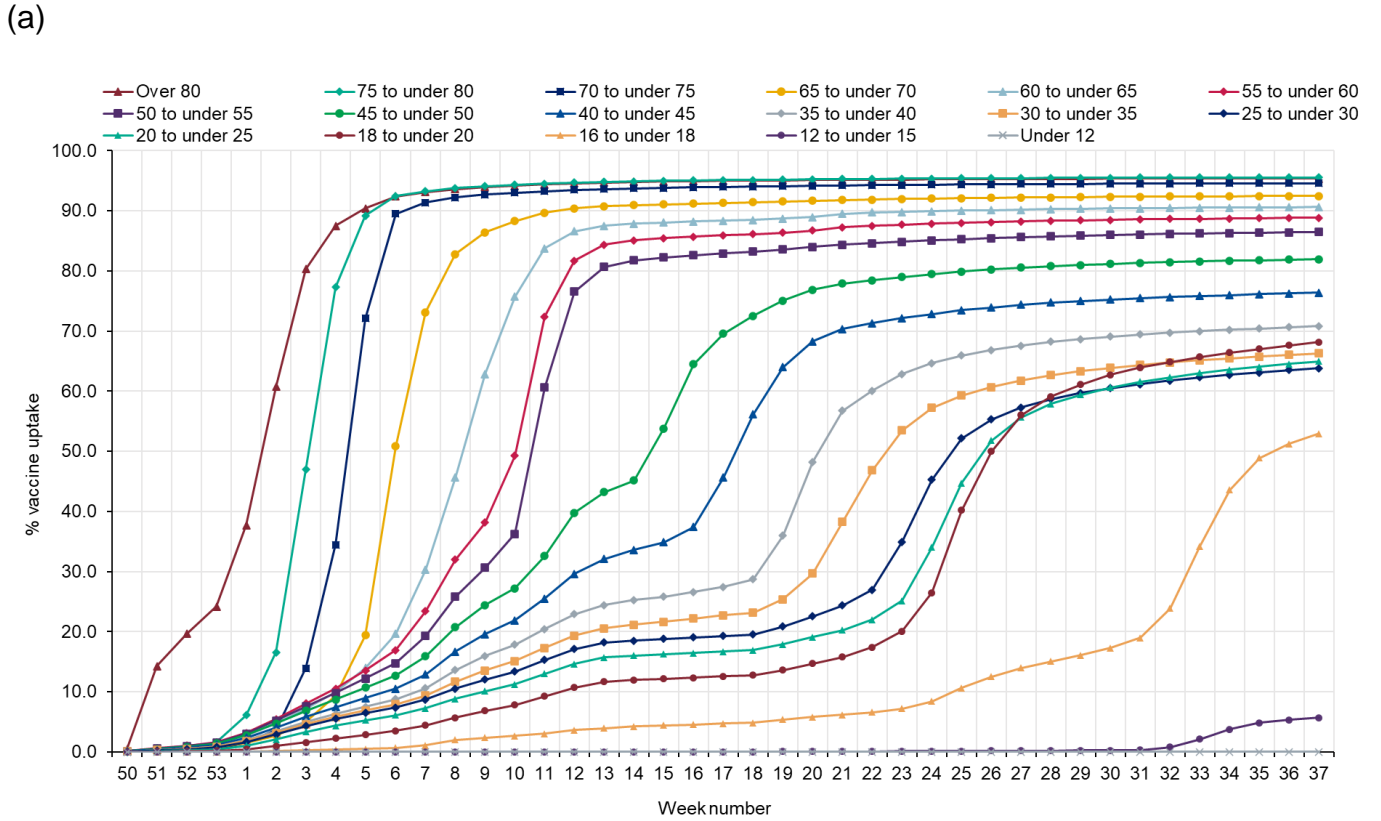
COVID-19 vaccine uptake in England

COVID-19 vaccinations began in England on 8 December 2020 during week 50 2020 (week ending 13 December 2020). Cumulative data up to week 37 2021 (week ending 19 September 2021) was extracted from the National Immunisation Management Service (NIMS). The data presented this week is the provisional proportion of people in England who had received one dose and two doses of a COVID-19 vaccination by age group. The overall vaccine uptake in the population for dose 1 was 64.9% and 59.5% for dose 2. The breakdown by sex showed vaccine uptake in males was 62.5% and 67.2% in females for dose 1. For dose 2 total uptake was 57.0% in males and 62.2% in females. The vaccine uptake rate in adults aged 18 and over was 79.8% (39,563,488/49,578,635) for dose 1 and 74.4% (36,871,338/49,578,635) for dose 2.

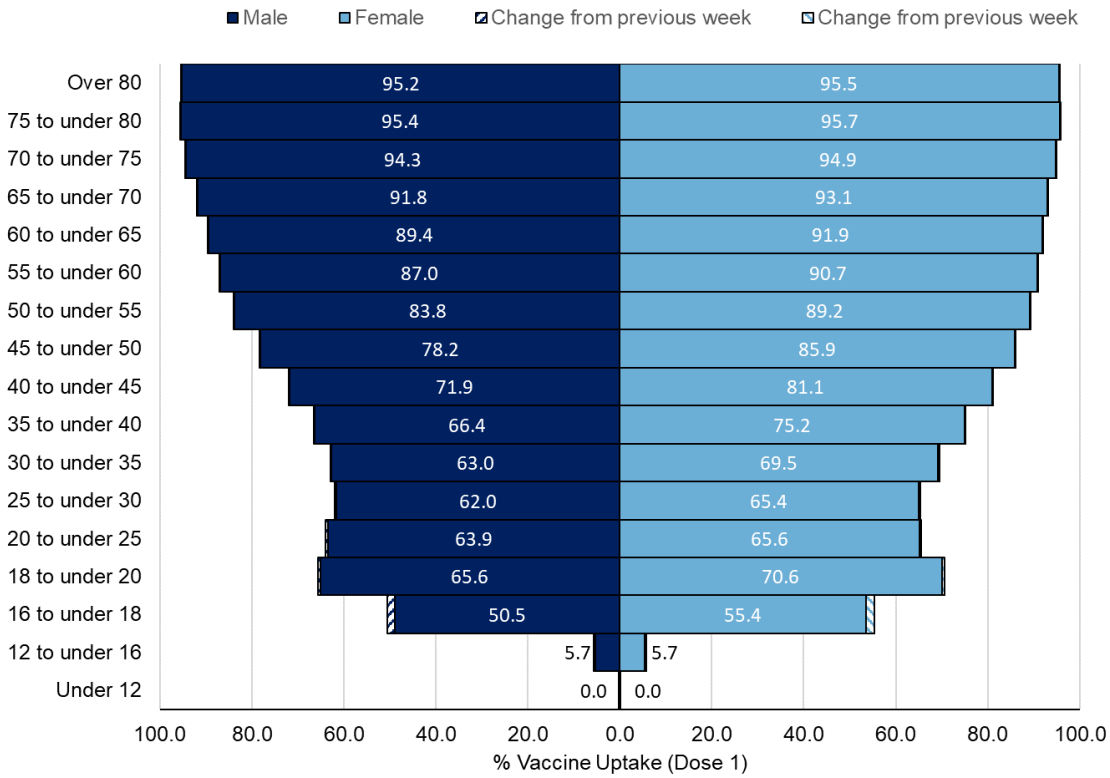**Table 9: Provisional cumulative COVID-19 vaccine uptake by age in England**

NATIONAL	Vaccinated with at least 1 dose			Vaccinated with 2 doses		
	People in NIMS cohort	Number vaccinated	% vaccine uptake	People in NIMS cohort	Number vaccinated	% vaccine uptake
Over 80	2,745,253	2,618,355	95.4	2,745,253	2,570,568	93.6
75 to under 80	2,066,975	1,975,177	95.6	2,066,975	1,954,078	94.5
70 to under 75	2,864,574	2,709,264	94.6	2,864,574	2,678,853	93.5
65 to under 70	2,888,009	2,670,286	92.5	2,888,009	2,629,227	91.0
60 to under 65	3,451,310	3,127,250	90.6	3,451,310	3,047,149	88.3
55 to under 60	4,080,705	3,625,178	88.8	4,080,705	3,515,817	86.2
50 to under 55	4,233,227	3,659,862	86.5	4,233,227	3,538,142	83.6
45 to under 50	4,011,565	3,288,090	82.0	4,011,565	3,133,371	78.1
40 to under 45	4,140,860	3,162,576	76.4	4,140,860	2,959,579	71.5
35 to under 40	4,531,983	3,208,893	70.8	4,531,983	2,917,825	64.4
30 to under 35	4,782,169	3,171,068	66.3	4,782,169	2,782,813	58.2
25 to under 30	4,487,910	2,865,065	63.8	4,487,910	2,405,202	53.6
20 to under 25	3,946,679	2,564,405	65.0	3,946,679	2,036,758	51.6
18 to under 20	1,347,416	918,019	68.1	1,347,416	701,956	52.1
16 to under 18	1,355,144	717,330	52.9	1,355,144	187,168	13.8
12 to under 16	2,847,757	162,382	5.7	2,847,757	5,328	0.2
Under 12	8,516,521	2,542	0.0	8,516,521	50	0.0
Total*	62,298,057	40,446,197	64.9	62,298,057	37,064,274	59.5

*Caution should be exercised when summing the regional or age figures as the sum of the regions will not equal the England total. This is due to individuals vaccinated in England who have a registered address in Scotland or Wales or where their address is unknown. There were also vaccinations where the individual had an unknown region and age group.
Data are provisional and subject to change following further validation checks. Any changes to historic figures will be reflected in the most recent publication. Please note that numbers published by PHE are for public health surveillance purposes only.
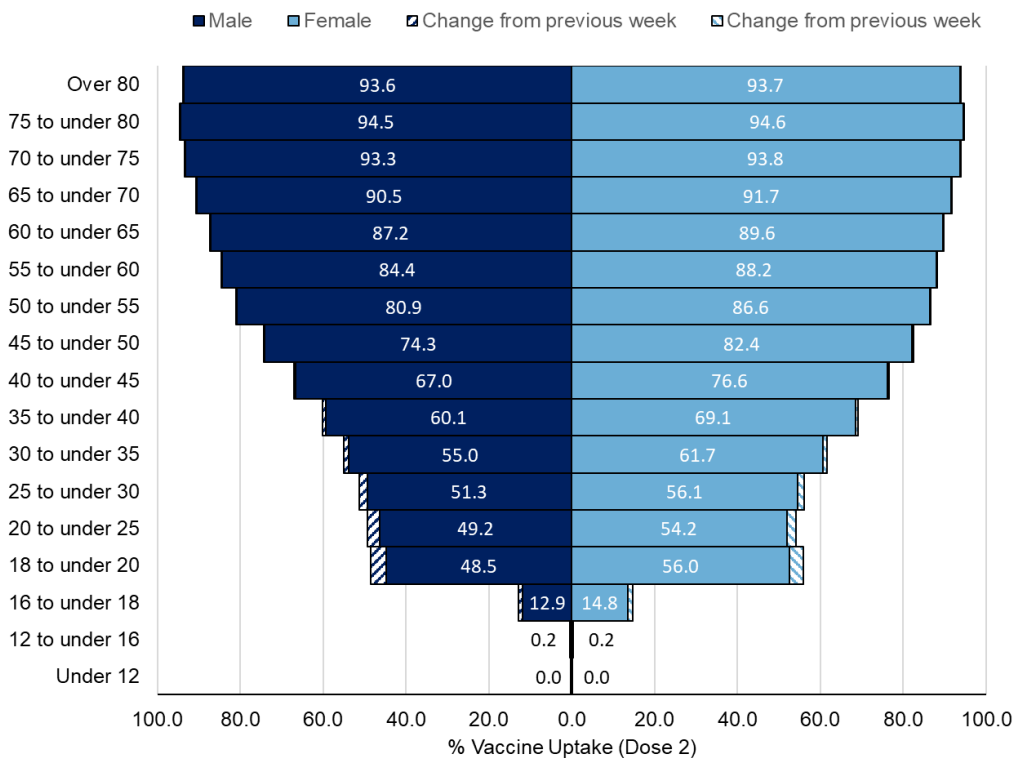
Figure 61: Cumulative weekly COVID-19 vaccine uptake by age in England for (a) Dose 1 and (b) Dose 2

(a)

(b)

Figure 62: Age-Sex pyramid for COVID-19 vaccine uptake by age in England for Dose 1

Legend: ■ Male ■ Female ▨ Change from previous week ▢ Change from previous week

Age group	Male	Female
Over 80	95.2	95.5
75 to under 80	95.4	95.7
70 to under 75	94.3	94.9
65 to under 70	91.8	93.1
60 to under 65	89.4	91.9
55 to under 60	87.0	90.7
50 to under 55	83.8	89.2
45 to under 50	78.2	85.9
40 to under 45	71.9	81.1
35 to under 40	66.4	75.2
30 to under 35	63.0	69.5
25 to under 30	62.0	65.4
20 to under 25	63.9	65.6
18 to under 20	65.6	70.6
16 to under 18	50.5	55.4
12 to under 16	5.7	5.7
Under 12	0.0	0.0

x-axis: % Vaccine Uptake (Dose 1)

Figure 63: Age-Sex pyramid for COVID-19 vaccine uptake by age in England for Dose 2

Legend: ■ Male ■ Female ▨ Change from previous week ▢ Change from previous week

Age group	Male	Female
Over 80	93.6	93.7
75 to under 80	94.5	94.6
70 to under 75	93.3	93.8
65 to under 70	90.5	91.7
60 to under 65	87.2	89.6
55 to under 60	84.4	88.2
50 to under 55	80.9	86.6
45 to under 50	74.3	82.4
40 to under 45	67.0	76.6
35 to under 40	60.1	69.1
30 to under 35	55.0	61.7
25 to under 30	51.3	56.1
20 to under 25	49.2	54.2
18 to under 20	48.5	56.0
16 to under 18	12.9	14.8
12 to under 16	0.2	0.2
Under 12	0.0	0.0

x-axis: % Vaccine Uptake (Dose 2)

83

Figure 64: Cumulative weekly COVID-19 vaccine uptake by ethnicity in England in those aged 50 and over
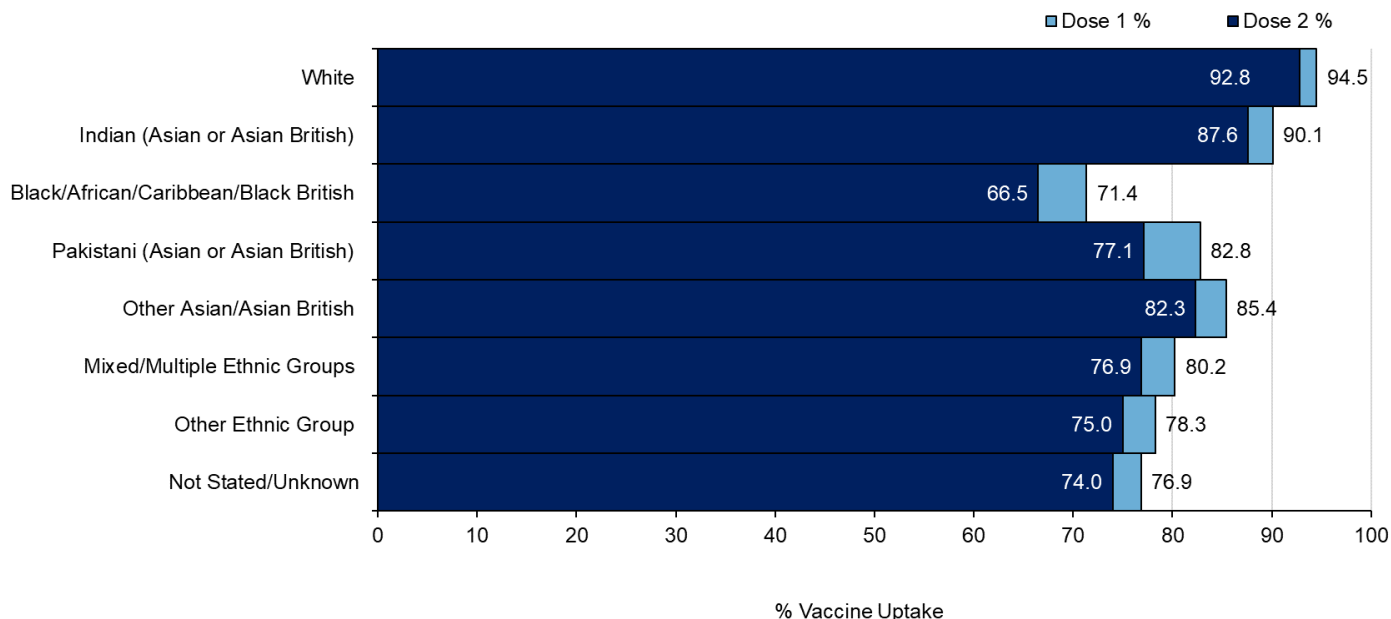
From the 6 January 2021 (week 1 2021), the JCVI advises initially prioritising delivery of the first vaccine dose to maximise the public health impact in the short term and reduce the number of preventable deaths from COVID-19. The statement can be accessed here

For UK COVID-19 daily counts of vaccinations, please see the Vaccinations' section of the UK COVID-19 dashboard.

For COVID-19 management information on the number of COVID-19 vaccinations provided by the NHS in England, please see the COVID-19 vaccinations webpage.
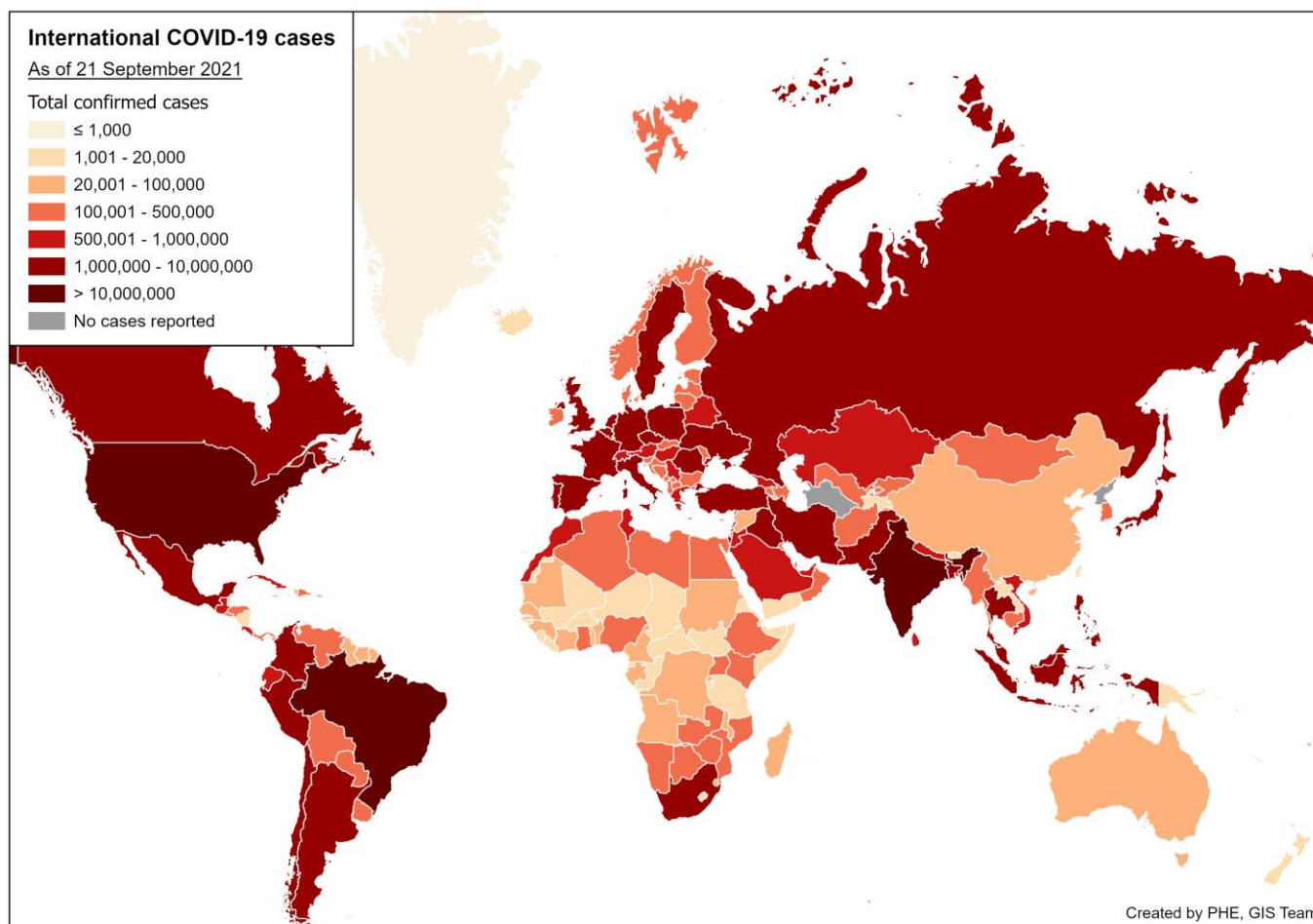
# International update

Global COVID-19 update

Globally, up to 21 September 2021, a total of 228,814,388 cases of COVID-19 infection have been reported worldwide, including 4,696,856 COVID-19 related deaths.

For further information on the global COVID-19 situation please see the WHO COVID-19 situation reports.

Figure 65: Global map of cumulative COVID-19 cases

Figure 66: Global map of change in weekly COVID-19 case incidence rate per 100,000 population compared to the previous week
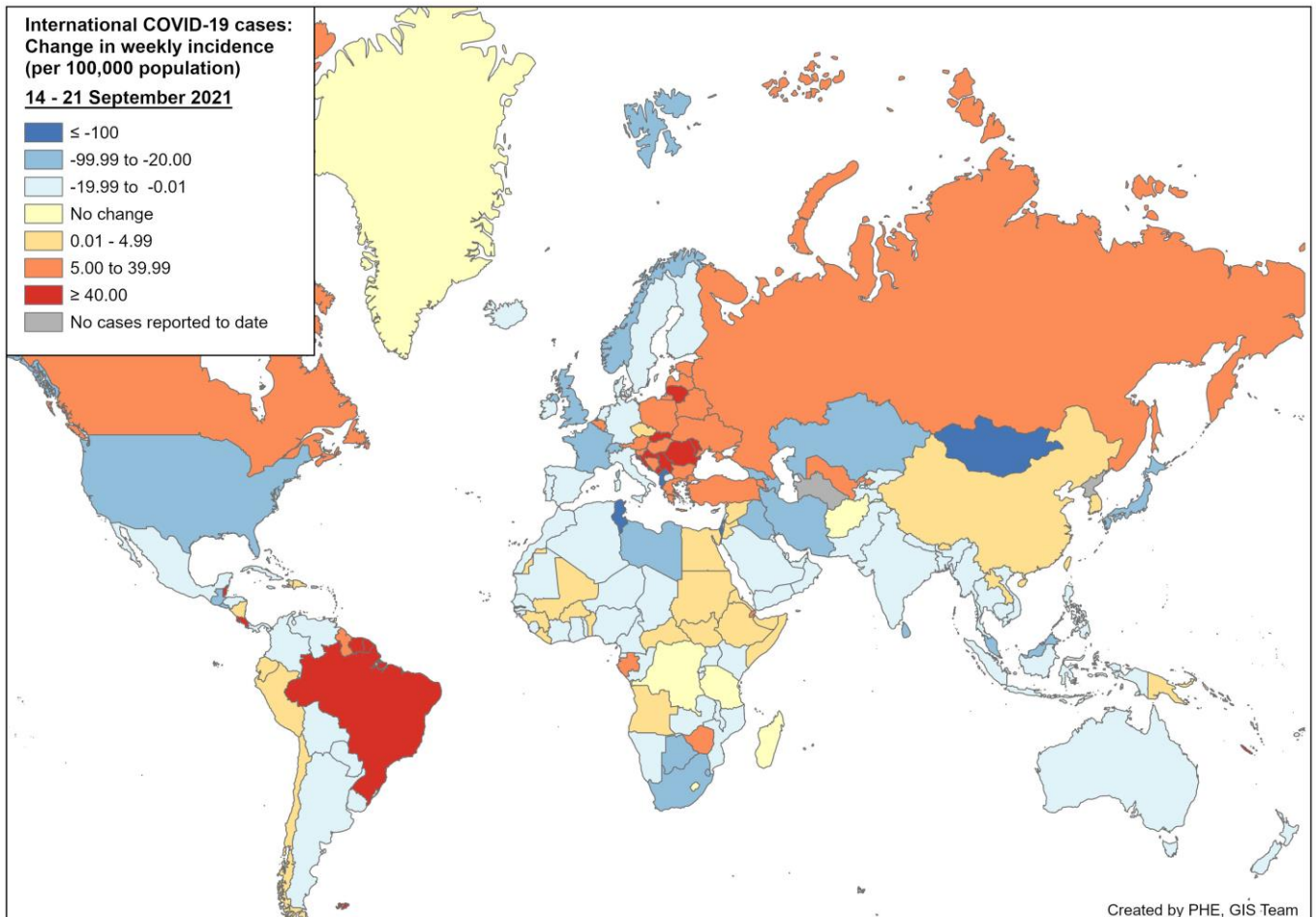
Global influenza update

Updated on 13 September 2021 (based on data up to 29 August 2021) (WHO website).

In the temperate zones of the northern hemisphere, influenza activity remained below baseline overall. In the temperate zone of the southern hemisphere, influenza activity was reported at inter-seasonal levels. Worldwide, influenza A and B viruses were detected in similar proportions.

In the Caribbean and Central American countries, sporadic influenza B/Victoria lineage virus detections were reported in Mexico.

In tropical South America, no influenza detections were reported in this period.

In Western Africa, a few influenza A(H1N1)pdm09 virus detections were reported in Burkina Faso and Ghana. Senegal reported a few influenza A virus detections.

In Middle Africa, influenza A(H3N2) detections were reported from South Sudan. SARI rates increased in Togo in recent weeks.

In Eastern Africa, influenza B/Victoria lineage detections were reported from Madagascar. ILI rates remained elevated in Zambia.

In Southern Asia, influenza detections of predominantly A(H3N2) virus continued to be reported in India and Nepal. In addition, a few influenza A(H1N1)pdm09 and influenza B/Victoria lineage detections were reported from Bangladesh, India Nepal.

In South East Asia, no influenza virus detections were reported in this period. In Lao People's Democratic Republic, ILI and SARI levels remained below the average of the previous three years.

In the countries of North America, influenza activity indicators, including the percent of tests positive for influenza and influenza like illness (ILI) activity, were at very low levels.

In Europe, influenza activity remained at inter-seasonal levels with sporadic detections of influenza A and B viruses reported in some countries.

In Central Asia, no influenza detections were reported across reporting countries.

In Northern Africa, no reports were received for this reporting period.

In Western Asia, no influenza detections were reported across reporting countries during this period.

In East Asia, influenza illness indicators and influenza activity remained low.

The WHO GISRS laboratories tested more than 282,929 specimens during the period 16 August to 29 August 2021. A total of 1580 specimens were positive for influenza viruses, of which 983 (62.2%) were typed as influenza A and 597 (37.8%) as influenza B. Of the sub-typed influenza A viruses, 63 (6.7%) were influenza A(H1N1)pdm09 and 876 (93.3%) were influenza A(H3N2). Of the characterized B viruses, 2 (0.4%) belonged to the B-Yamagata lineage and 546 (99.6%) belonged to the B-Victoria lineage.

Influenza in Europe

Updated on 23 September 2021 (Joint ECDC-WHO Europe Influenza weekly update)

For weeks 33 to 36 of 2021, influenza activity remained at inter-seasonal levels throughout Europe.

For week 36 2021, of 424 sentinel specimens tested for influenza viruses, none were positive. Since the start of the 2020 to 2021 season, of 50,578 sentinel-source specimens tested for influenza viruses, 47 were positive.

Influenza in the Northern Hemisphere

For further information on influenza in the United States of America please see the Centre for Disease Control weekly influenza surveillance report.

For further information on influenza in Canada please see the Public Health Agency weekly influenza report.

Other respiratory viruses

Avian influenza

Latest update on 08 August 2021 (WHO website).

Since the previous update on 22 June 2021, one human case of infection with
an avian influenza A(H5N1) virus and six human cases of infection with avian influenza
A(H5N6) viruses were reported officially.

Influenza A(H5) viruses:
According to reports received by the World Organisation for Animal Health (OIE),
various influenza A(H5) subtypes continue to be detected in birds in Africa, Europe and
Asia.

Influenza A(H7N9) viruses:
There have been no publicly available reports from animal health authorities in China or
other countries on influenza A(H7N9) virus detections in animals in recent months.
Overall, the risk assessments have not changed.

Middle East respiratory syndrome coronavirus (MERS-CoV)

Latest update on 17 August 2021 (WHO website).

Up to 17 August 2021, a total of 5 cases of Middle East respiratory syndrome
coronavirus, MERS-CoV, (three imported and 2 linked cases) have been confirmed in
the UK through the on-going surveillance since September 2012.

On 2 February 2021, the National IHR Focal Point of the United Arab Emirates (UAE)
notified WHO of one laboratory-confirmed case of MERS-CoV (WHO website).

Between 12 March and 31 July 2021, the National IHR Focal Point of Saudi Arabia
reported four additional cases of Middle East Respiratory Syndrome Coronavirus
(MERS-CoV) infection, including one associated death. (WHO website).

From 2012 through 31 July 2021, a total of 2,578 laboratory-confirmed cases of MERS-
CoV and 888 associated deaths were reported globally to WHO under the International
Health Regulations (IHR 2005).

Further information on management and guidance of possible cases is available online.
The latest ECDC MERS-CoV risk assessment can be found here, where it is highlighted
that risk of widespread transmission of MERS-CoV remains very low.

Related links

Previous national COVID-19 reports

Previous weekly influenza reports

Annual influenza reports

COVID-19 vaccine surveillance reports

PHE monitoring of the effectiveness of COVID-19 vaccination

Investigation of SARS-CoV-2 variants of concern: technical briefings

PHE has delegated authority, on behalf of the Secretary of State, to process Patient Confidential Data under Regulation 3 The Health Service (Control of Patient Information) Regulations 2002
Regulation 3 makes provision for the processing of patient information for the recognition, control and prevention of communicable disease and other risks to public health.

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, research, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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