



UK Health
Security
Agency

Weekly national Influenza and COVID-19 surveillance report

Week 50 report (up to week 49 data)

15 December 2022

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For additional information including regional data on COVID-19 and other respiratory viruses, COVID-19 in educational settings, co- and secondary infections with COVID-19 and other data supplementary to this report, please refer to the [accompanying graph pack](#).

Executive summary

This report summarises the information from the surveillance systems which are used to monitor coronavirus (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 49 (between 5 December and 11 December 2022) and for some indicators daily data up to 13 December 2022.

In week 49, from activity seen across multiple disease surveillance systems, influenza activity continued to increase. COVID-19 activity showed a mixed picture – with some indicators, most notably hospitalisations and care home outbreaks, suggesting a modest increase in activity.

COVID-19 case rates through Pillar 1 remained stable in week 49 overall, for all genders, regions, ethnic groups, and most age groups. Pillar 1 positivity decreased slightly in week 49 overall. As of week 49 2022, BQ.1 continues to be the predominant circulating COVID-19 variant in England.

Through Respiratory Datamart, influenza positivity increased to 20.2% in week 49; with highest positivity seen in the 5 to 14 years age group at 32.9%. SARS-CoV-2 positivity increased to 6.7% compared to 5.2% the previous week. Respiratory syncytial virus (RSV) positivity decreased to 7.7% in week 49, with the positivity in those under 5 years decreasing to 20.0%. Adenovirus positivity remained low and stable at 2.9%. Rhinovirus positivity decreased to 9.1% overall. Parainfluenza positivity remained low and stable at 1.4%. Human metapneumovirus (hMPV) positivity increased from 3.5% in week 48 to 4.9% in week 49.

The overall number of reported acute respiratory infection (ARI) incidents increased compared with the previous week, with the highest number of incidents continuing to be in care homes (125 with COVID-19 detected). The number of influenza confirmed outbreaks in care homes increased to 18. Through NHS 111, calls for cold/flu and for cough continued to increase nationally.

Through primary care surveillance, the influenza-like-illness consultations indicator increased and is now above the baseline threshold for the first time this season. The lower respiratory tract infection and COVID-19 indicators also increased.

Overall, COVID-19 hospitalisations increased in week 49, whilst ICU-HDU admissions remained stable. Hospitalisations were highest in the 85 years and over age group. Influenza hospital admissions increased and are above COVID-19 hospital admissions for the first time. Influenza admissions were highest in those aged 85 years and over and those aged under 5 years. Influenza ICU admissions increased and remained within medium intensity range. The RSV hospitalisation rate decreased overall, driven by decreases in those under 5 years. Emergency department attendances for COVID-19-like illnesses remained fairly stable while acute respiratory infections and influenza-like-illness continued to increase. ED attendances for acute bronchiolitis started to decrease nationally, driven by decreases in those under 1 year and those aged 1 to 4 years.

Deaths with COVID-19 decreased in week 48 and no excess deaths were observed.

The COVID-19 Autumn booster vaccination campaign commenced in early September. By the end of week 49, 63.2% of all people aged over 50 years had been vaccinated with an Autumn booster dose.

Influenza vaccine uptake for the 2022 to 2023 influenza season has been reported weekly since week 41. The trend in vaccine uptake compared with the previous 2021 to 2022 season is broadly comparable for 65 year olds and over, for those under 65 years in clinical risk groups, and for pregnant women, but lower in and 2 and 3 year olds.

Laboratory surveillance

Confirmed COVID-19 cases (England)

From 1 April 2022, the government ended provision of widespread community testing in England, as outlined in the plan for [living with COVID-19](#). From week 15 2022, confirmed COVID-19 episodes and positivity through Pillar 1 are presented in this report, with Pillar 2 data available in the accompanying graph pack. Routine asymptomatic testing through NHS settings has been paused from 31 August, this will have an effect on Pillar 1 case rates and positivity rates.

As of 9am on 11 December 2022, a total of 1,932,608 episodes have been confirmed for COVID-19 in England under Pillar 1, and 18,405,783 episodes have been confirmed for COVID-19 in England under Pillar 2, since the beginning of the pandemic.

COVID-19 case rates through Pillar 1 remained fairly stable in week 49 overall, for all genders, regions, ethnic groups, and most age groups except in the 80 years and over age group where case rates increased. Pillar 1 positivity decreased in week 49 overall. A slight increase in positivity was seen in the South West.

Data notes:

Changes to testing policies over time may affect positivity rates and incidence rates and should be interpreted accordingly. From 31 January 2022, UK Health Security Agency (UKHSA) moved all COVID-19 case reporting in England to use a new episode-based definition which includes possible reinfections. Each infection episode is counted separately if there are at least 91 days between positive test results (polymerase chain reaction (PCR) or rapid lateral flow device). Each infection episode begins with the earliest positive specimen date. Further information can be found on the [UK COVID-19 dashboard](#).

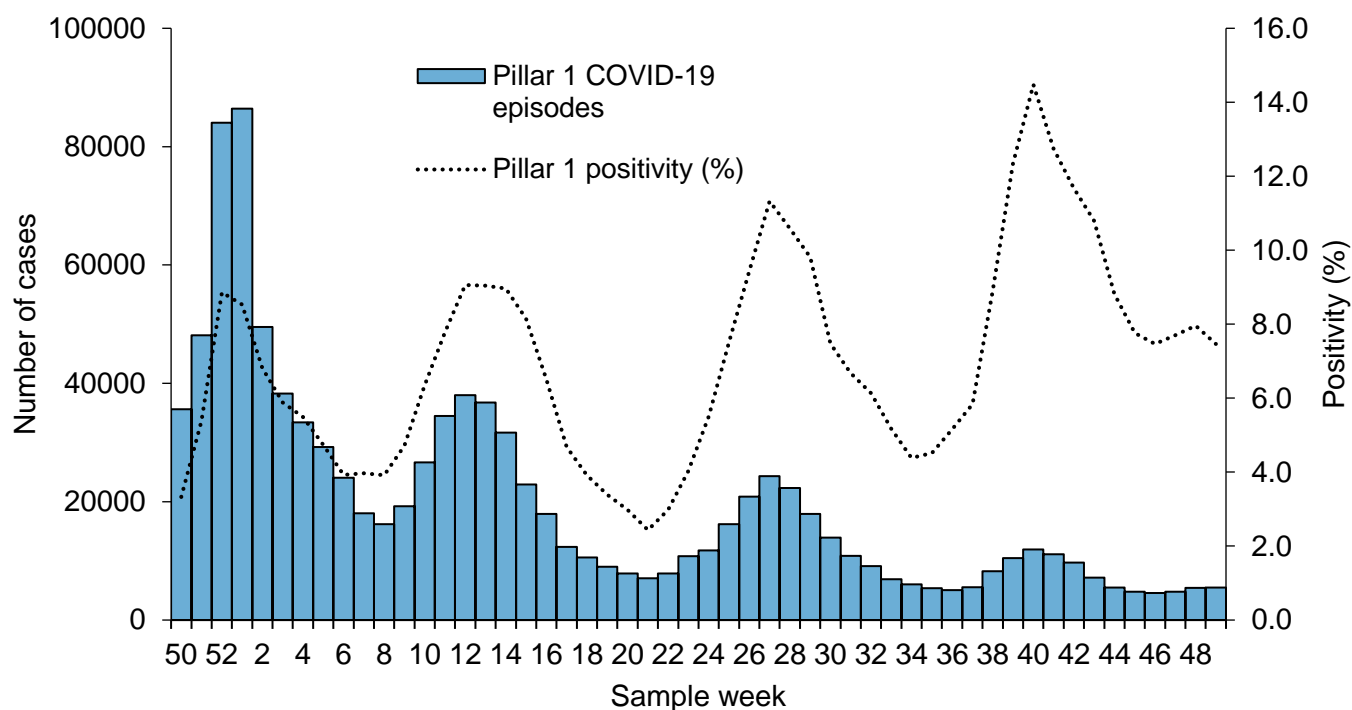
From the week 32 2021 report onwards, case rates have been updated to use the latest Office for National Statistics (ONS) population estimates for mid-2020. Previously case rates were calculated using the mid-2019 population estimates. Rates by ethnicity and Indices of Multiple Deprivation (IMD) quantile 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 PCR testing only. Positivity is calculated as the number of individuals testing positive during the week divided by the number of individuals tested during the week through PCR testing

Data is 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

Data source: Second Generation Surveillance System (SGSS)

Figure 1: Confirmed COVID-19 episodes tested under Pillar 1, based on sample week with overall weekly PCR positivity for Pillar 1 (%)



Age and sex

Figure 2: Weekly confirmed COVID-19 case rates per 100,000, by episode, tested under Pillar 1, by sex

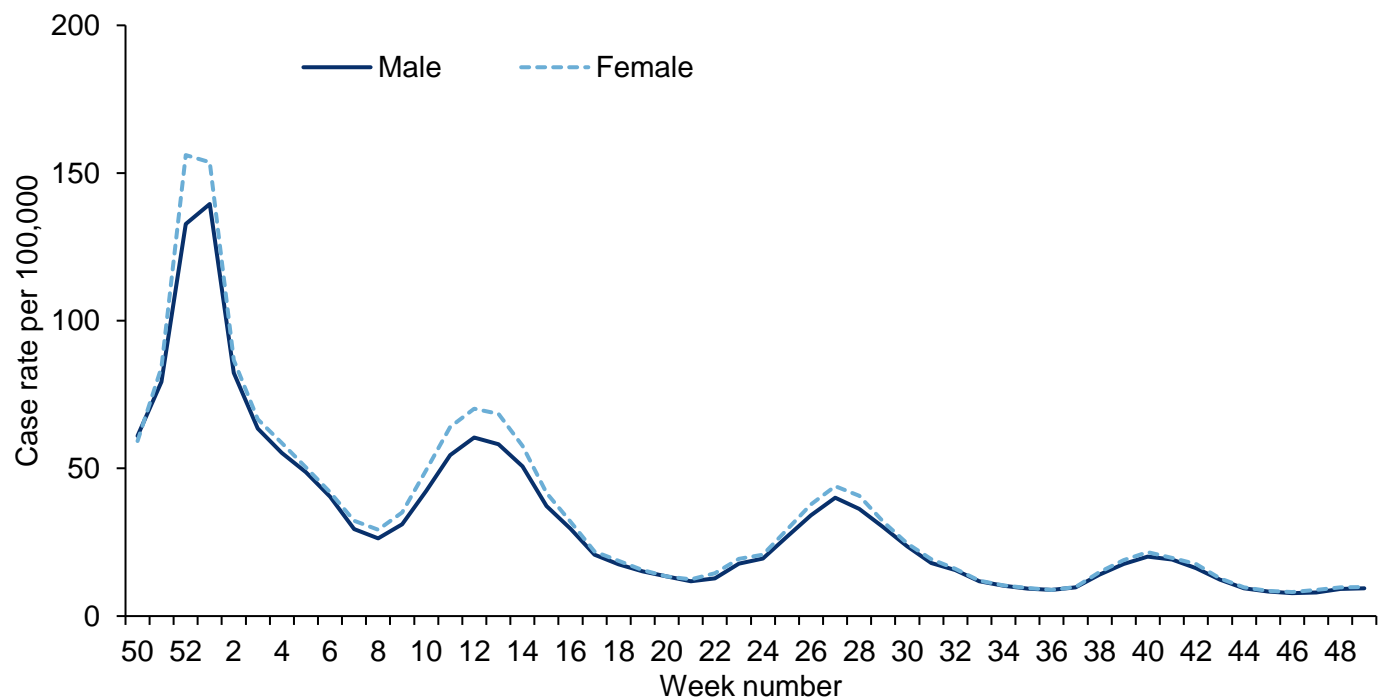


Figure 3: Weekly confirmed COVID-19 case rates per 100,000, by episode, tested under Pillar 1, by age group

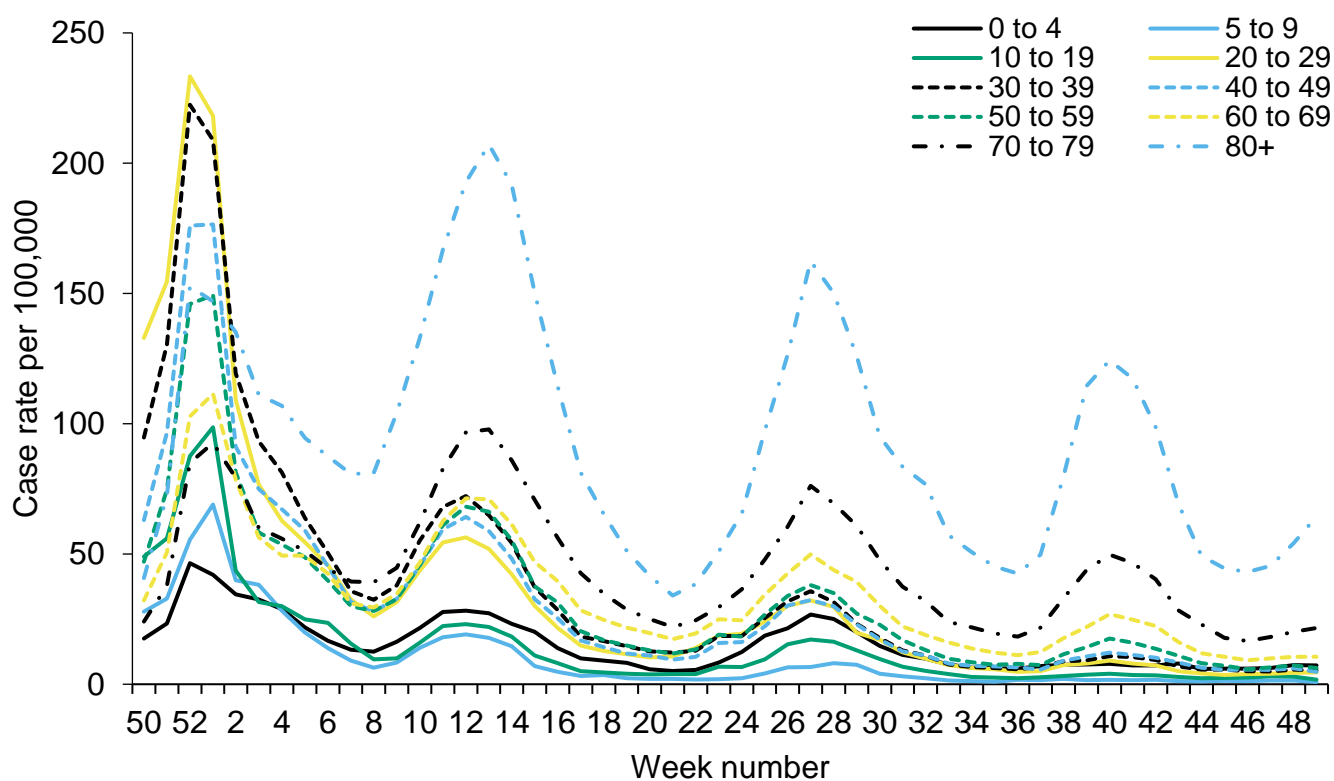


Figure 4: Weekly PCR positivity (%) of confirmed COVID-19 cases tested overall and by sex under Pillar 1

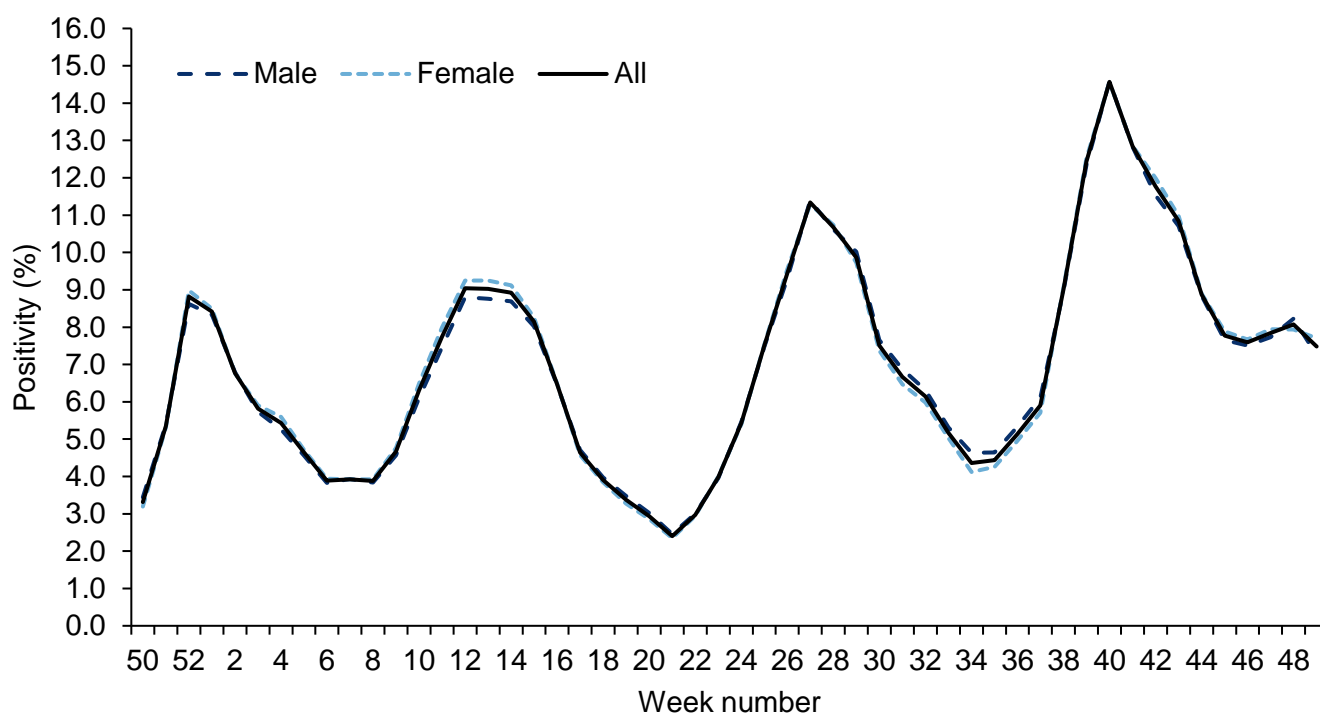
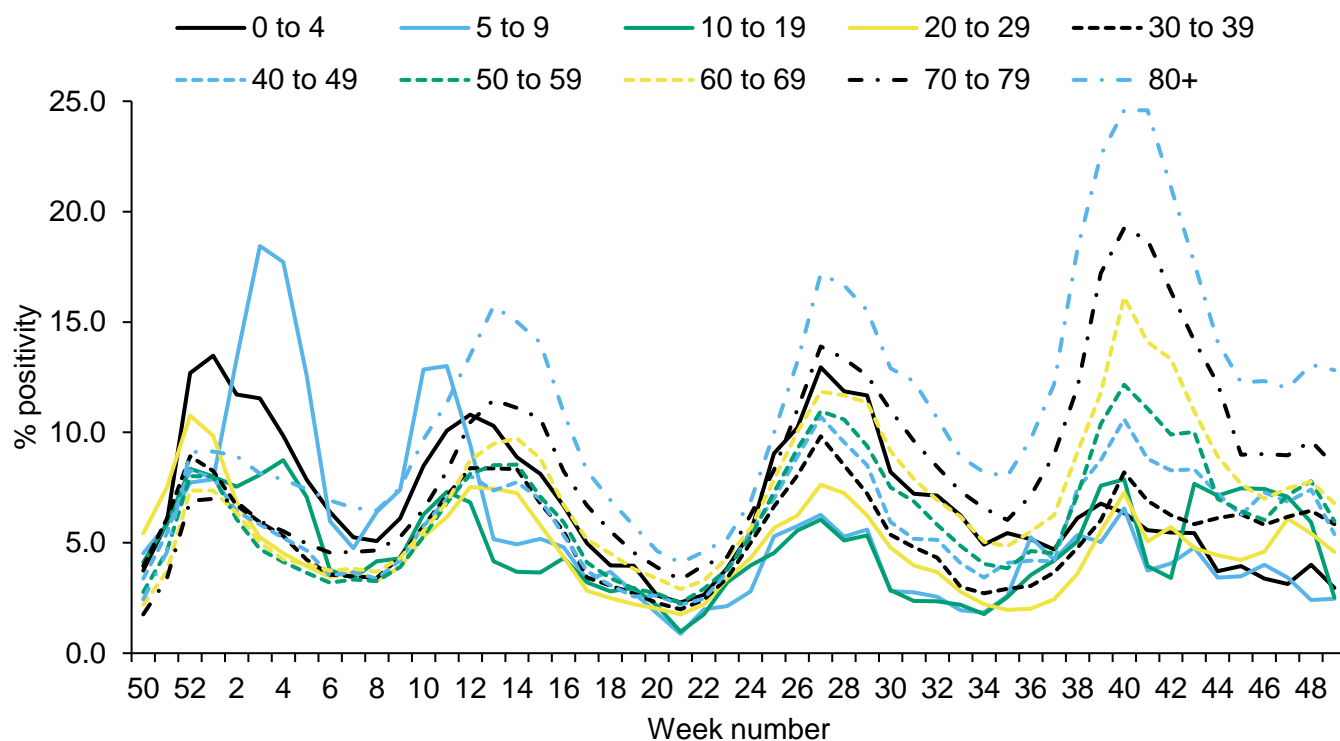
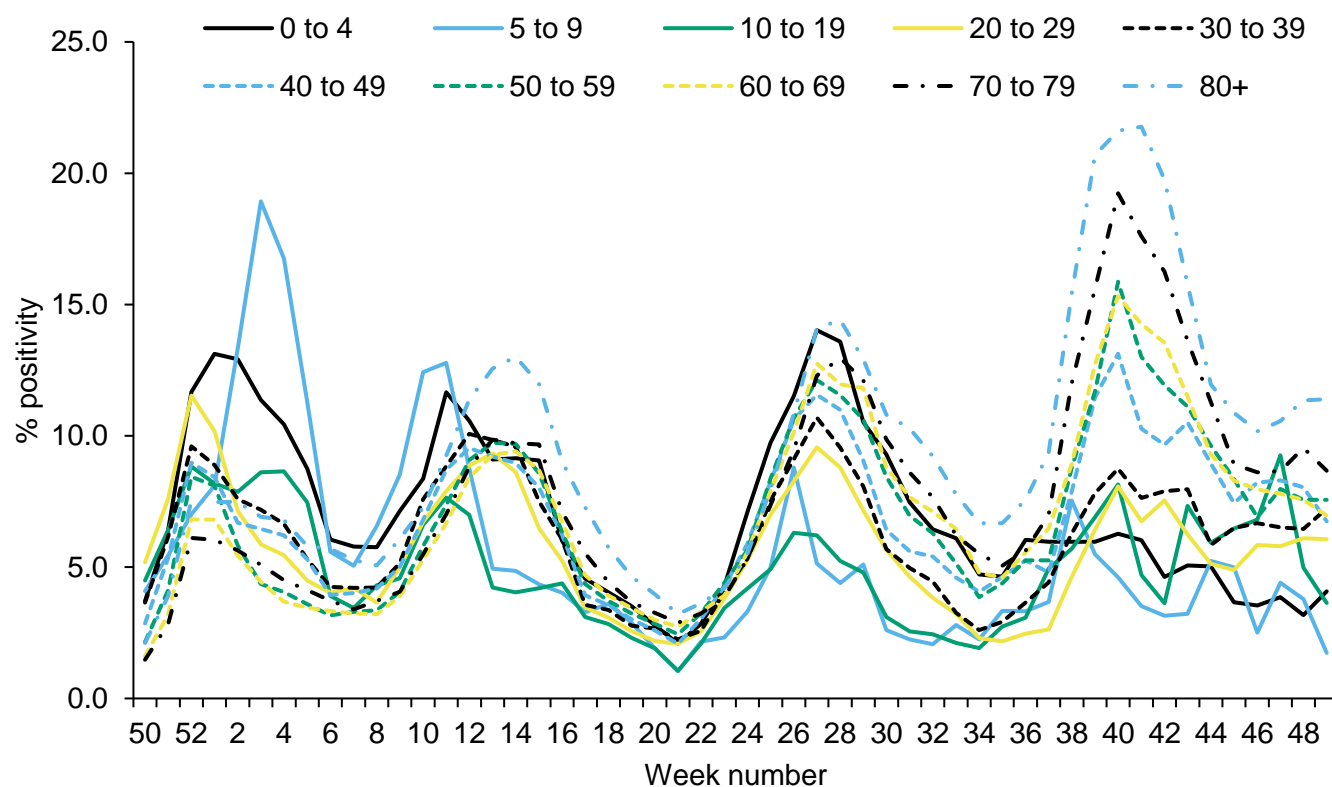


Figure 5: Weekly PCR positivity (%) of confirmed COVID-19 cases tested under Pillar 1, (a) by male and age group and (b) by female and age group

(a) Pillar 1 - Male



(b) Pillar 1 - Female



Geography

Figure 6: Weekly confirmed COVID-19 case rates by episode, per 100,000 population (Pillar 1), by UKHSA centres and sample week

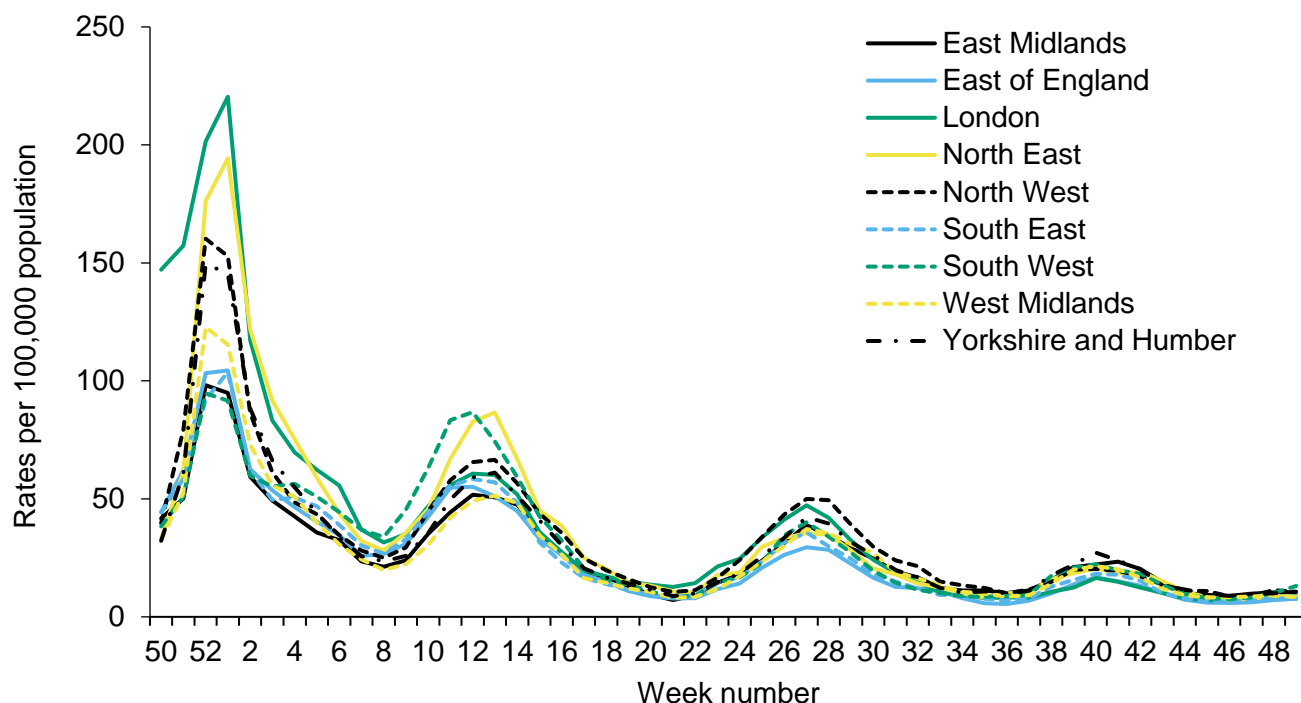


Figure 7: Weekly PCR positivity of confirmed COVID-19 cases tested under Pillar 1 (%) by UKHSA centres and sample week

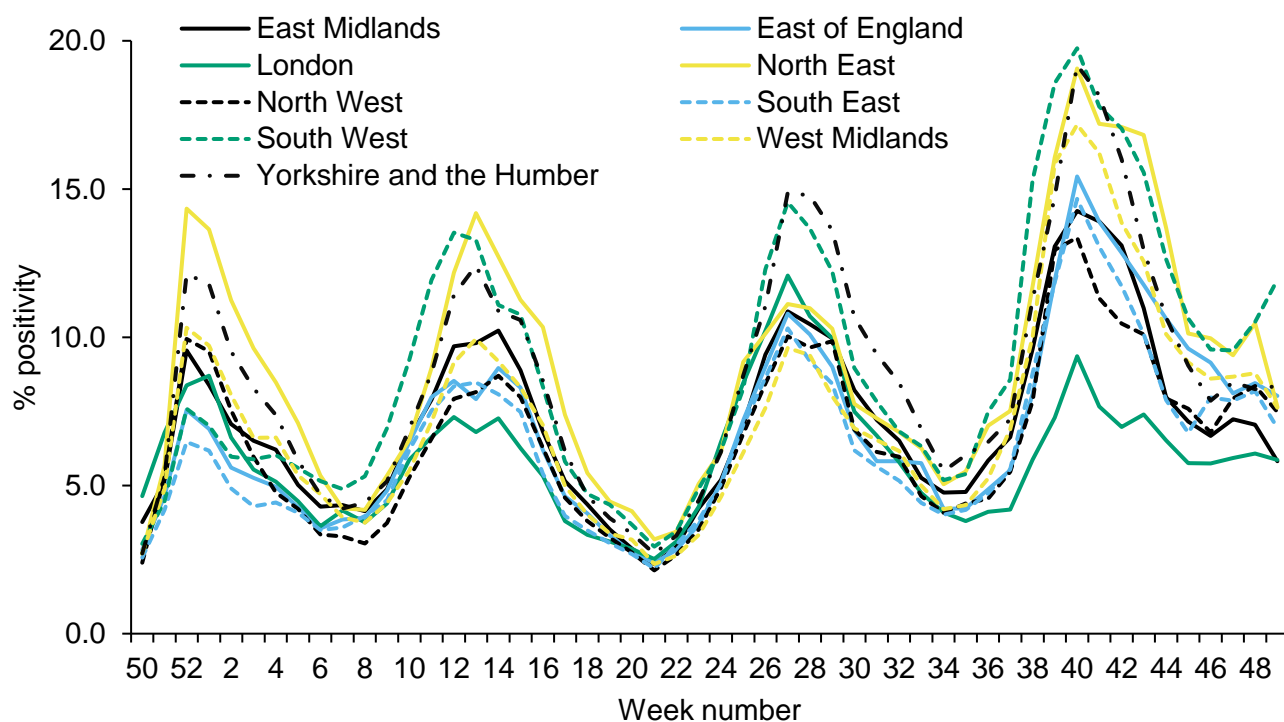
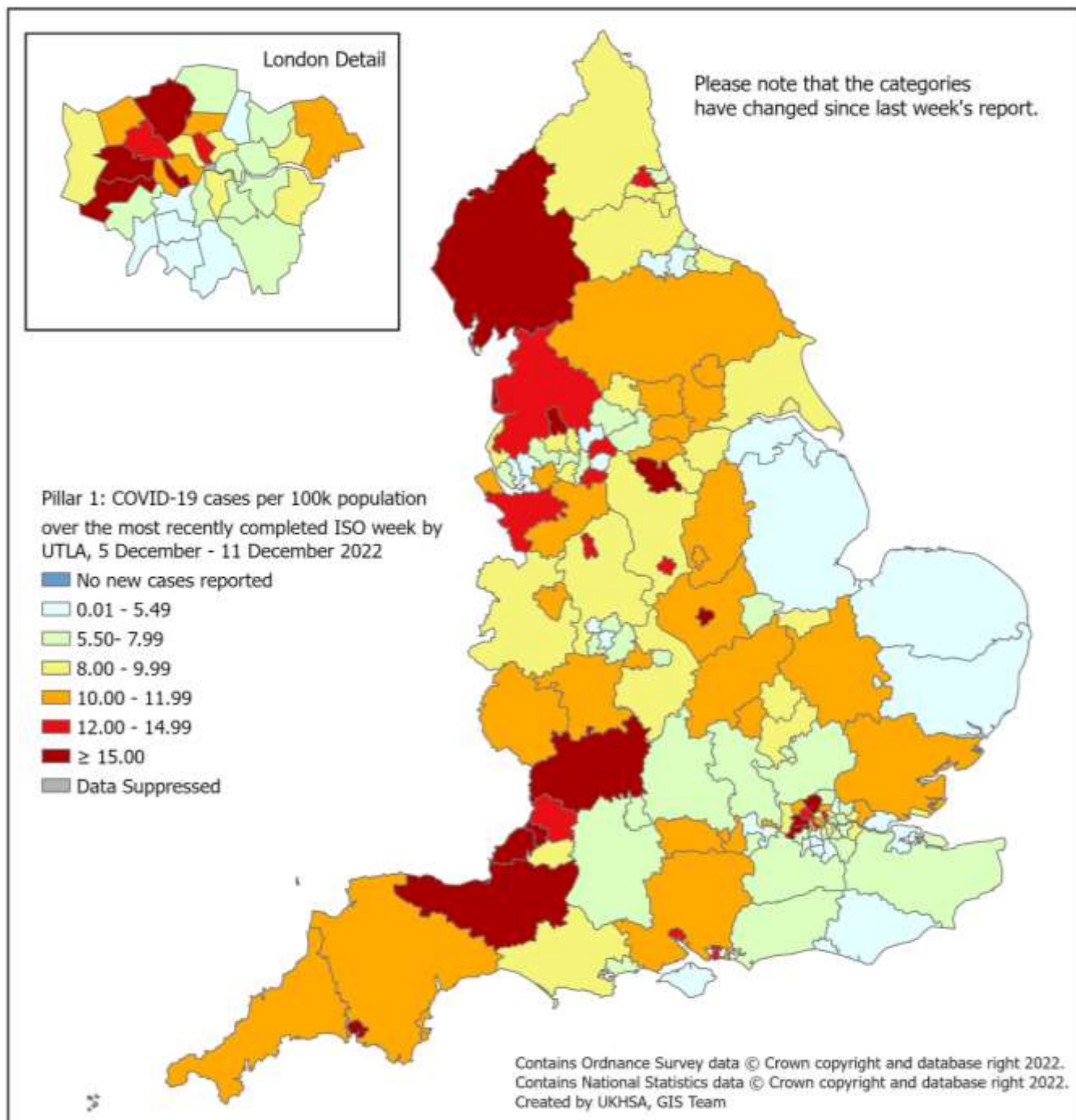
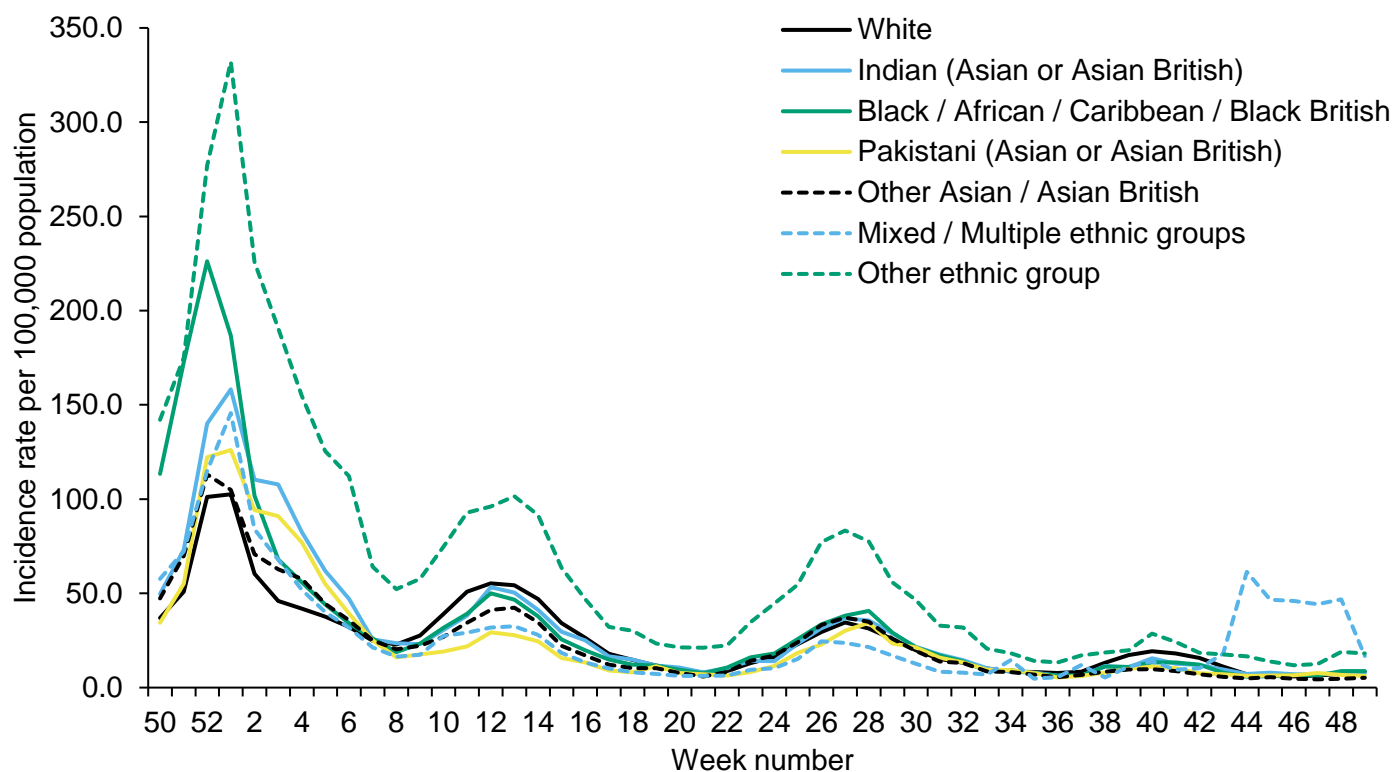


Figure 8: Weekly rate of COVID-19 episodes per 100,000 population (Pillar 1), by upper-tier local authority (UTLA), England (box shows enlarged map of London area)



Ethnicity

Figure 9: Weekly incidence per 100,000 population by ethnicity (Pillar 1), England



*The incidence rates on Figure 9 have been calculated using the mid-2019 ONS population estimates

Possible SARS-CoV-2 reinfection in England

SARS-CoV-2 reinfections data is not currently being published. For previous updates please see previous editions of this report.

Respiratory DataMart system (England)

The Respiratory Datamart system began 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 allow comparison with data on other respiratory viruses.

In week 49 of 2022, out of the 11,776 respiratory specimens reported through the Respiratory DataMart System (based on data received from 12 out of 16 laboratories), 786 samples were positive for SARS-CoV-2 with an overall positivity of 6.7% which increased from 5.2% the previous week. The highest positivity was seen in the 65 year olds and over at 8.6%.

Influenza positivity increased from 16.2% in week 48 to 20.2% in week 49, with highest positivity seen in those aged 5 to 14 years at 32.9%. 856 samples tested positive for influenza (269 flu A(H3), 35 flu A(H1N1)pdm09, 525 flu A(not subtyped) and 27 flu B) in week 49.

Adenovirus positivity remained low at 2.9%, with the highest positivity of 7.6% in those under 5 years.

Rhinovirus positivity decreased to 9.1% overall. Parainfluenza positivity remained stable at 1.4%. Human metapneumovirus (hMPV) positivity slightly increased to 4.9% (Figure 12).

Figure 10: Respiratory DataMart samples positive for influenza and weekly positivity (%) for influenza, England

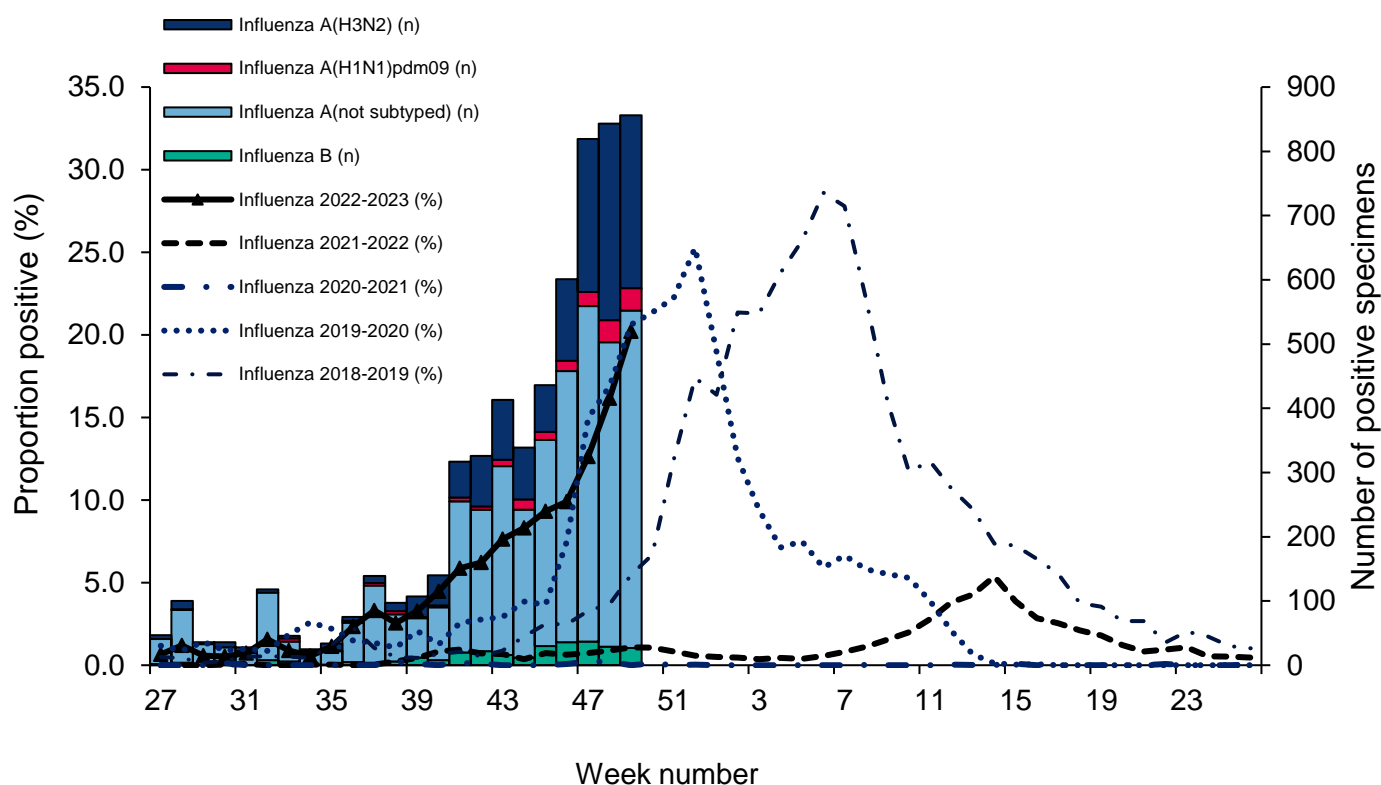


Figure 11: Respiratory DataMart weekly positivity (%) for SARS-CoV-2, England

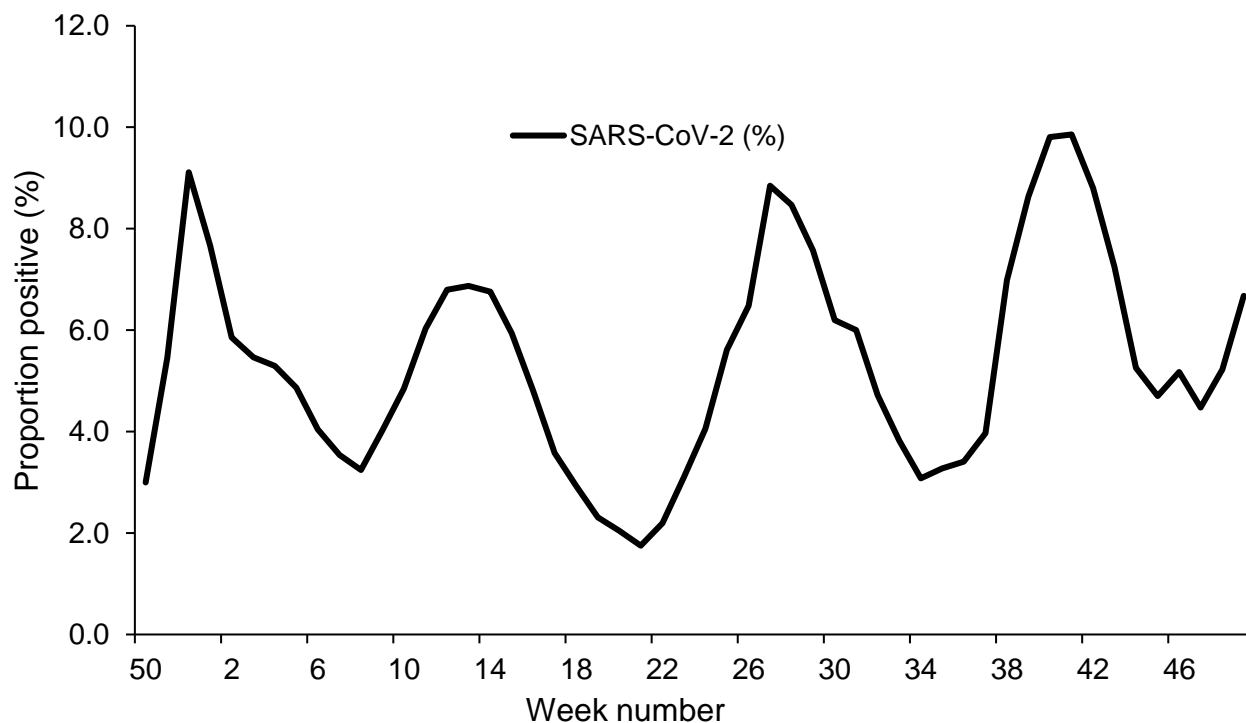


Figure 12: Respiratory DataMart weekly positivity (%) for other respiratory viruses, England

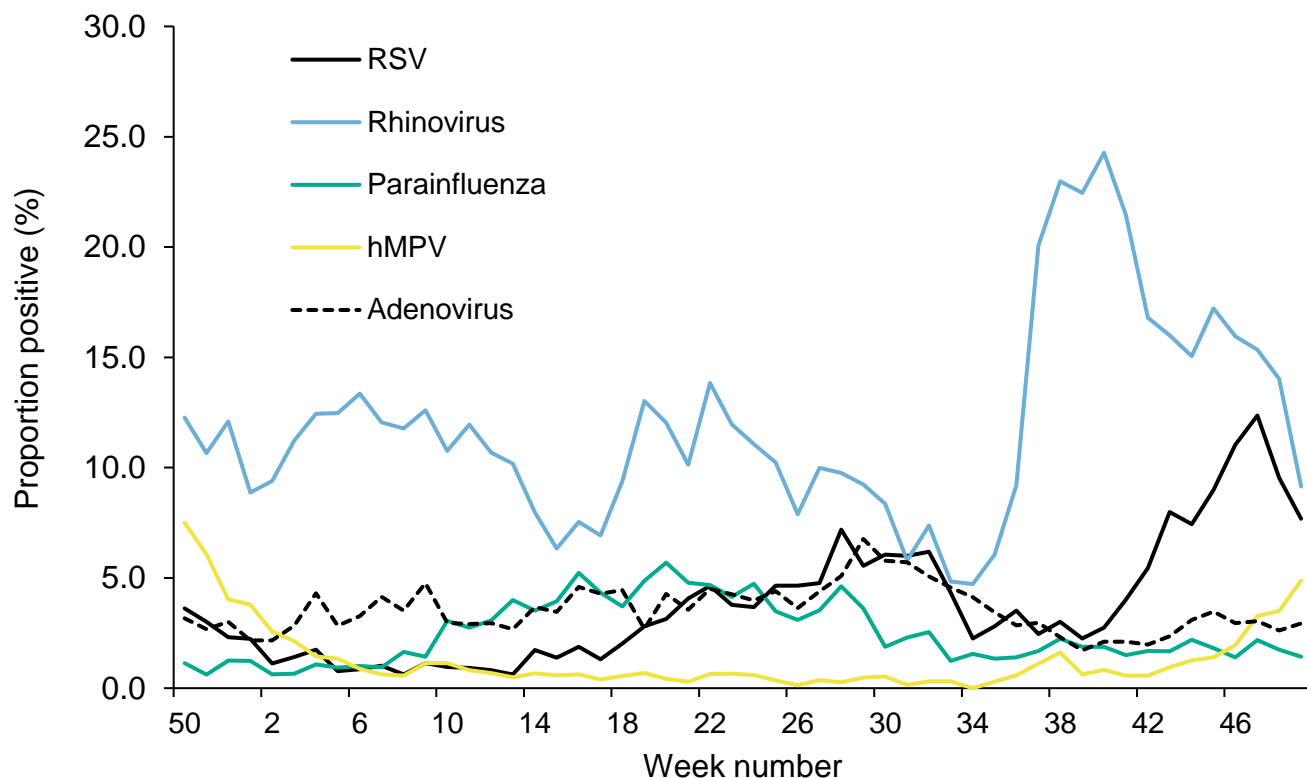


Figure 13: Respiratory DataMart weekly positivity (%) for influenza by age, England

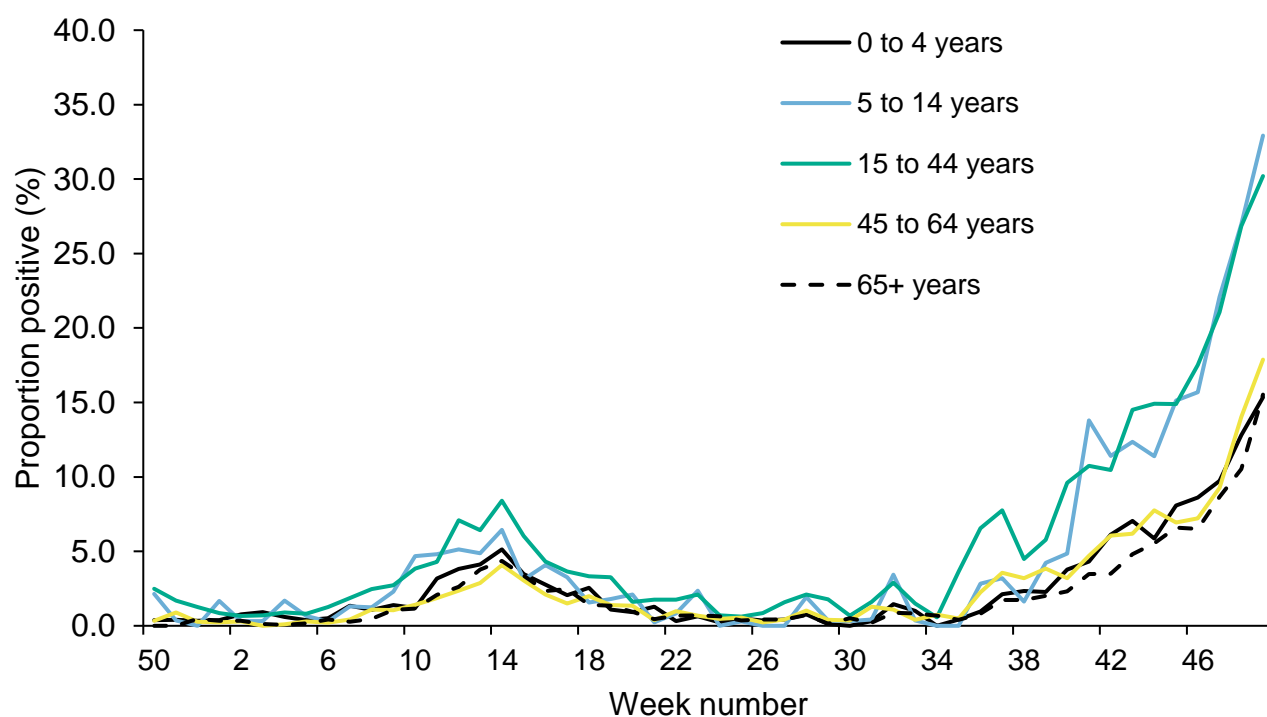


Figure 14: Respiratory DataMart weekly positivity (%) for adenovirus by age, England

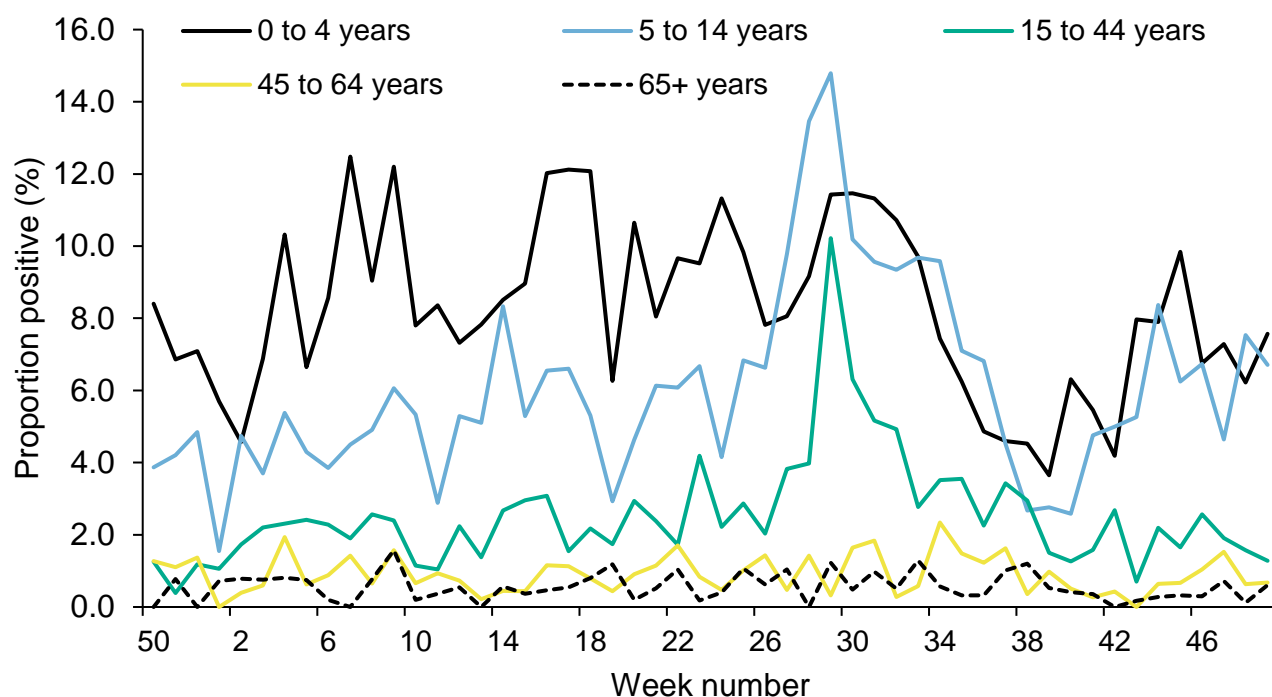


Figure 15: Respiratory DataMart weekly positivity (%) for rhinovirus by age, England

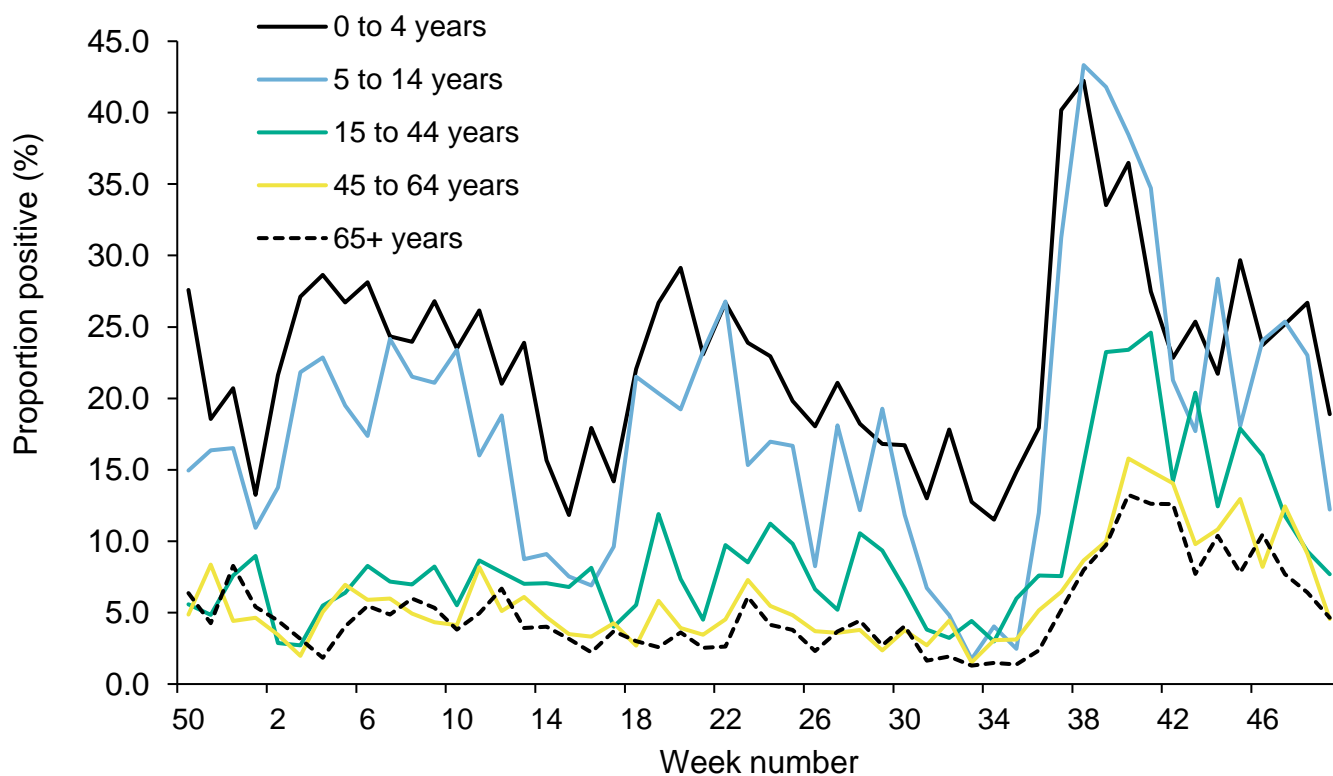
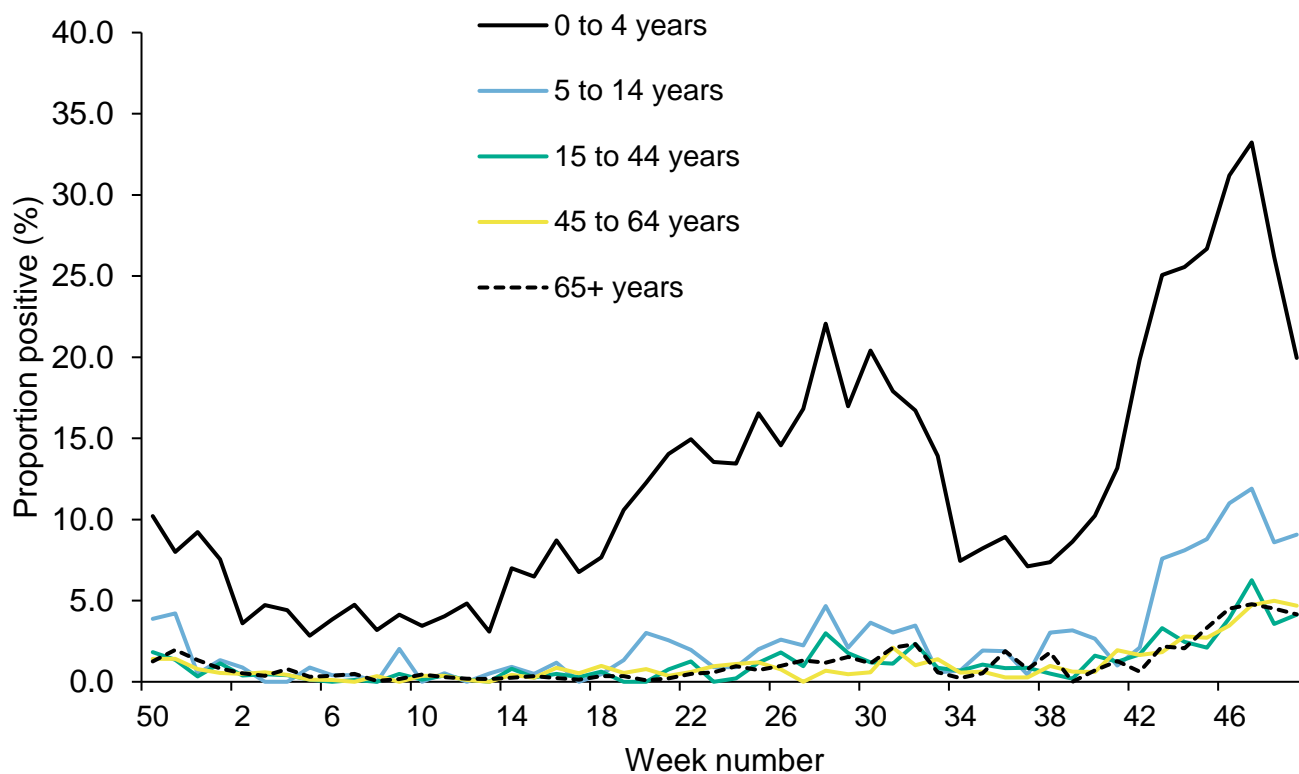


Figure 16: Respiratory DataMart weekly positivity (%) for RSV by age, England



Community surveillance

Acute respiratory infection incidents

Here we present data on acute respiratory infection (ARI) incidents in different settings that are reported to UKHSA 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.

The ARI definition includes presentations of both an influenza-like illness (ILI) and other acute viral respiratory infections (AVRI). Causal pathogens can include Influenza A and B, Respiratory Syncytial Virus (RSV), adenovirus, rhinovirus, parainfluenza, human metapneumovirus (hMPV) and SARS-CoV-2.

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

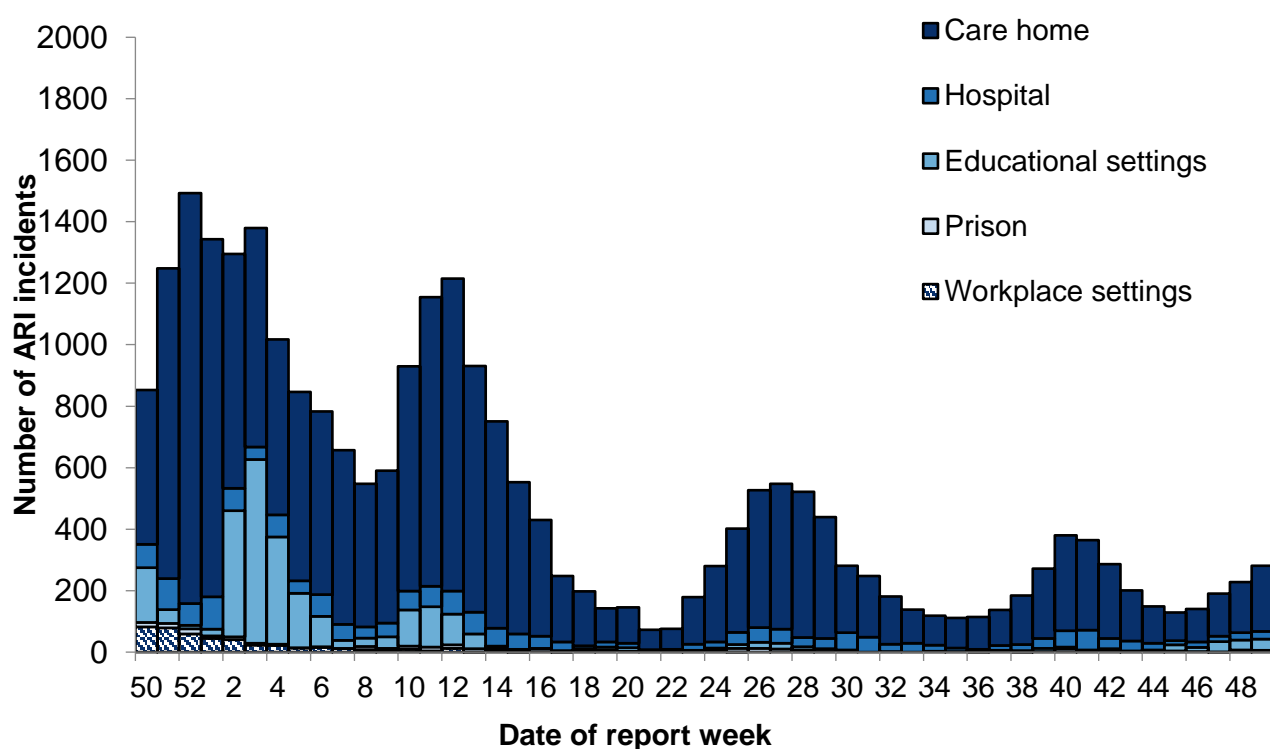
Data caveats:

1. The incidents captured on HPZone represent a subset of all ongoing ARI clusters and outbreaks in England rather than an exhaustive listing.
2. In addition, SARS-CoV2 testing policies and public health guidance for different settings changed over time. This means that any interpretation of seasonal and temporal trends since March 2020 should take this into account.
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 UKHSA also varies significantly by setting. This needs to be considered when interpreting the weekly number of reported incidents by setting and caution should be used when making comparisons between settings.
4. Considering the above, comparisons between regions and settings are not advised as they may be misleading.

331 new ARI incidents have been reported in week 49 in the UK (Figure 17):

- 214 incidents were from care homes where 125 had at least one linked case that tested positive for SARS-CoV-2, 17 for influenza A(not subtyped), 1 for influenza B and 1 for rhinovirus
- 25 incidents were from hospitals, where 14 had at least one linked case that tested positive for SARS-CoV-2, 2 for influenza A(not subtyped) and 1 for influenza B
- 36 incidents were from educational settings, where 2 had at least one linked case that tested positive for SARS-CoV-2 and 2 for influenza A(not subtyped)
- 6 incidents were from a prison, where 5 had at least one linked case that tested positive for SARS-CoV-2
- 49 incidents were from other settings where 21 had at least one linked case that tested positive for SARS-CoV-2, 3 for influenza A(not subtyped) and 2 for rhinovirus

Figure 17: Number of acute respiratory infection (ARI) incidents by setting, UK



*Excludes data from Wales

Figure 18: Number of acute respiratory infection (ARI) incidents by setting, England

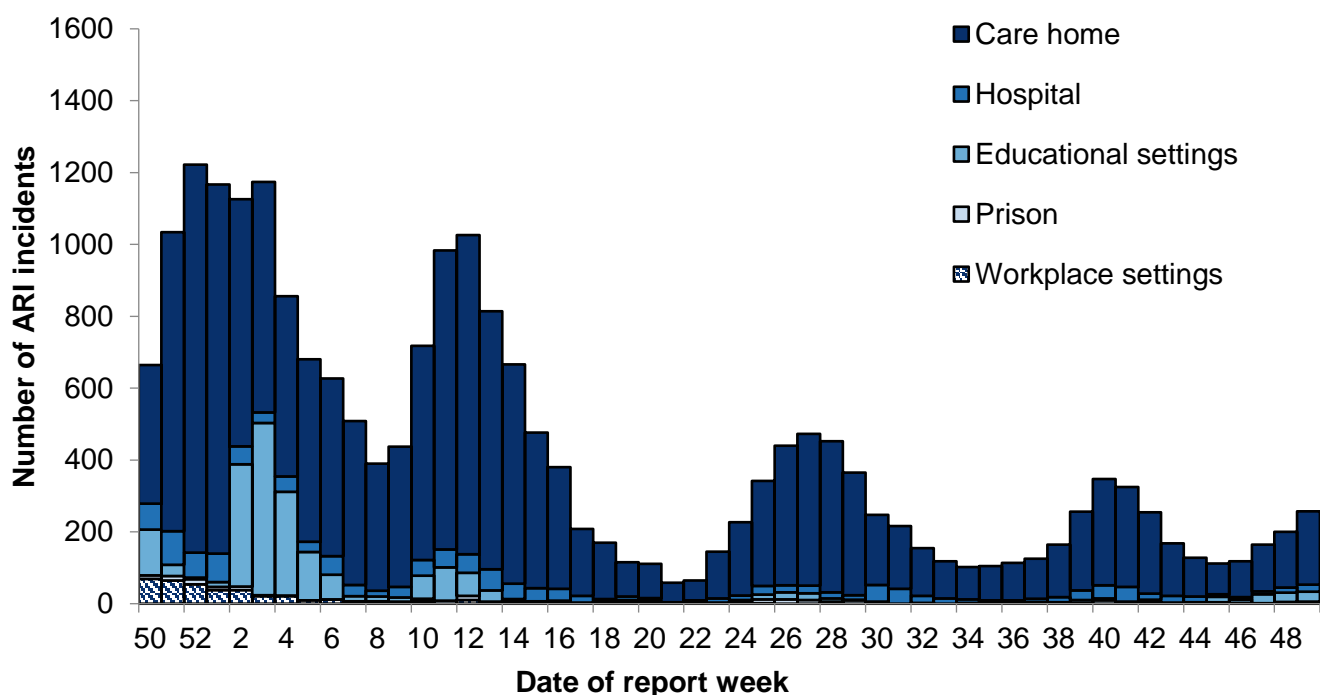


Figure 19: Number of acute respiratory infection (ARI) incidents in care homes by virus type, England

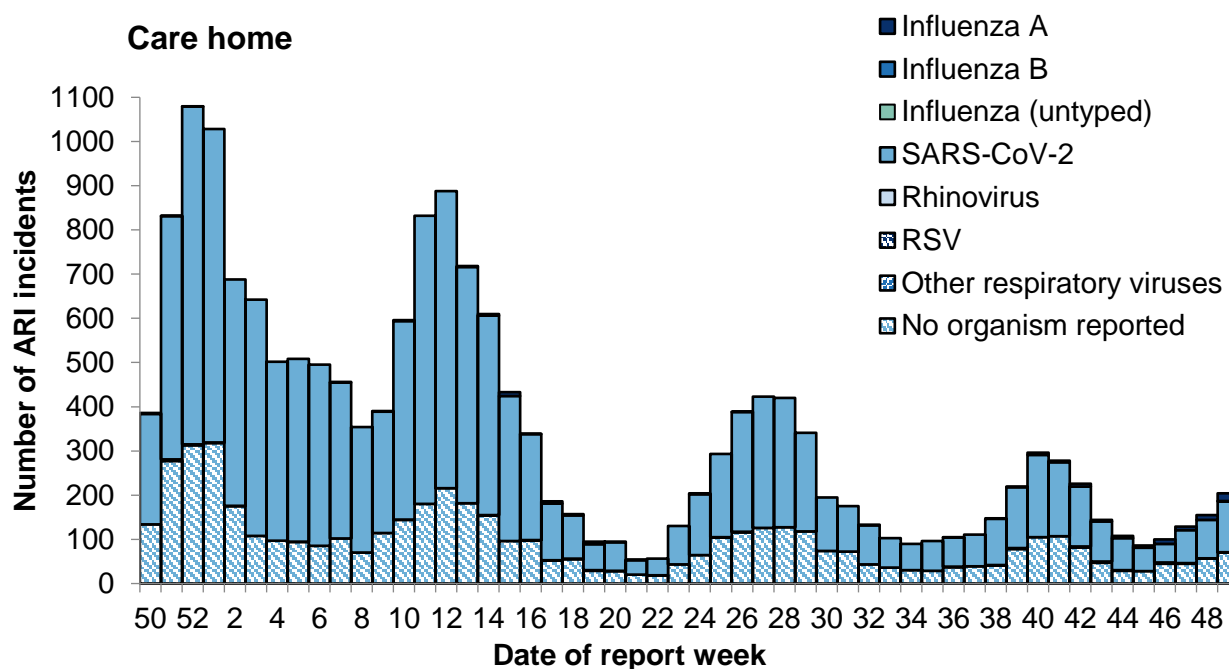


Figure 20: Number of acute respiratory infection (ARI) incidents in hospitals by virus type, England

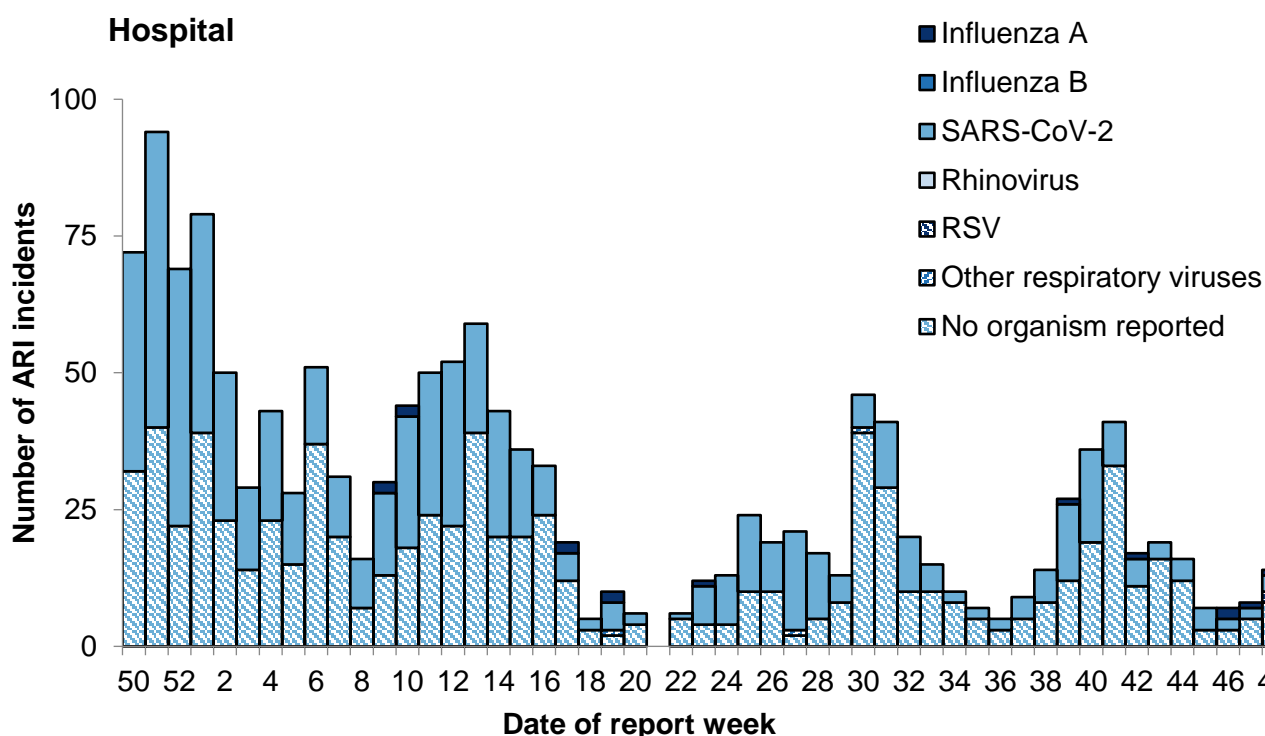
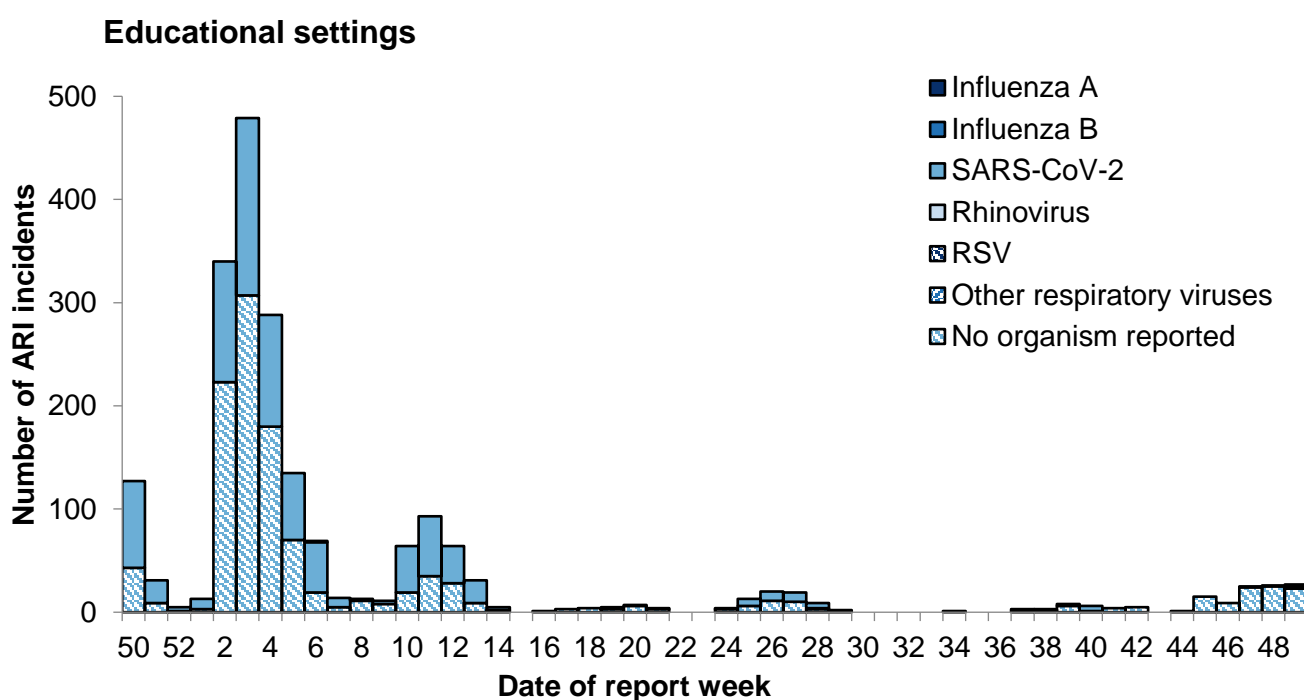


Figure 21: Number of acute respiratory infection (ARI) incidents in educational settings by virus type, England (a) for the weeks 47 2021 to 46 2022 and (b) for the 2022 to 23 academic year

(a)



(b)

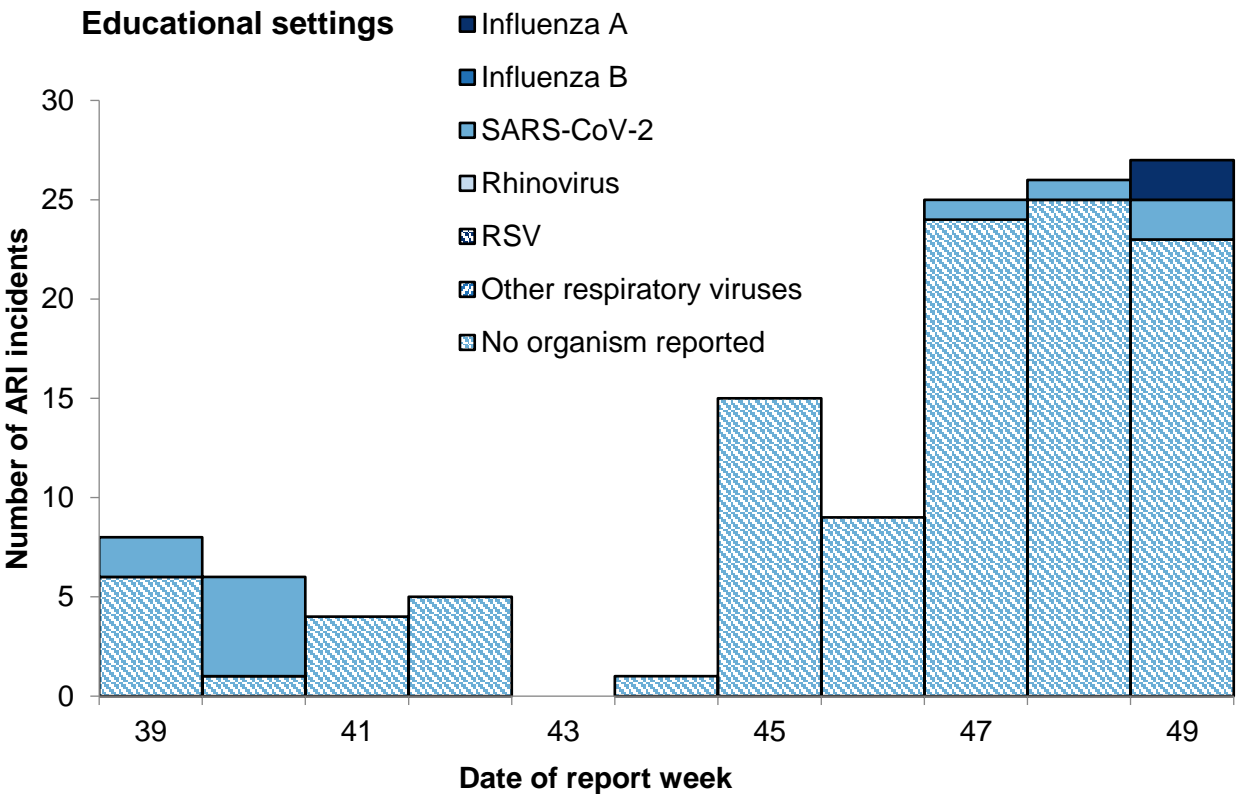


Figure 22: Number of acute respiratory infection (ARI) incidents in prisons by virus type, England

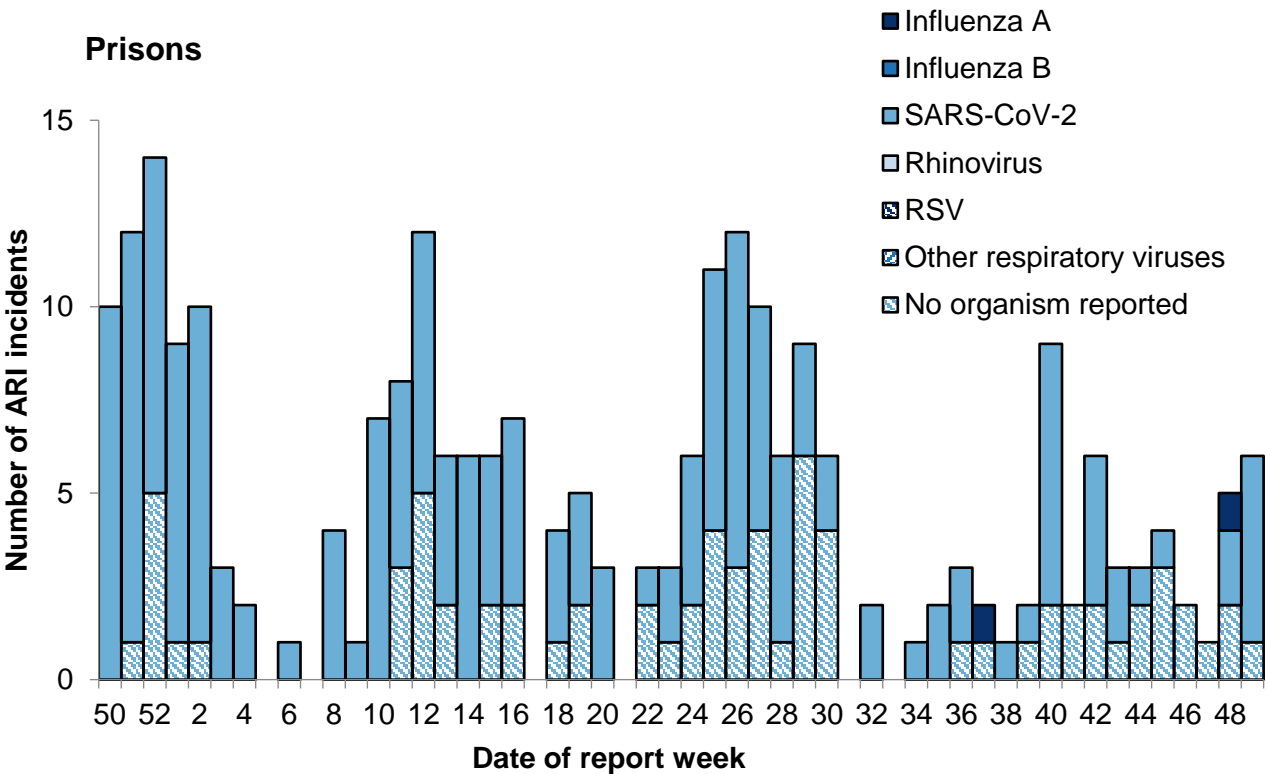


Figure 23: Number of acute respiratory infection (ARI) incidents in other settings by virus type from, England

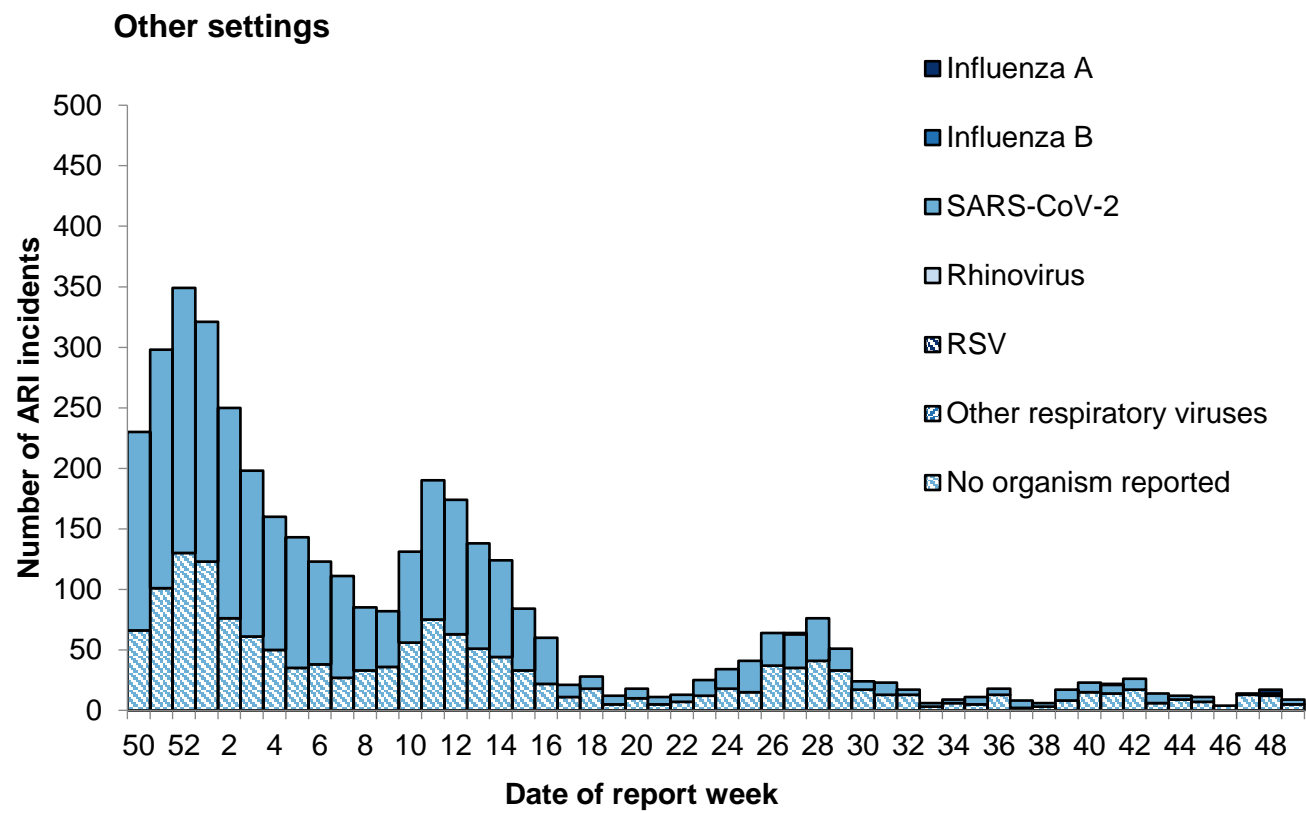


Table 1: Total number of situations and incidents by institution and UKHSA centres over the past 4 weeks with the total number in the last week in brackets

UKHSA Centres	Care home	Hospital	Educational settings	Prisons	Other settings	Total
East of England	74(24)	0(0)	1(0)	1(0)	4(0)	80(24)
East Midlands	19(9)	2(1)	1(0)	3(1)	1(0)	26(11)
London	73(18)	34(15)	39(11)	1(0)	15(4)	162(48)
North East	38(10)	0(0)	5(0)	1(1)	0(0)	44(11)
North West	57(25)	4(0)	4(1)	0(0)	8(1)	73(27)
South East	12(8)	1(0)	2(0)	4(2)	0(0)	19(10)
South West	238(86)	1(1)	1(1)	0(0)	3(1)	243(89)
West Midlands	35(12)	6(2)	19(8)	4(2)	7(1)	71(25)
Yorkshire and Humber	43(12)	1(1)	15(6)	0(0)	6(2)	65(21)
Grand Total	589(204)	49(20)	87(27)	14(6)	44(9)	783(266)

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 2020.

Note that 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.

During week 48, there were 2,125 participants completing the weekly symptoms questionnaire of which 193 (9.1%) reported fever or cough and 51(2.4%) reported influenza like illness (ILI). There was an increase in COVID-19 related symptoms while influenza like illness (ILI) remained similar to week 47 amongst participants completing the weekly symptoms survey. Healthcare seeking behaviour amongst participants reporting respiratory symptoms relating to COVID-19 (cough, fever, or loss of smell) showed that participants were more likely to telephone their GP provider as a result of their symptoms when compared to other healthcare services (Figure 24).

There has been no update for week 49.

Self-reported daily social contact patterns are also reported. A contact is defined as a person outside the household who is approached at a distance of less than one metre, on the day prior to survey completion. There remains variation on social mixing patterns amongst participants as people are meeting more individuals outside of their households (Figure 25).

Figure 24: FluSurvey participants self-reporting fever or cough and ILI symptoms, and trends in healthcare seeking behaviour among these participants, England

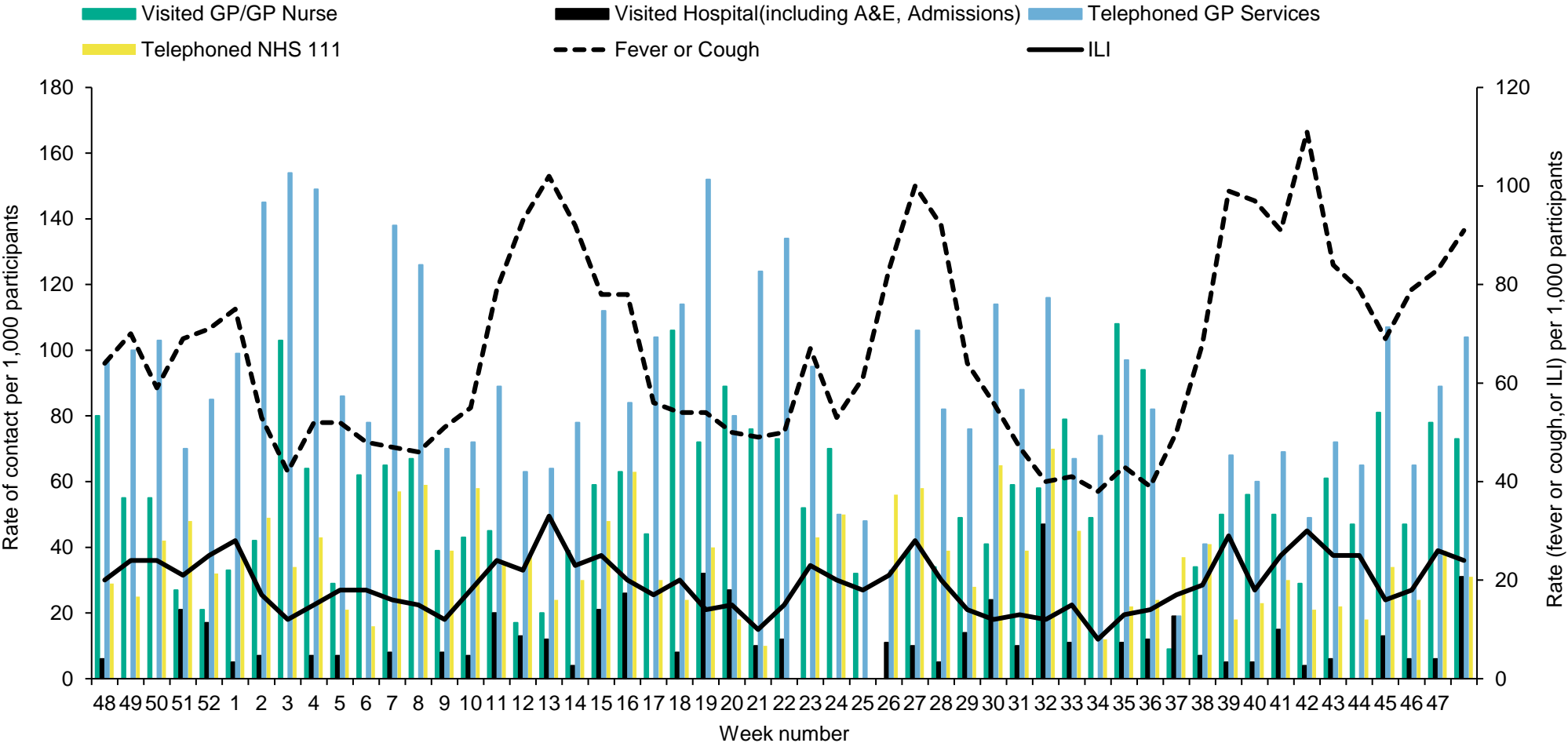
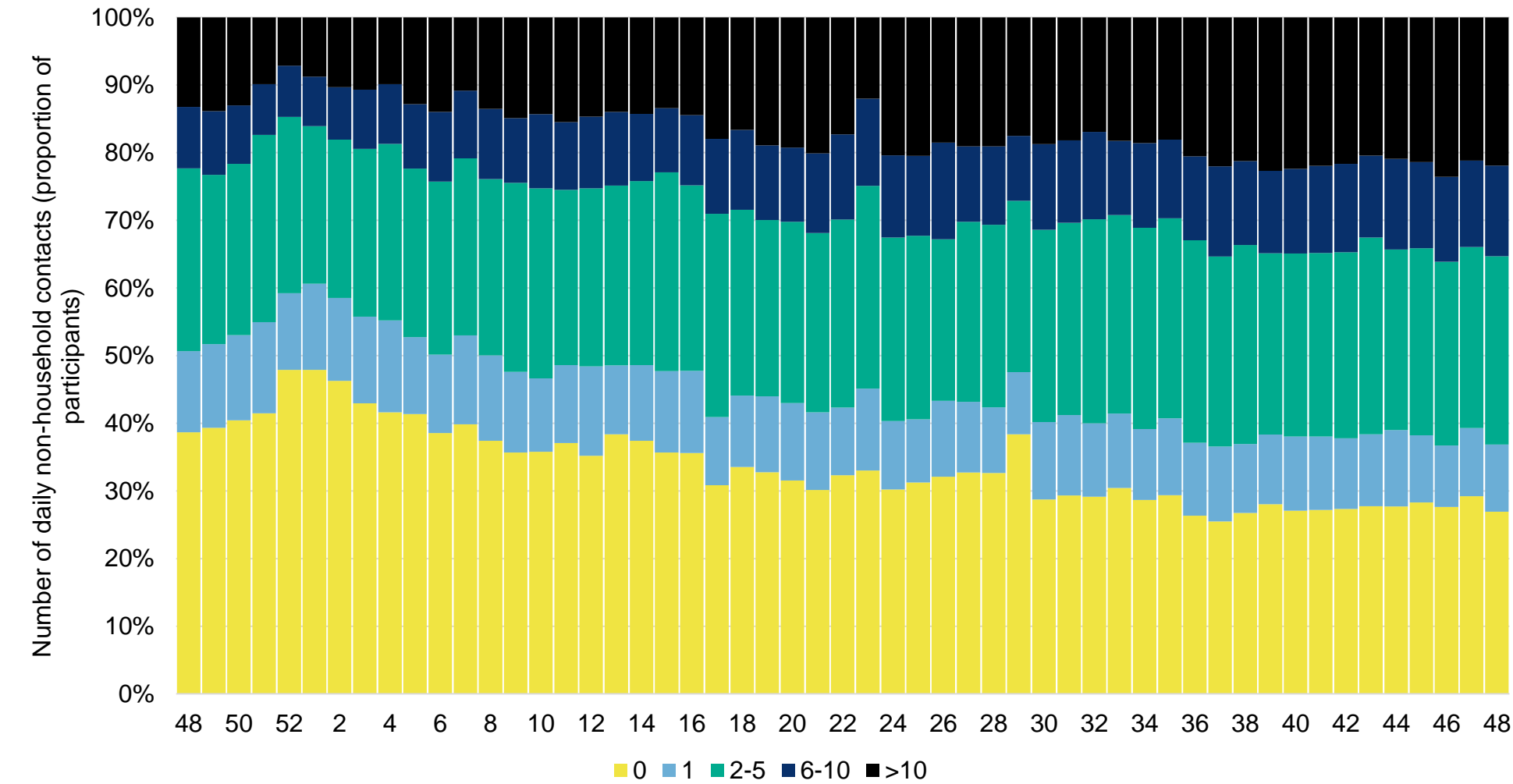


Figure 25: FluSurvey participants’ self-reported number of social contacts outside the household

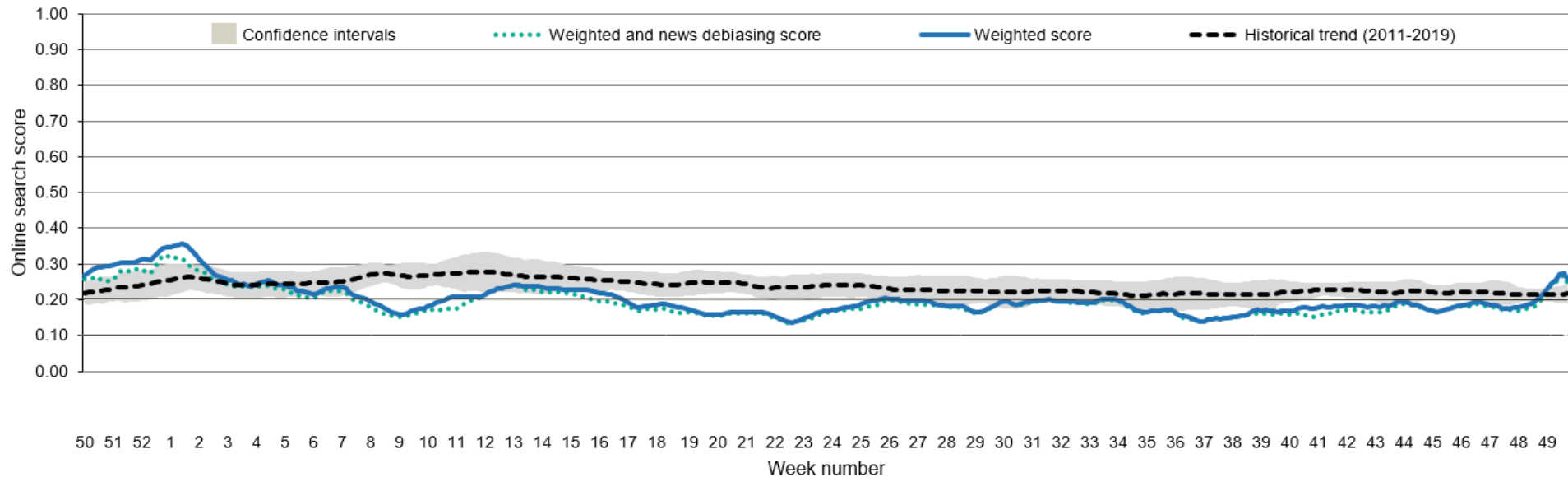


Google search queries

This is a web-based syndromic surveillance system which uses daily search query frequency statistics obtained from the Google Health Trends API (Application Programming Interface). 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 is 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 online.

During week 49, the overall and media-debiasing weighted Google search scores spiked. However, it is worth noting that this spike could be attributed to other conditions with similar symptoms (Figure 26).

Figure 26: Normalised Google search score for COVID-19 symptoms, with weighted score for media-debiasing and historical trend, England



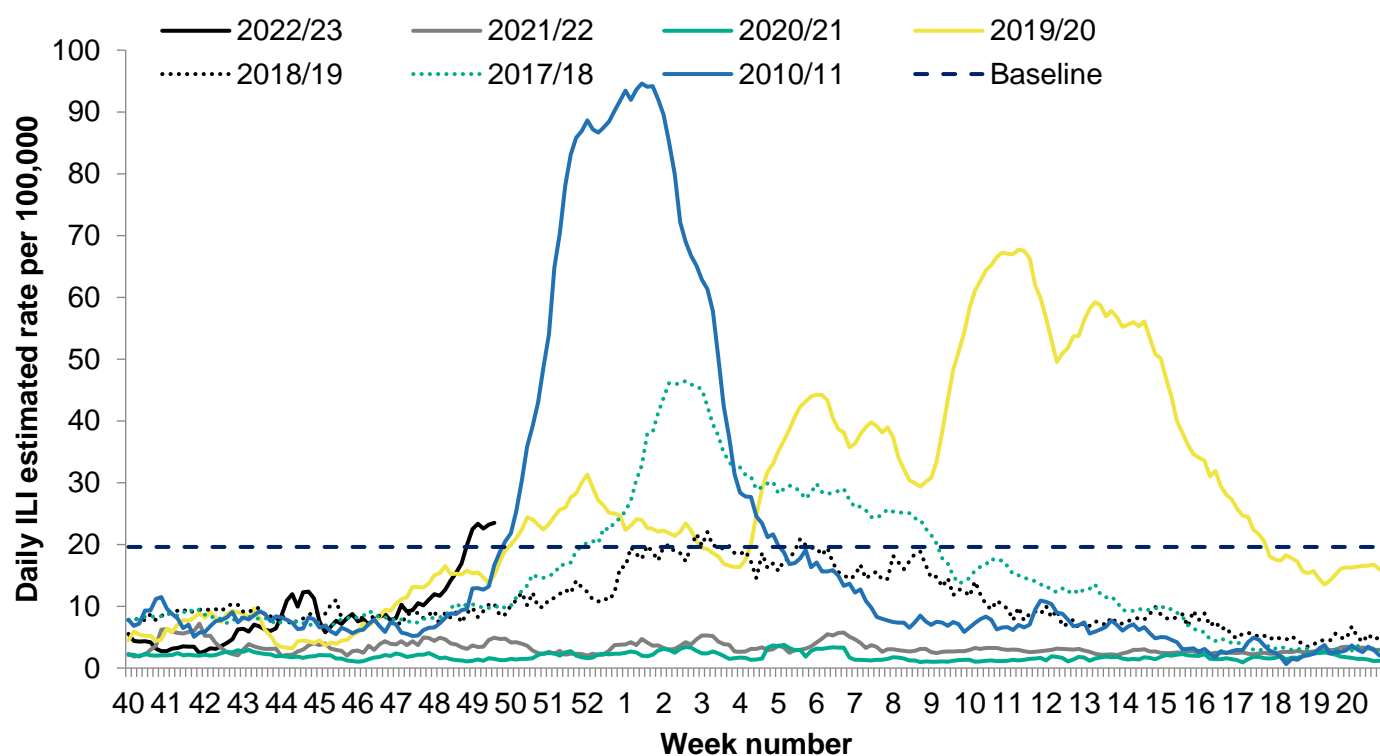
Flu Detector

FluDetector is a web-based model which assesses internet-based search queries for ILI in the general population.

Daily ILI rate estimates are based on uniformly averaged search query frequencies for a week-long period (including the current day and the 6 days before it).

For week 49, the daily ILI rate increased and is now above the baseline threshold of 19.6 per 100,000 for the 2022 to 2023 season (Figure 27).

Figure 27: Daily estimated ILI Google search query rates per 100,000 population, England



NHS 111

Please note that different syndromic surveillance indicators (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 indicators previously presented will continue to be published in the [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.

Please note that the number of NHS 111 calls are still lower than usual due to widely publicised disruption faced by a clinical software system. The NHS 111 call data presented in this report should therefore be interpreted with some caution.

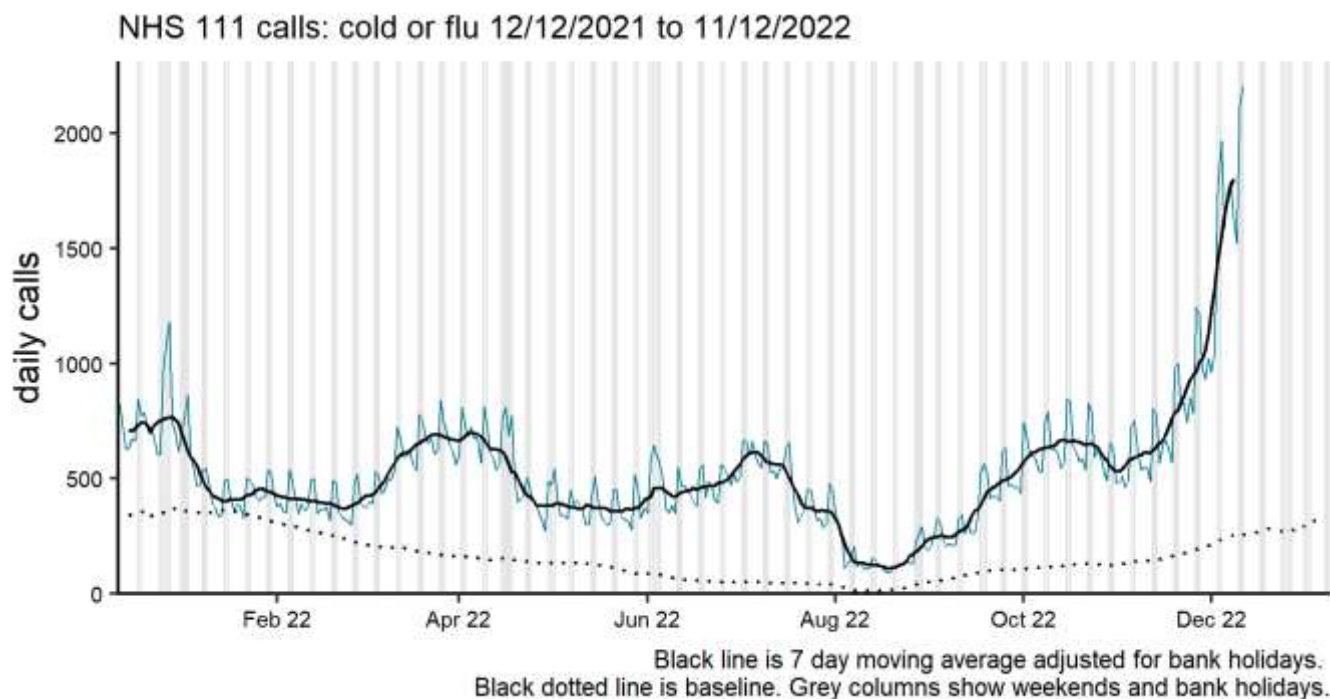
During week 49, there were further large increases in NHS 111 total calls nationally, notably for children aged 1 to 4 years and 5 to 14 years (Figure 28 and 29).

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 [Remote Health Advice Syndromic Surveillance bulletin](#).

Figure 28: NHS 111 telephony indicators (and 7-day moving average) for number of daily cold or flu calls, England (a) nationally and (b) by age group

(a)



(b)

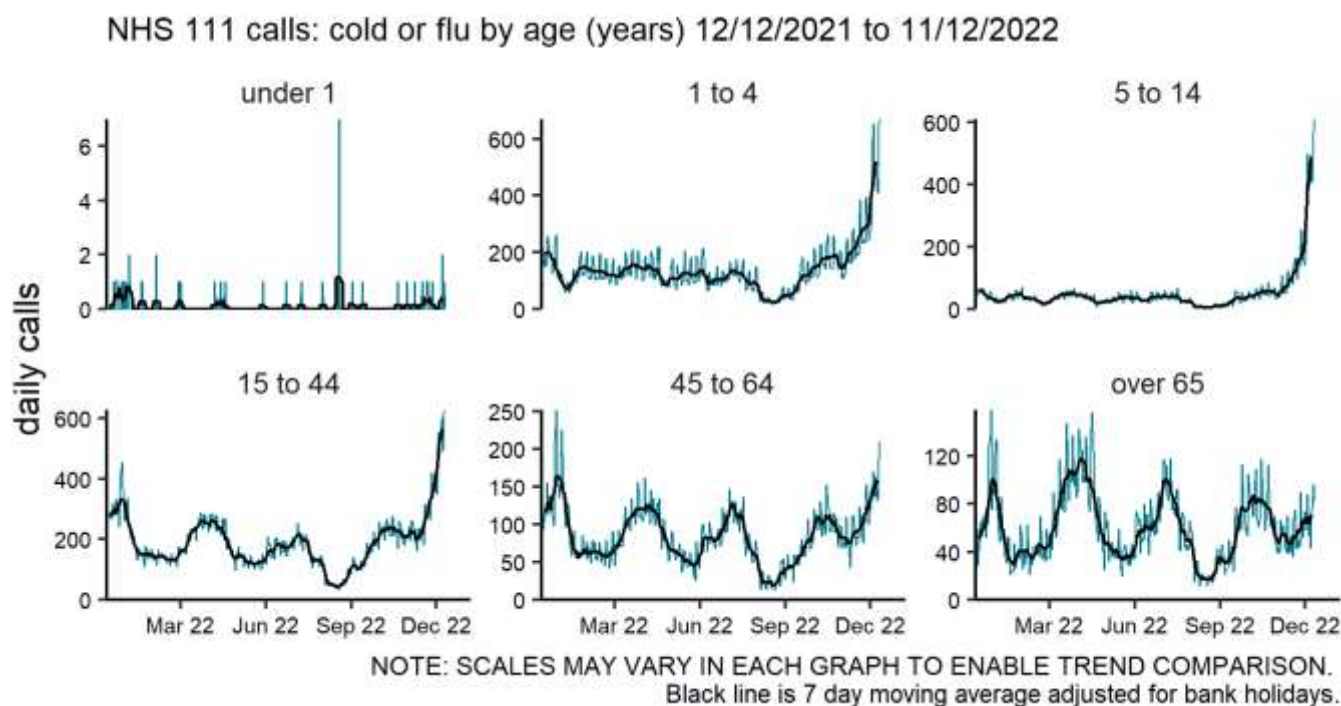
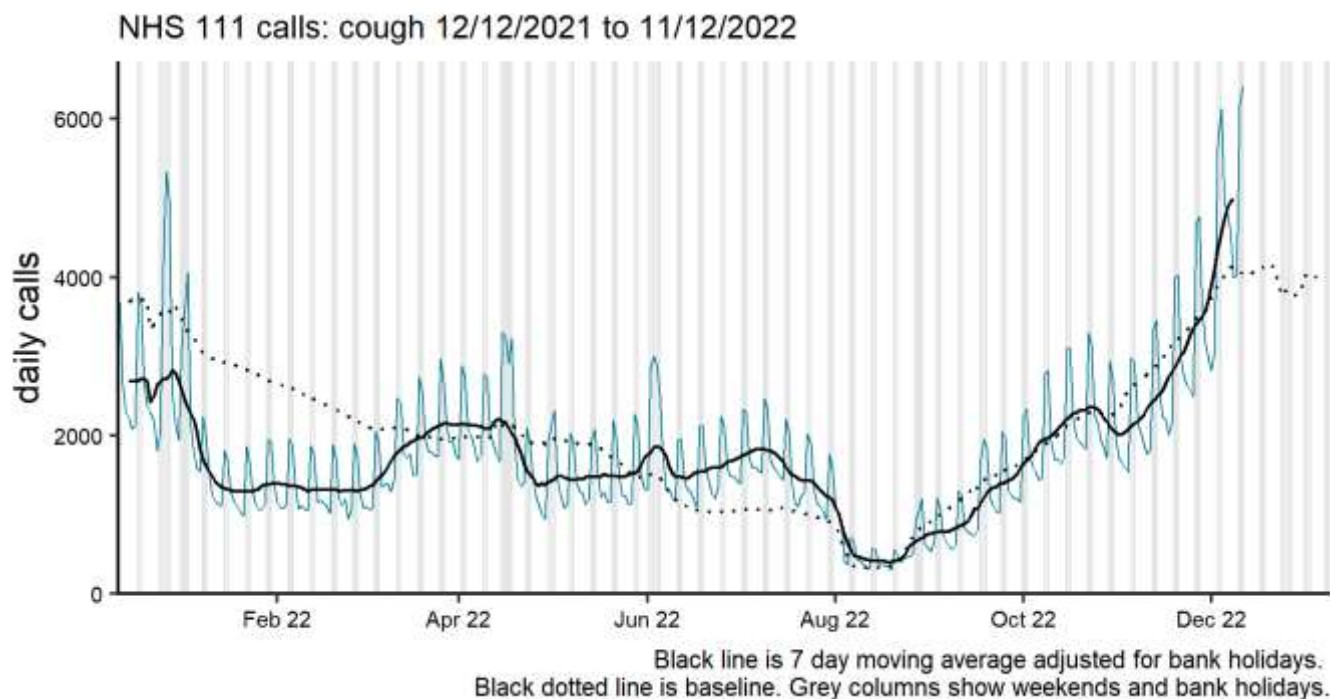
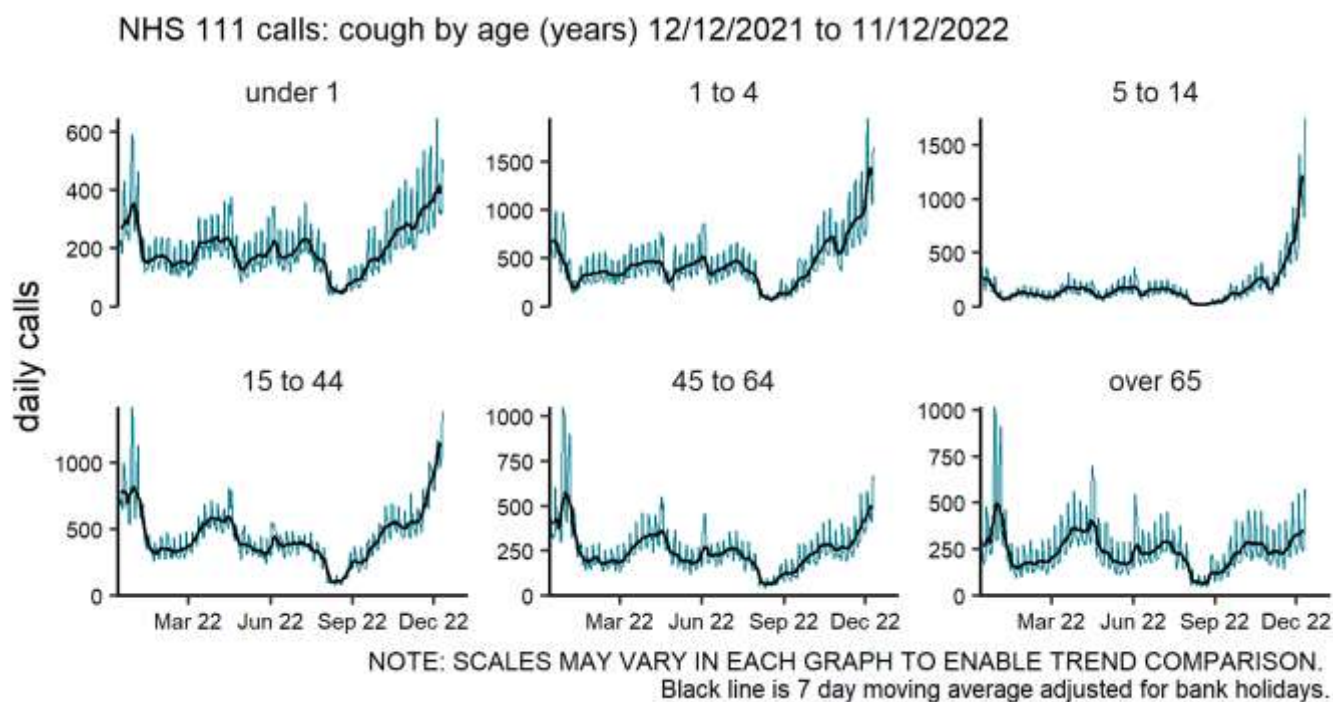


Figure 29: NHS 111 telephony indicators (and 7-day moving average) for number of daily cough calls, England (a) nationally and (b) by age group

(a)



(b)



Primary care surveillance

RCGP (England)

The weekly ILI consultation rate through the RCGP surveillance was 15.5 per 100,000 registered population in participating GP practices in week 49 compared to 9.4 per 100,000 in the previous week. This is now above the baseline threshold (11.47 per 100,000) (Figure 30). By age group, the highest rates were seen in the 5 to 14 years olds (21.7 per 100,000), followed by the 1 year olds and below (17.1 per 100,000). The lower respiratory tract infections (LRTI) consultation rate was at 123.0 per 100,000 in week 49, compared to the rate of 101.0 per 100,000 in the previous week. The COVID-19 indicator rate was at 43.0 per 100,000 in week 49 compared to a rate of 35.6 per 100,000 in the previous week (Figure 31).

Figure 30: RCGP influenza-like illness (ILI) consultation rates, all ages, England

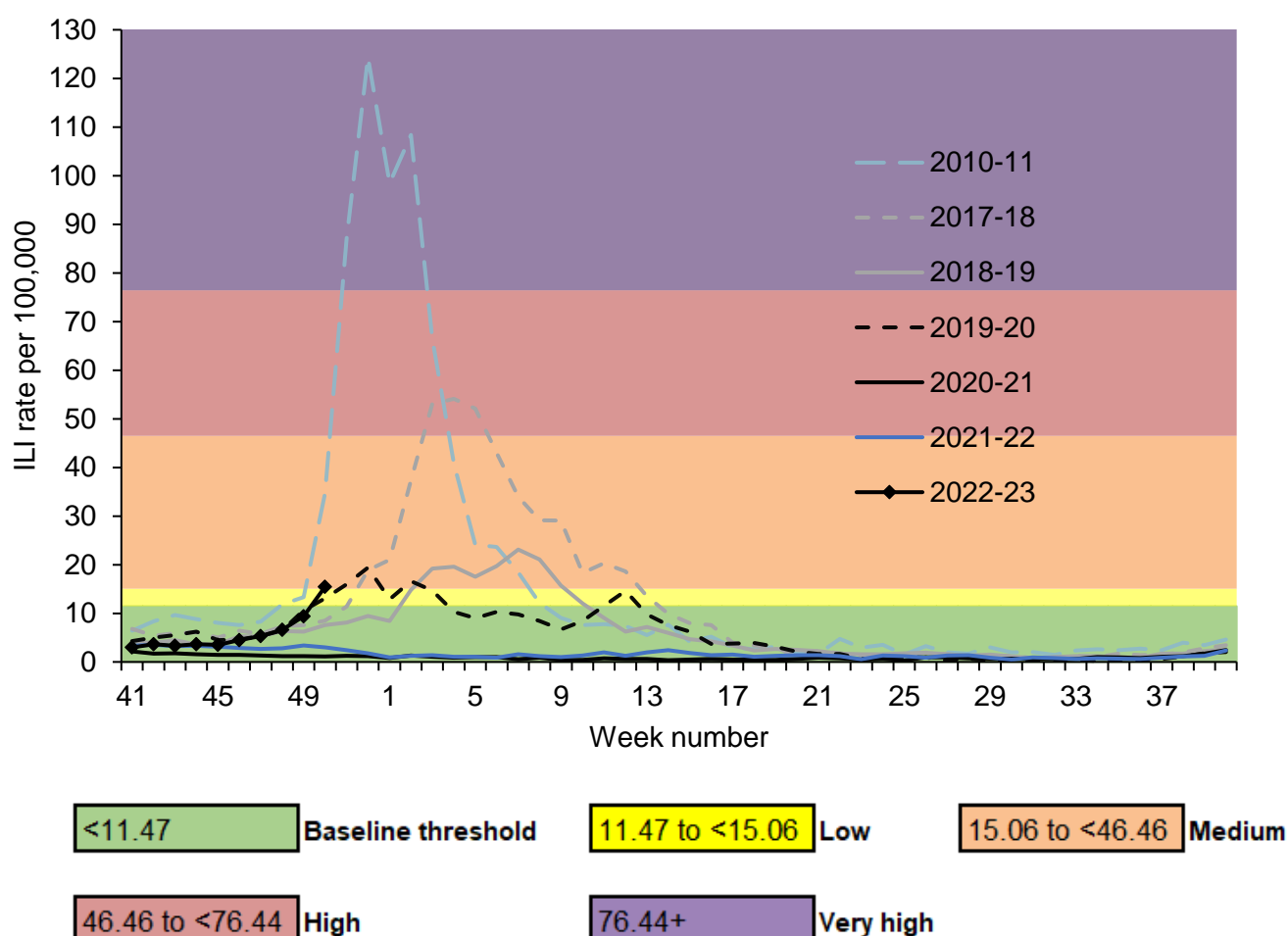
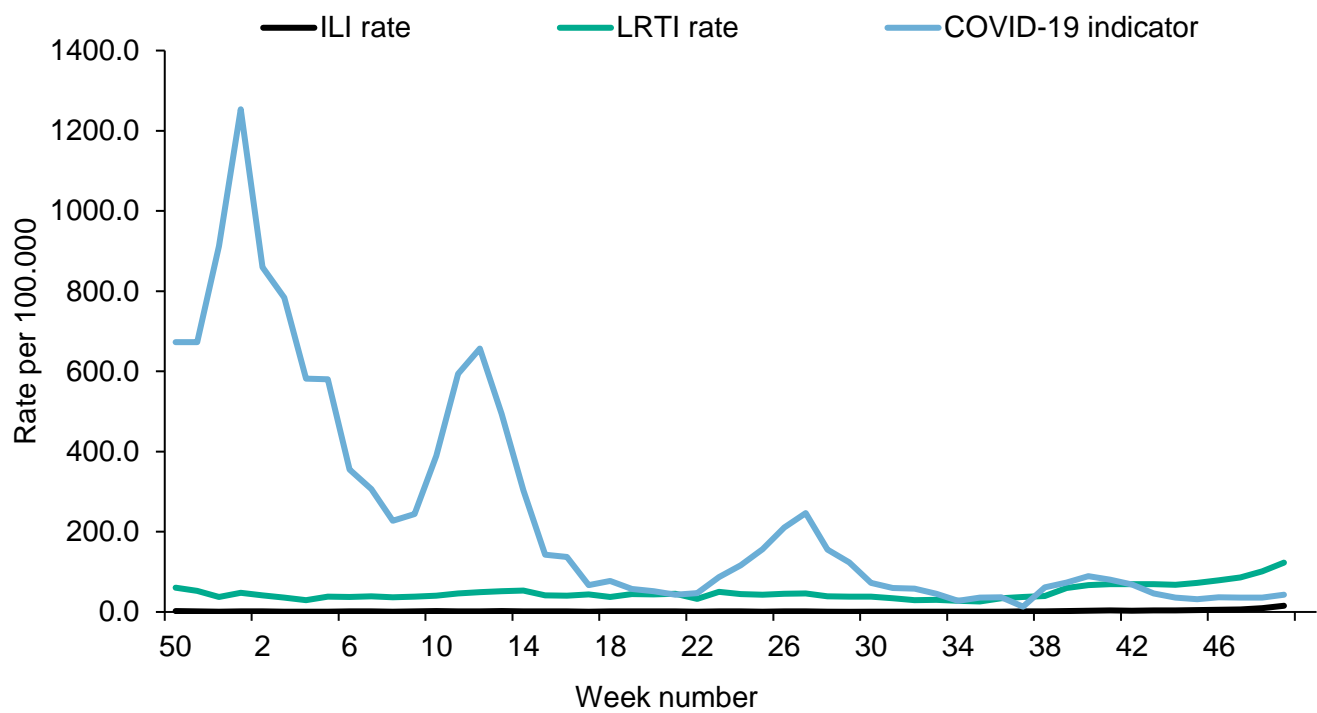


Figure 31: RCGP ILI, LRTI and COVID-19 indicator rates, England



UK

Overall, weekly ILI consultations rates were below baseline levels in Scotland and Northern Ireland. England activity has increased above the baseline threshold (11.47 per 100,000) and is now at medium activity level (between 15.06 and 46.46 per 100,000). Wales is above the baseline threshold of 11.1 per 100,000 (Table 2).

By age group, the highest incidence age groups were in the 15 to 44 year olds in Wales (21.2 per 100,000), 5 to 14 year olds in England (21.7 per 100,000), 15 to 44 year olds in Northern Ireland (8.3 per 100,000) and under 1 year olds (12.2 per 100,000) in Scotland.

Table 2: GP ILI consultations in the UK for all ages with MEM (Moving Epidemic Method) thresholds applied

GP ILI consultation rates (all ages)	Week number												
	40	41	42	43	44	45	46	47	48	49	50	51	52
England (RCGP)	3.0	3.7	3.3	3.6	3.5	4.5	5.3	6.6	9.4	15.5			
Wales	3.5	2.8	3.9	4.8	6.3	7.0	3.5	4.3	7.8	15.5			
Scotland	2.1	1.8	4.0	3.8	3.5	4.8	4.6	3.0	5.9	7.3			
Northern Ireland	1.3	2.2	1.8	3.5	3.0	3.7	3.5	4.9	5.0	6.0			

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 2020 to 2021), in a standardised approach across Europe.

Sentinel swabbing scheme in England

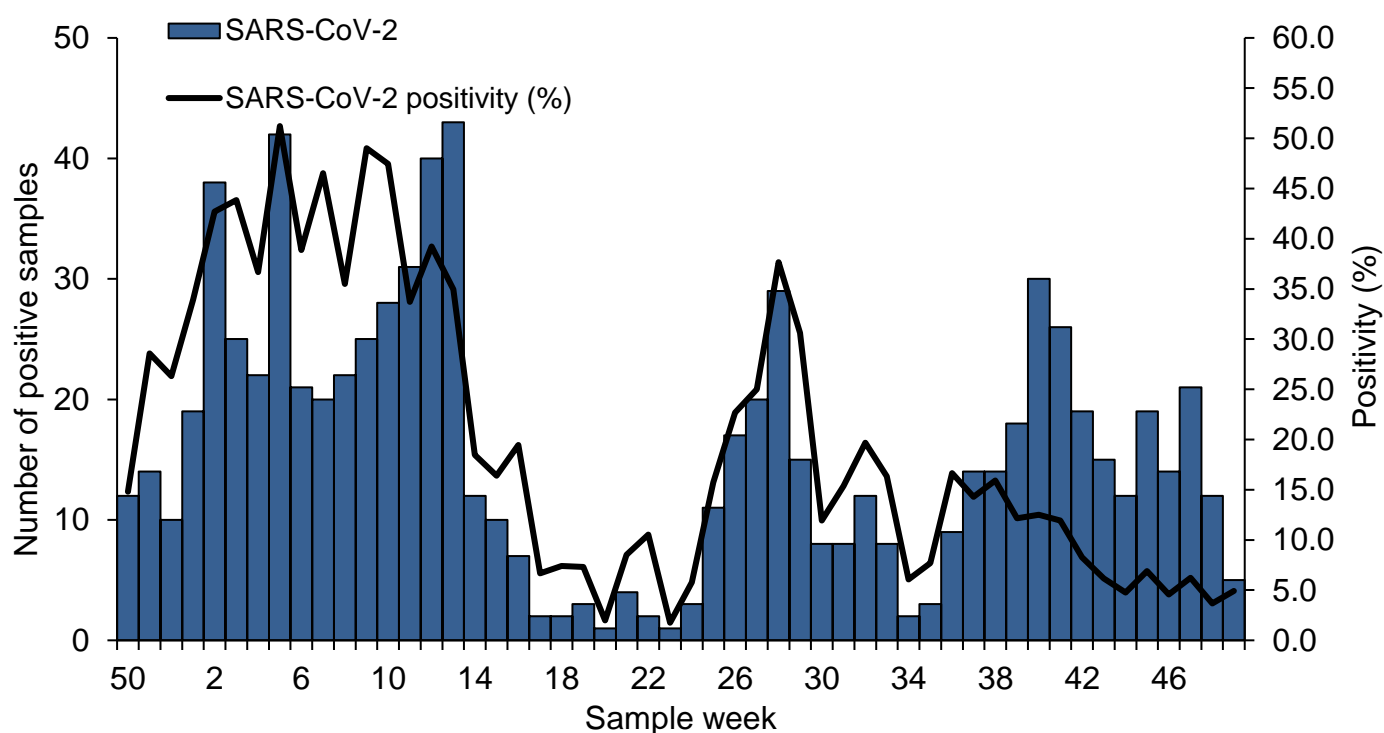
In week 49 2022, 5 sample tested positive for SARS-CoV-2 through the GP sentinel swabbing scheme in England (Figure 32).

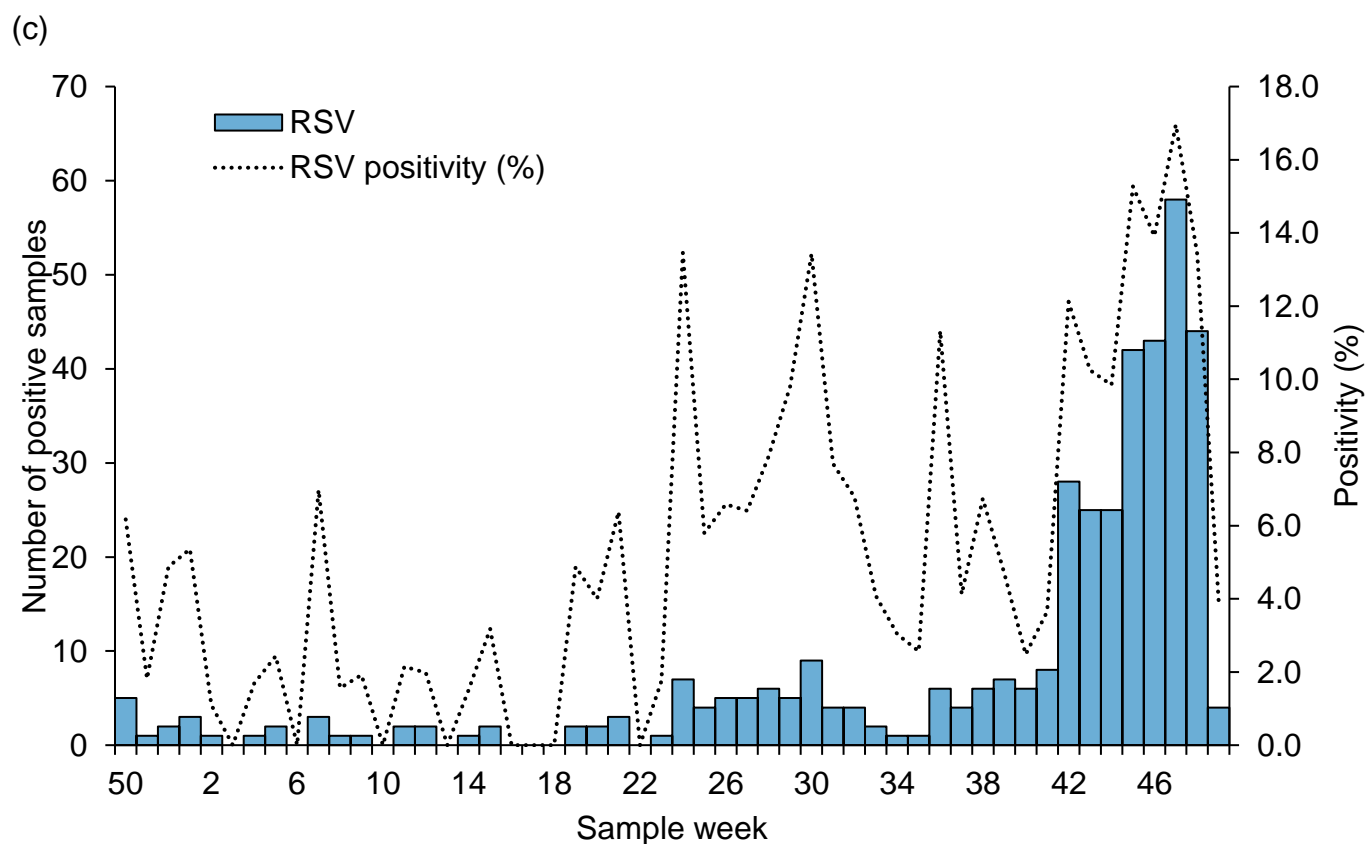
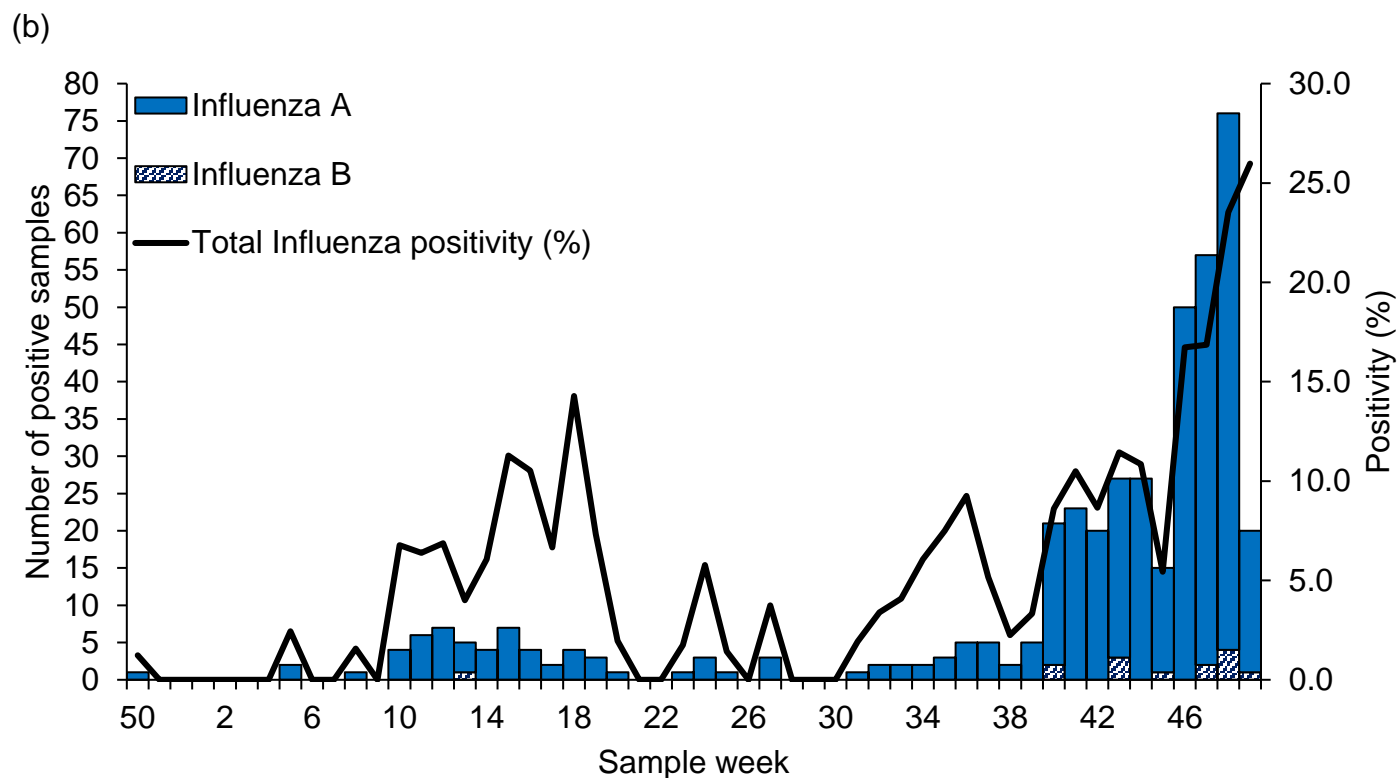
In week 49 2022, 4 samples tested positive for RSV and 20 samples tested positive for influenza in England through the GP sentinel swabbing scheme.

* Please note that due to lower sample numbers, data from week 14 of 2022 onwards should be interpreted with caution.

Figure 32: Number of positive samples and weekly positivity (%) for (a) COVID-19 and (b) Influenza and (c) RSV, GP sentinel swabbing scheme

(a)





*For the most recent week, more samples are expected to be tested therefore the graphs in Figure 34 should be interpreted with caution

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

GP In Hours, Syndromic Surveillance

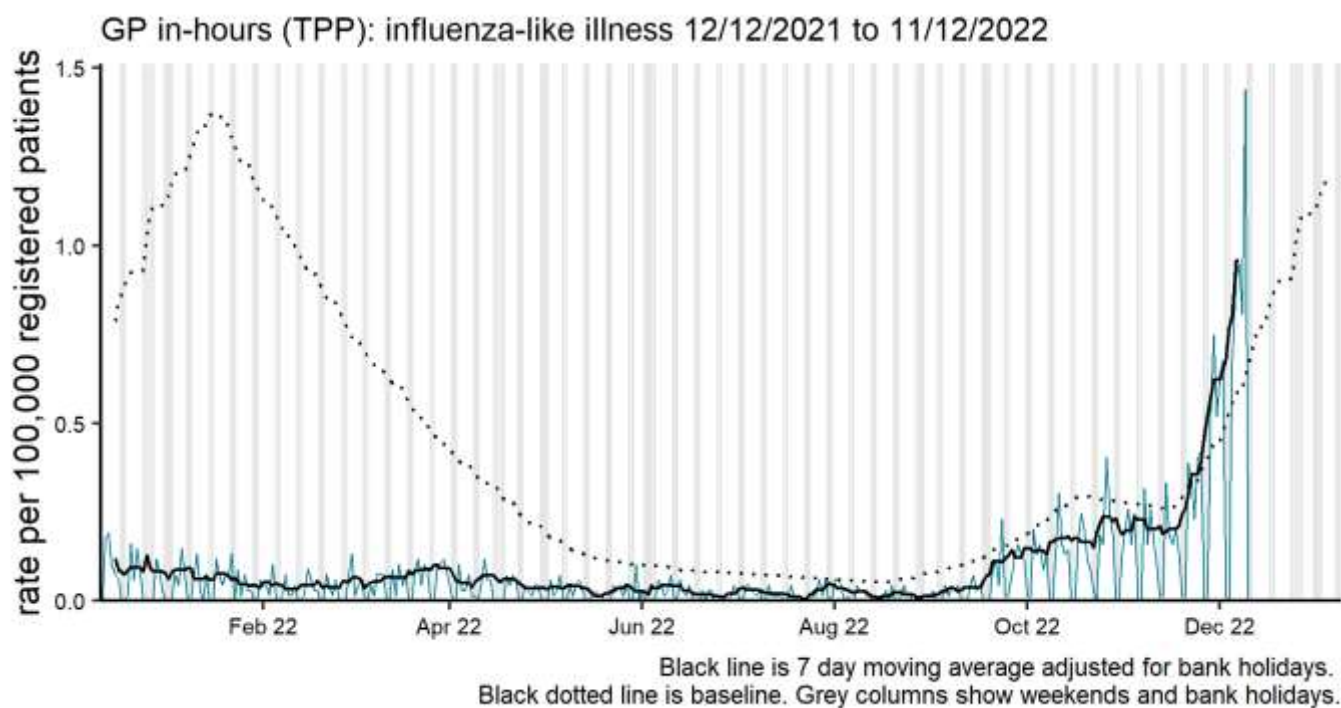
The GP In Hours (GPIH) syndromic surveillance system monitors the number of GP visits during regular hours of known clinical indicators.

During week 49, GP in-hours consultation rates for influenza-like illness continued to increase in all age groups and are at above seasonally expected levels (Figure 33).

Further indicators and information about caveats are available from the [GP In Hours Syndromic Surveillance bulletin](#).

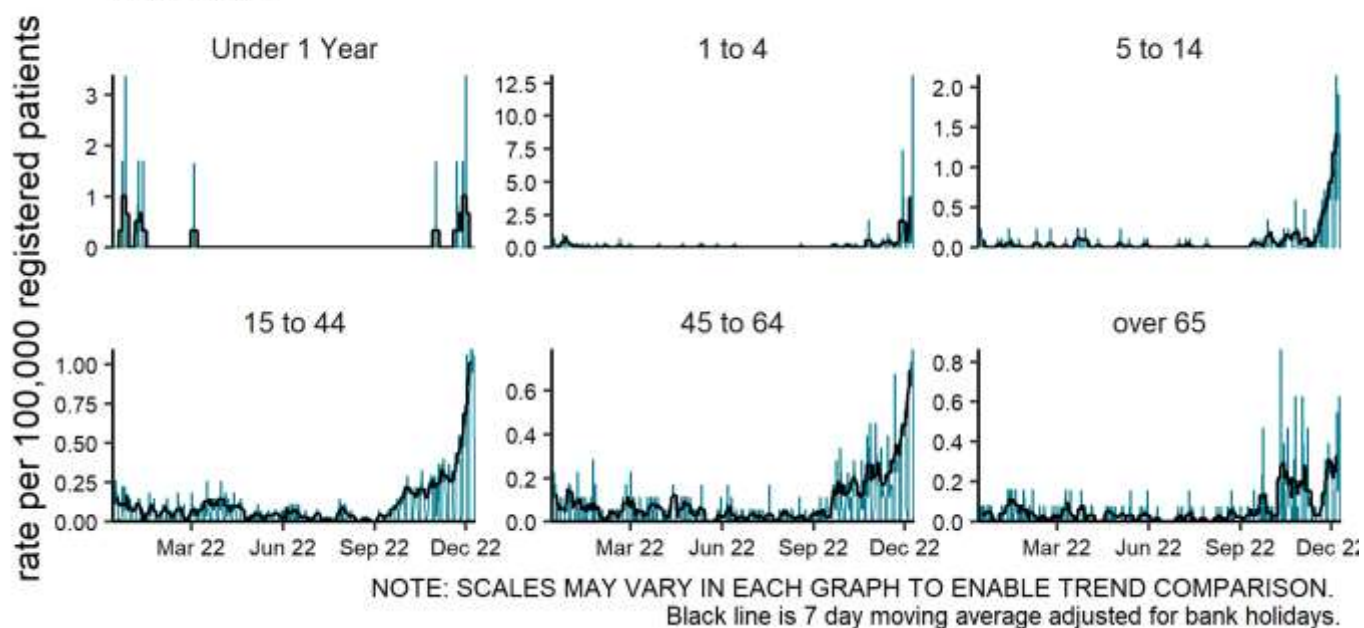
Figure 33: GPIH clinical indicators for influenza-like illness GP consultations, England (a) nationally, (b) by age group and (c) by UKHSA centre

(a)



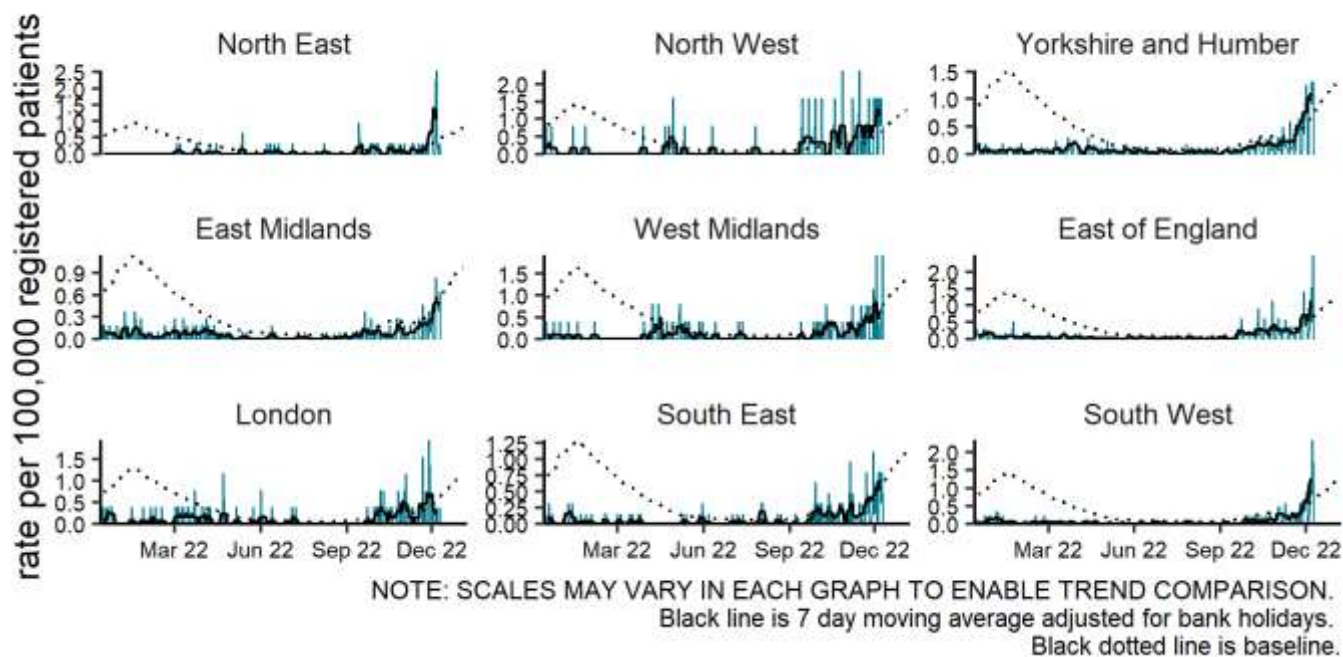
(b)

GP in-hours (TPP): influenza-like illness by age (years) 12/12/2021 to 11/12/2022



(c)

GP in-hours (TPP): influenza-like illness by region 12/12/2021 to 11/12/2022



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.

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.

Due to a disruption with a GPOOH clinical software system provider, GPOOH data from 4 August onwards is not currently available. Data from GPOOH systems will be added back into this report once available. The most recent data is available in [previous reports](#).

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 UK Severe Influenza Surveillance Schemes (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.

The Moving Epidemic Method (MEM) thresholds for influenza hospital and ICU or HDU admissions are calculated based on the 2016 to 2017 to the 2021 to 2022 seasons (data from 2020 to 2021 was excluded due to the COVID-19 pandemic). These thresholds have been applied to data from the 2022 to 2023 season onwards.

Trends in hospital and critical care admission rates need to be interpreted in the context of testing recommendations. Please note that routine asymptomatic testing through NHS settings has been paused from 31 August 2022, therefore SARI-Watch data should be interpreted with this in mind.

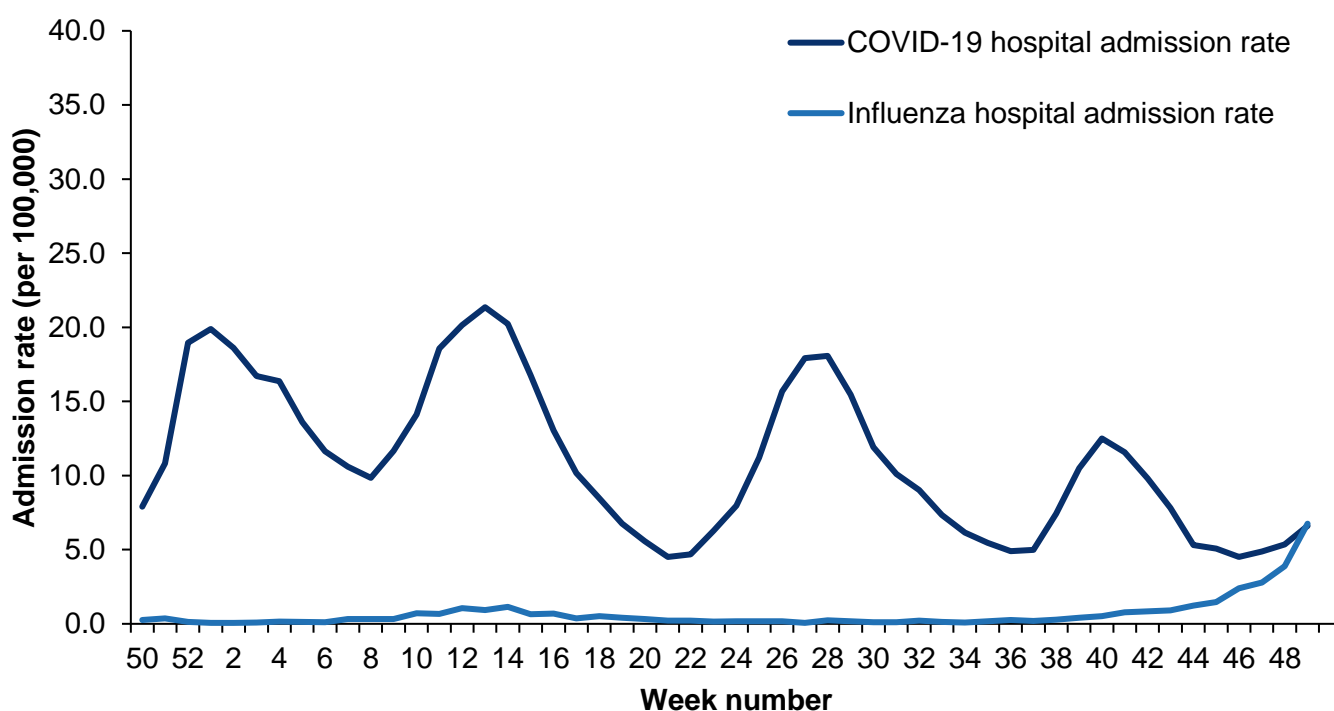
Hospitalisations, SARI Watch

In week 49, the overall weekly hospital admission rate for COVID-19 increased to 6.61 per 100,000 compared to 5.36 per 100,000 in the previous week.

By UKHSA centre, the highest hospital admission rate for COVID-19 was observed in the South West. By age group, the highest hospital admission rate for confirmed COVID-19 tends to be in the 85 year olds and over and this increased in week 49.

In week 49, the overall weekly hospital admission rate for influenza increased to 6.76 per 100,000 compared to 3.89 per 100,000 in the previous week. The influenza admission rate is now above that of the COVID-19 admission rate. There were 606 new hospital admissions to sentinel Trusts for influenza (86 influenza A(H1N1)pdm09, 71 influenza A(H3N2), 419 influenza A(not subtyped) and 30 influenza B) in week 49.

Figure 34: Weekly overall hospital admission rates of new COVID-19 and influenza positive cases per 100,000 population reported through SARI Watch, England

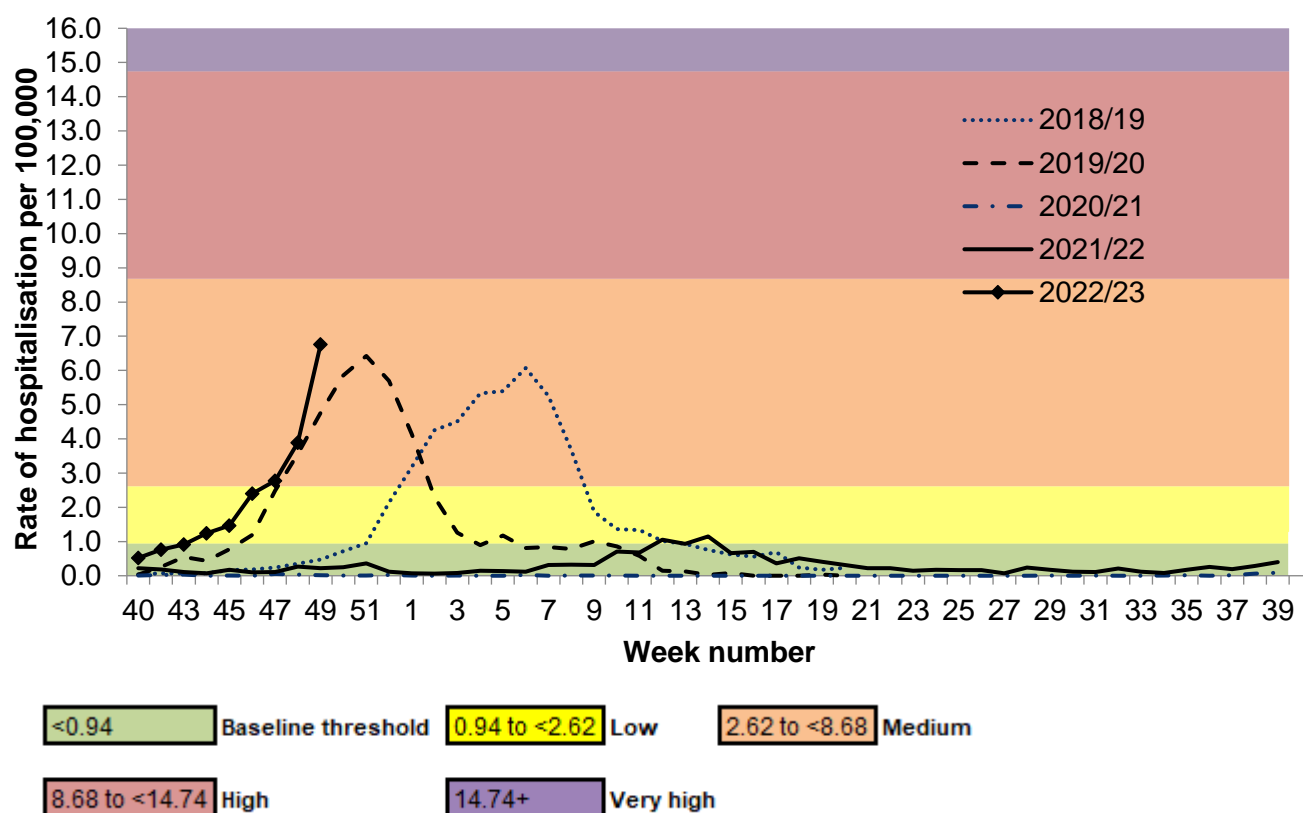


* Influenza hospital admission rate based on 22 sentinel NHS trusts for week 49

* COVID-19 hospital admission rate based on 89 NHS trusts for week 49

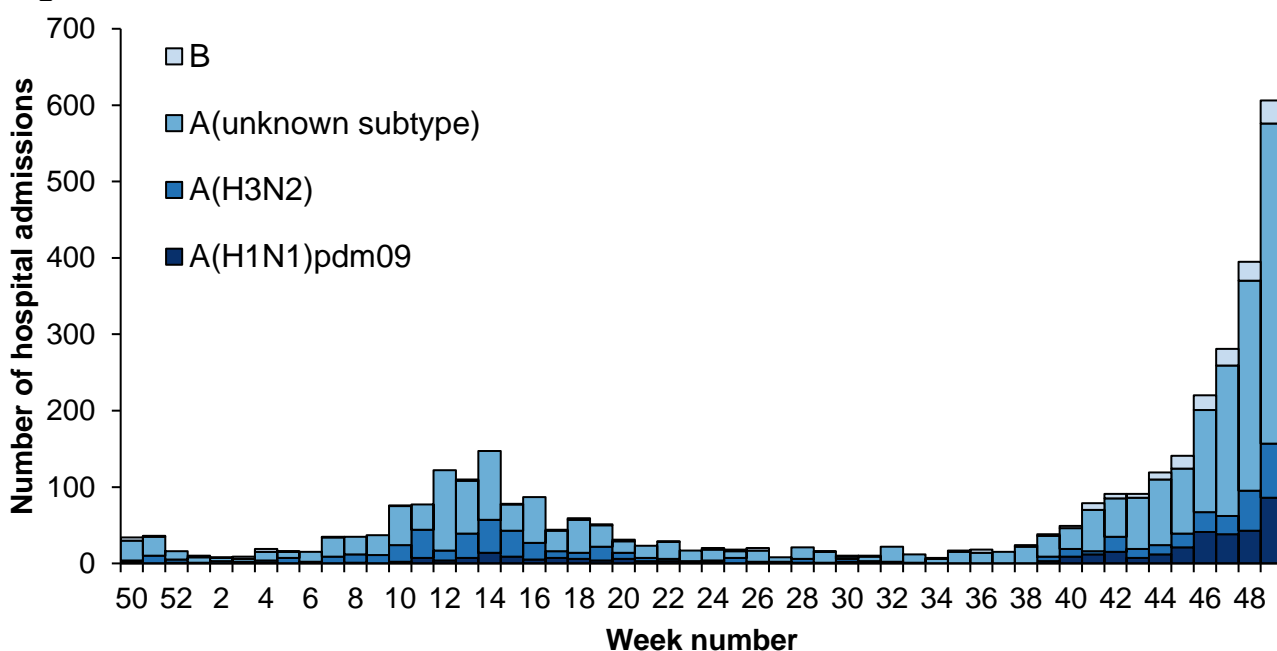
* SARI Watch data is provisional

Figure 35: Weekly overall influenza hospital admission rates per 100,000 trust catchment population with MEM thresholds, SARI Watch, England



* MEM thresholds are based on data from the 2016 to 2017 to the 2021 to 2022 seasons (data from 2020 to 2021 was excluded due to the COVID-19 pandemic).

Figure 36: Weekly influenza hospital admissions by influenza type, SARI Watch, England



*Number of influenza hospital admissions based on sentinel NHS trusts

Figure 37: Weekly hospital admission rate by UKHSA centre for new (a) COVID-19 positive cases and (b) influenza reported through SARI Watch

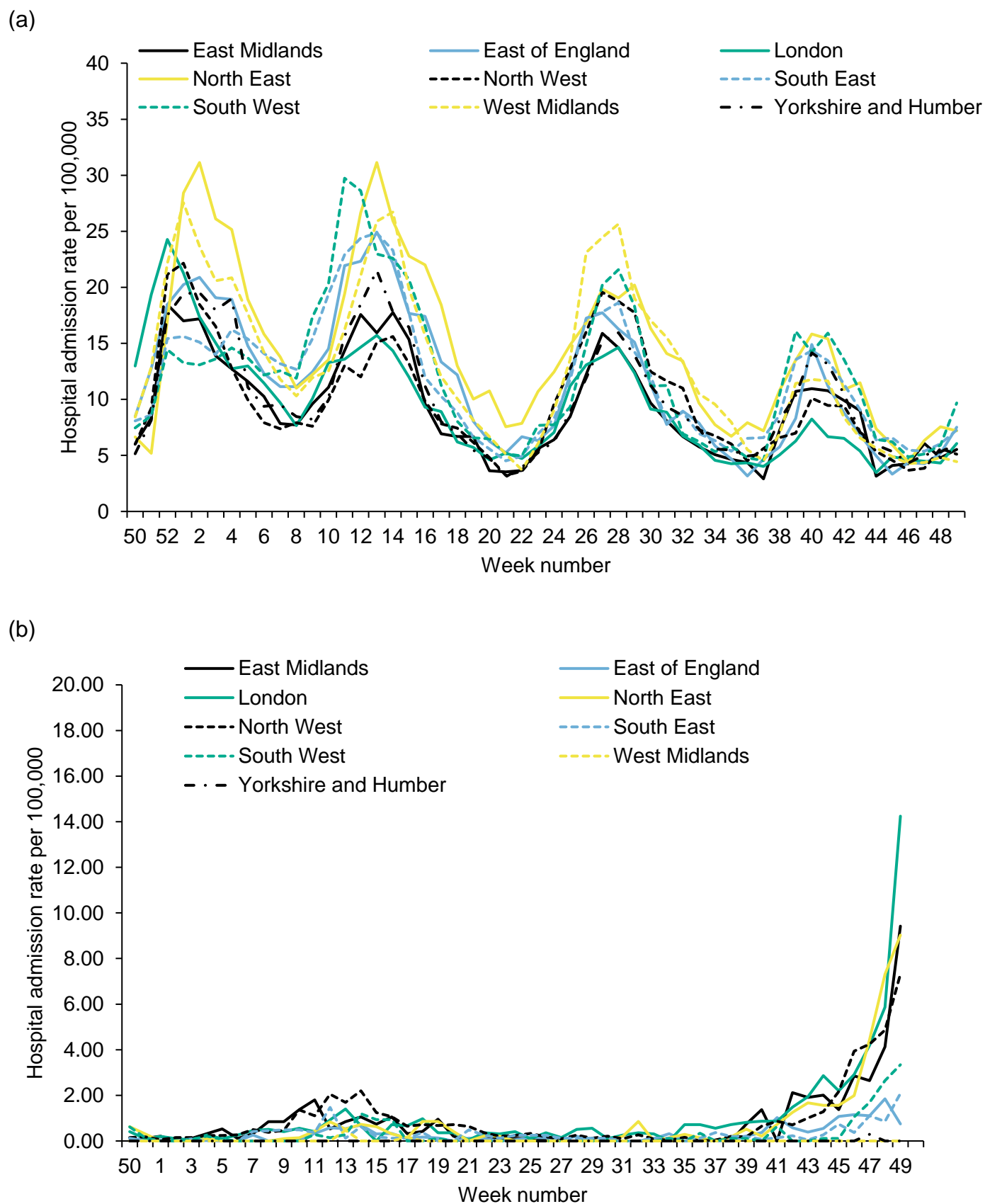
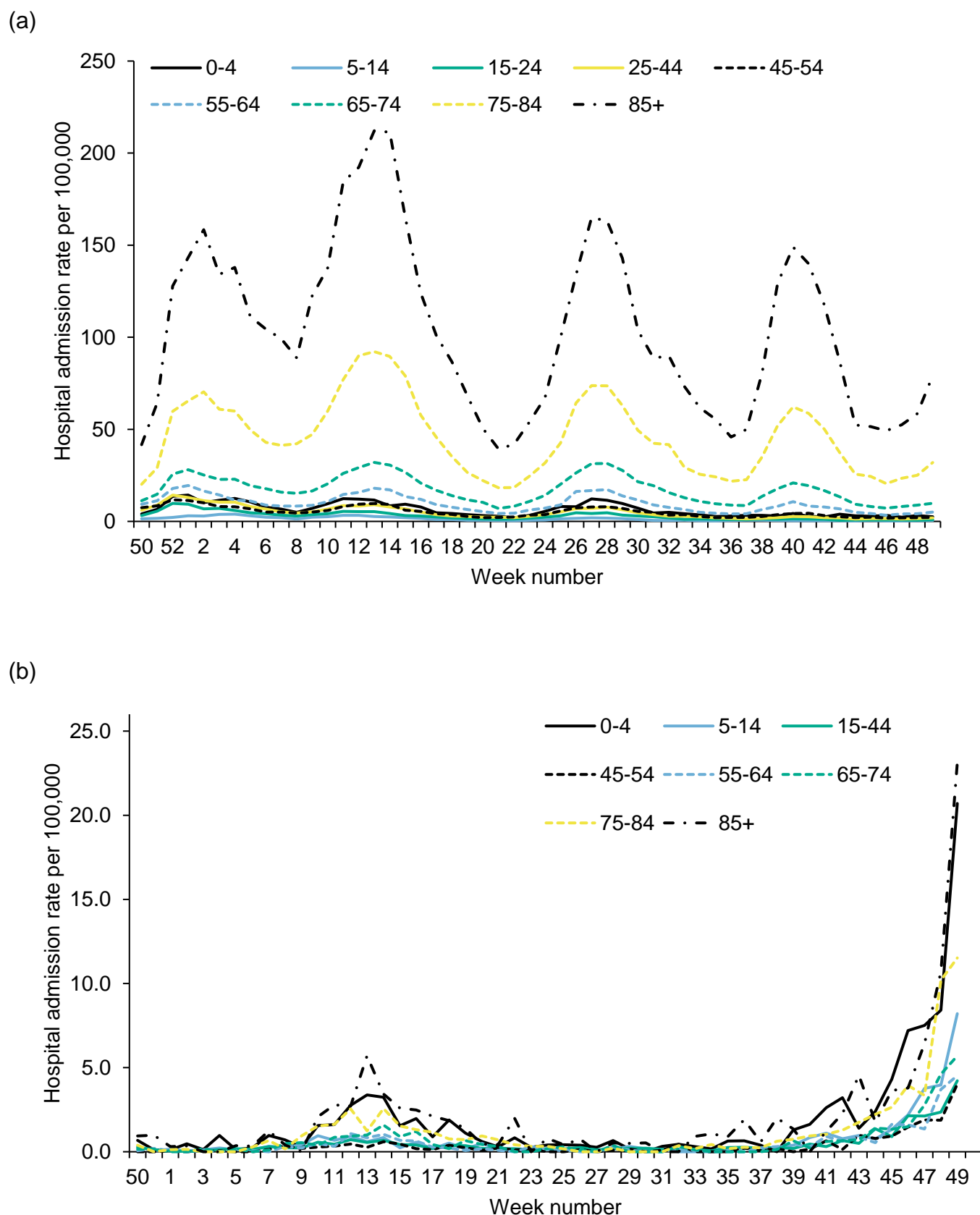


Figure 38: Weekly hospital admission rate by age group for new (a) COVID-19 positive cases and (b) influenza reported through SARI Watch



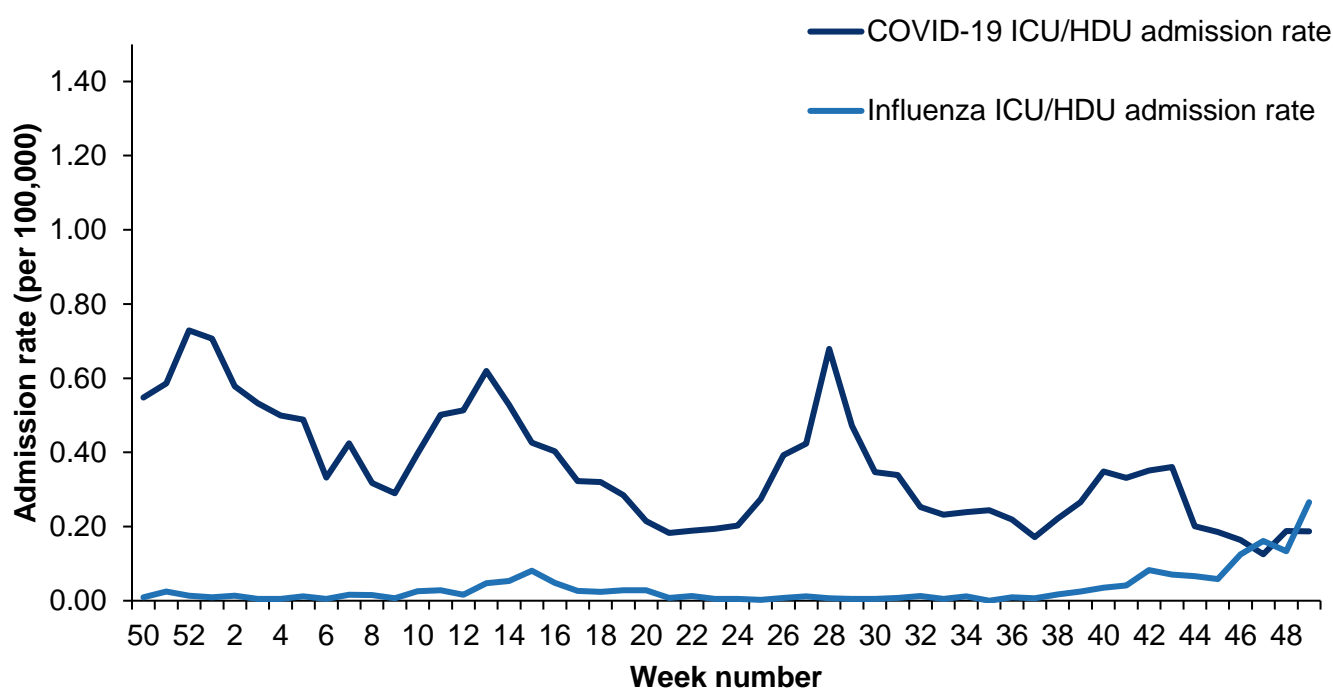
ICU or HDU admissions, SARI Watch

In week 49, the overall weekly ICU or HDU admission rates for COVID-19 stabilised to 0.19 per 100,000, the same as last week. Note that ICU or HDU admissions rates may represent a lag from admission to hospital to an ICU or HDU ward.

By UKHSA centre, the highest ICU or HDU admission rates for COVID-19 were observed in Yorkshire and Humber. By age group, the highest ICU or HDU admission rates for COVID-19 was observed in the 75 to 84 year olds.

In week 49, the overall ICU or HDU rate for influenza was 0.27 per 100,000 compared with 0.13 per 100,000 in the previous week. There were 108 new case report of an ICU or HDU admission for influenza in week 49 (15 influenza A(H1N1)pdm09, 14 influenza A(H3N2), 74 influenza A(not subtyped) and 5 influenza B).

Figure 39: 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 based on 96 NHS trusts for week 49

* COVID-19 ICU or HDU admission rate based on 79 NHS trusts for week 49

* SARI Watch data is provisional

Figure 40: Weekly overall influenza ICU or HDU admission rates per 100,000 trust catchment population with MEM thresholds, SARI Watch, England

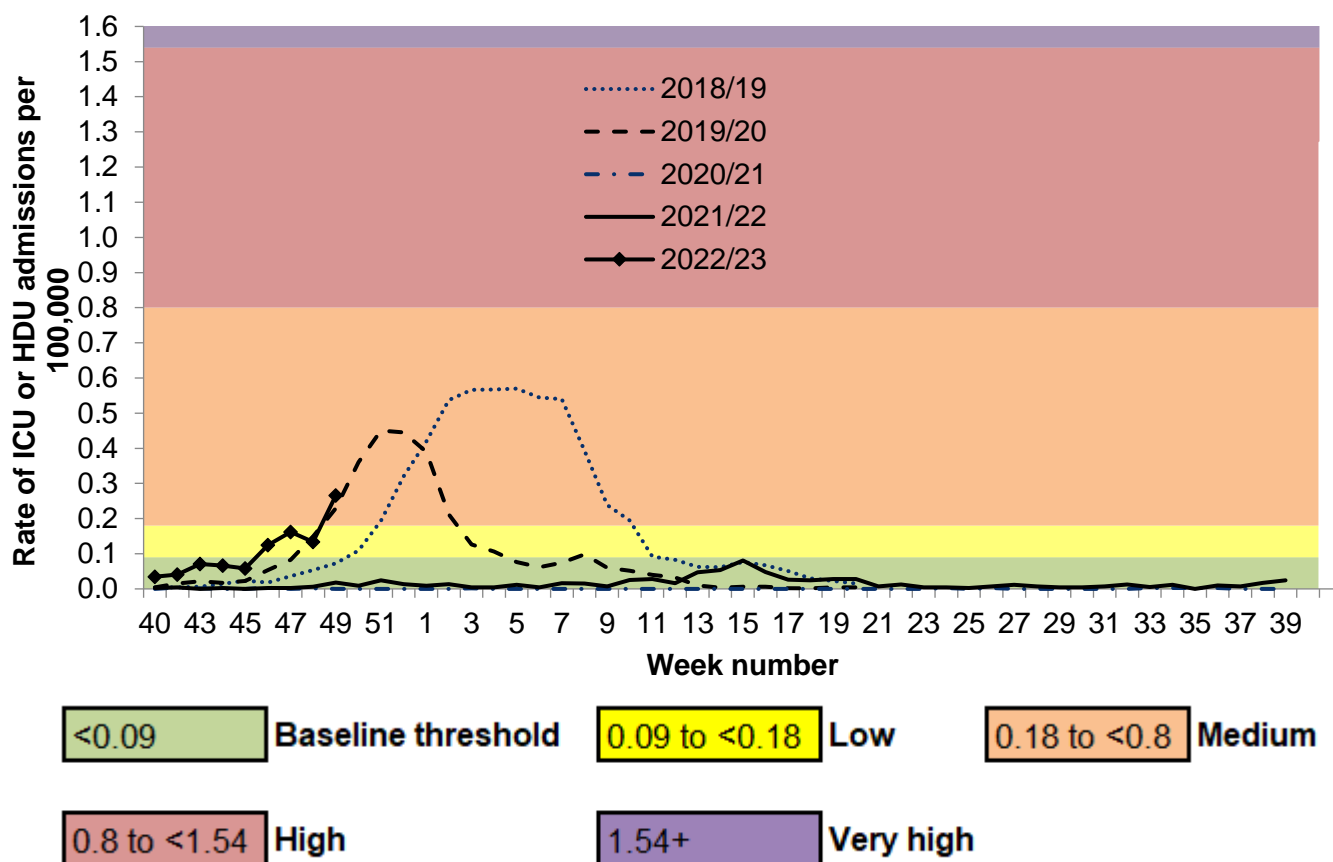


Figure 41: Weekly influenza ICU or HDU admissions by influenza type, SARI Watch, England

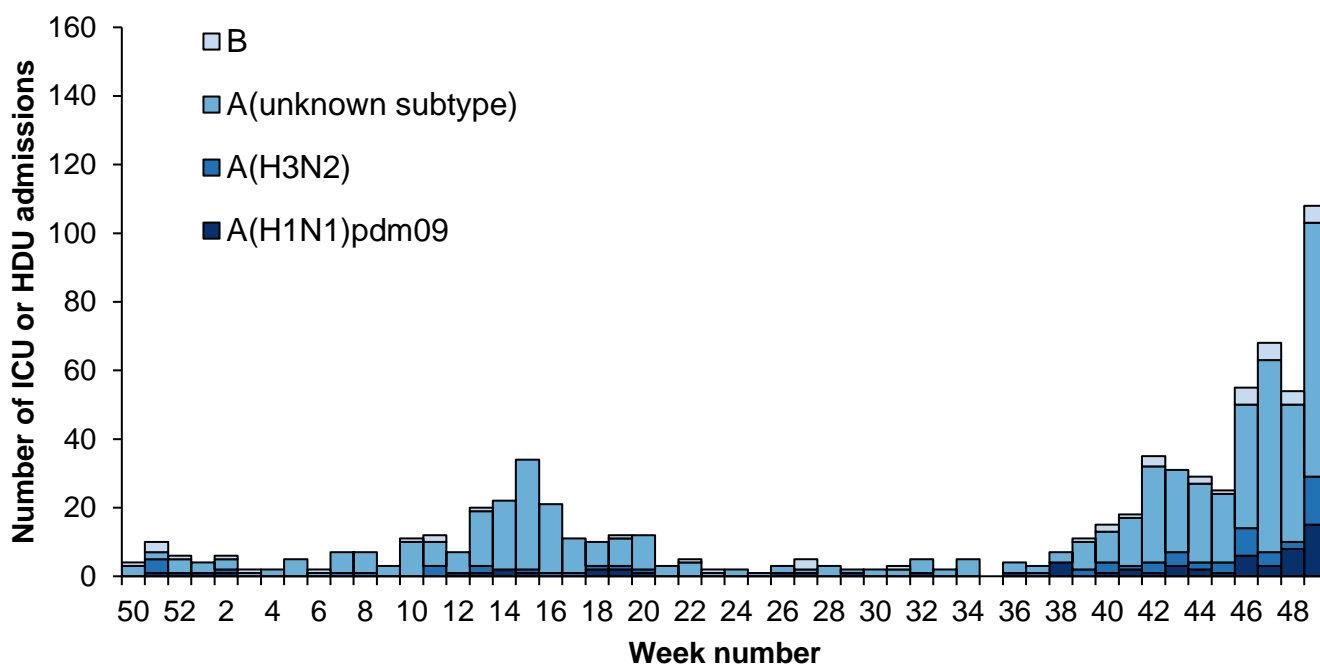
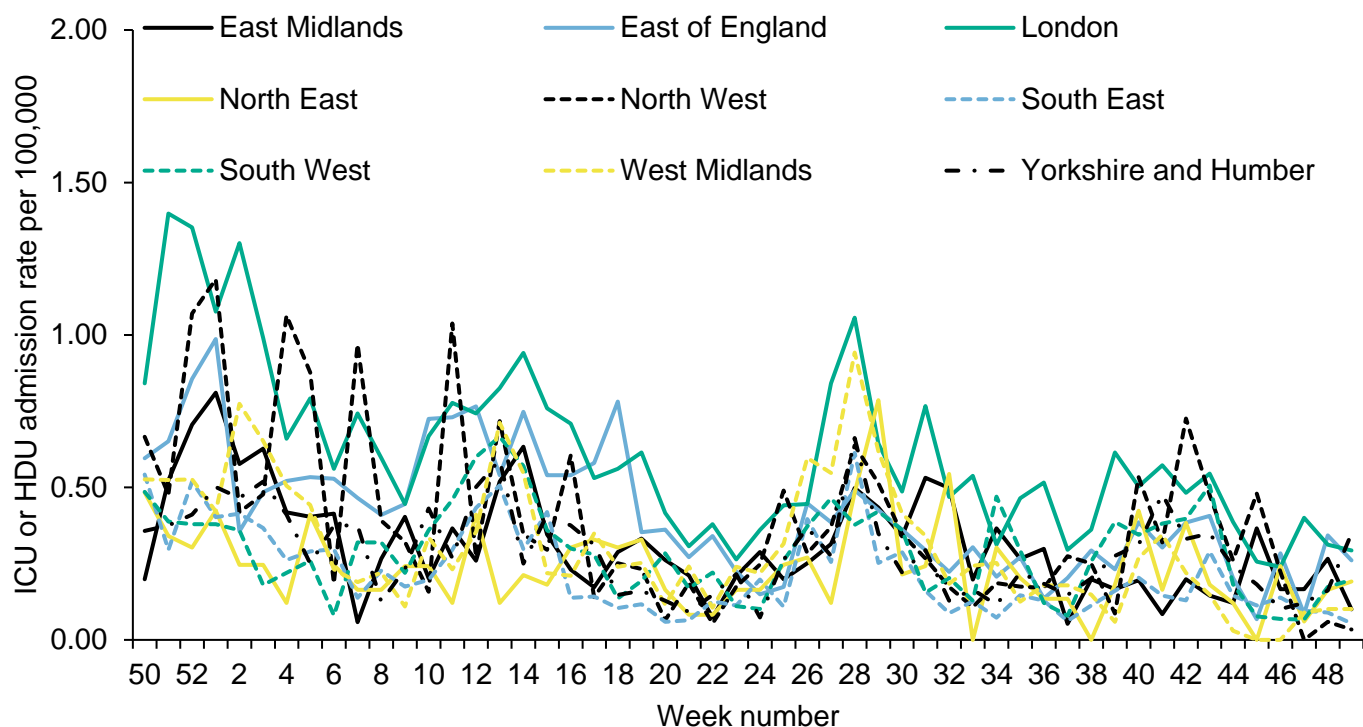


Figure 42: Weekly ICU or HDU admission rate by UKHSA centre for new (a) COVID-19 positive cases and (b) influenza, reported through SARI Watch

(a)



(b)

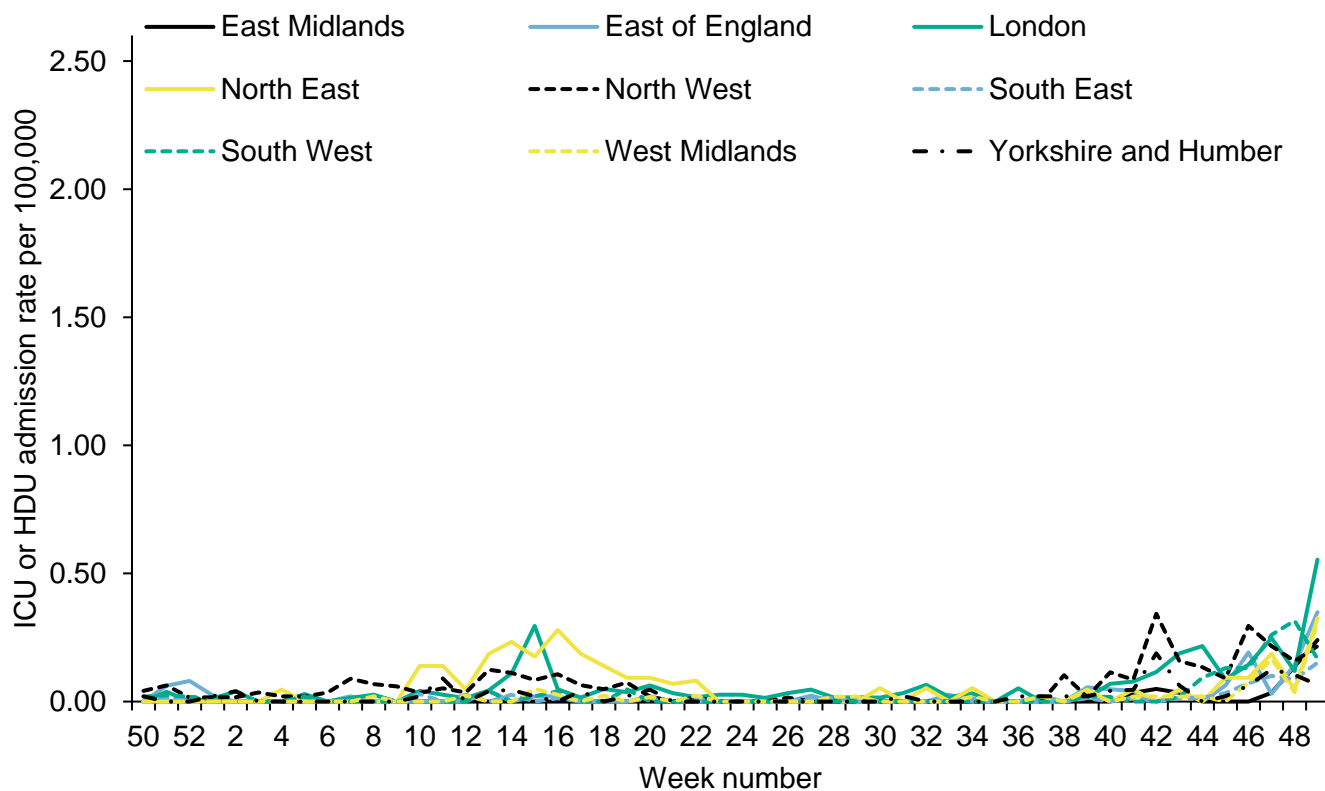
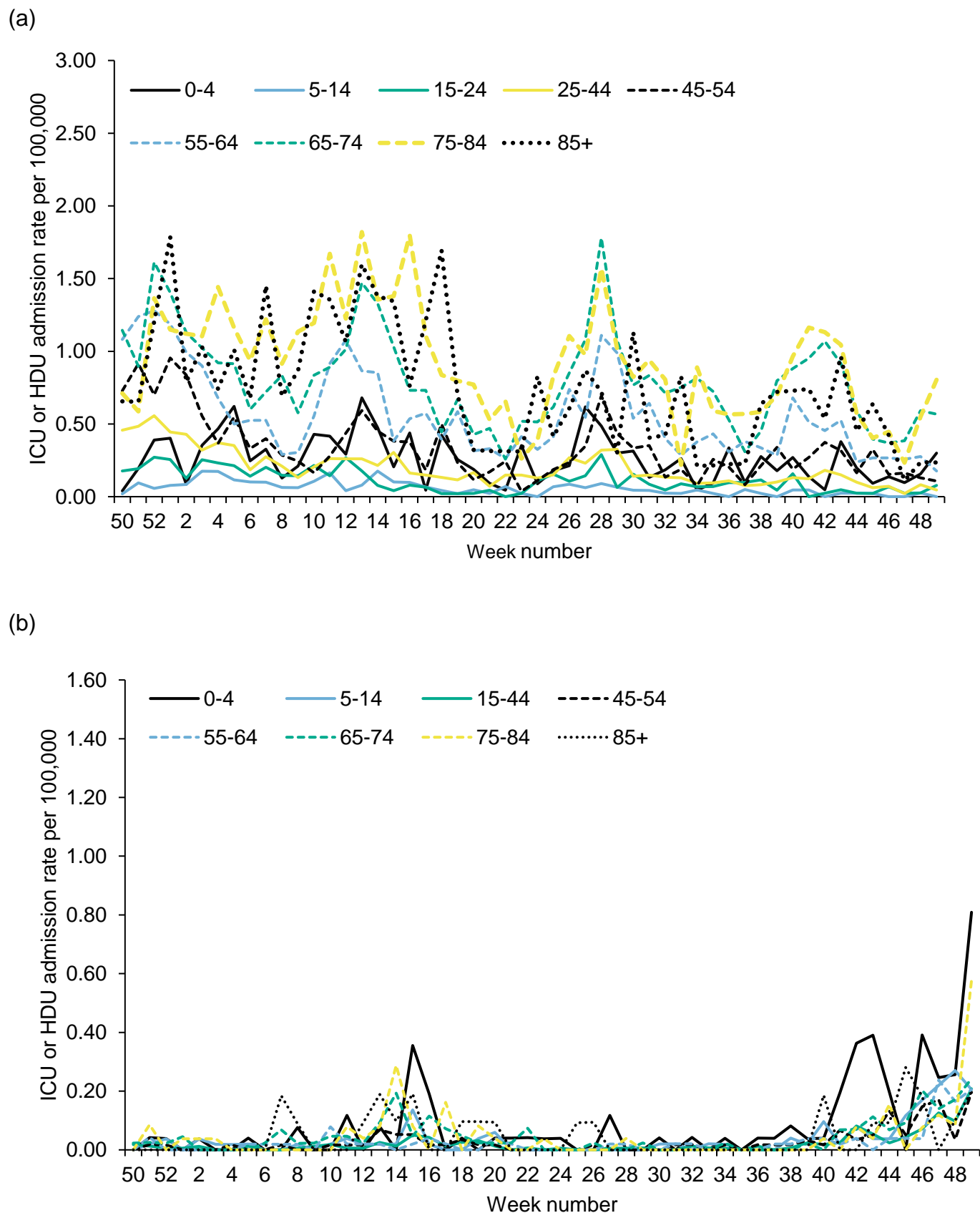


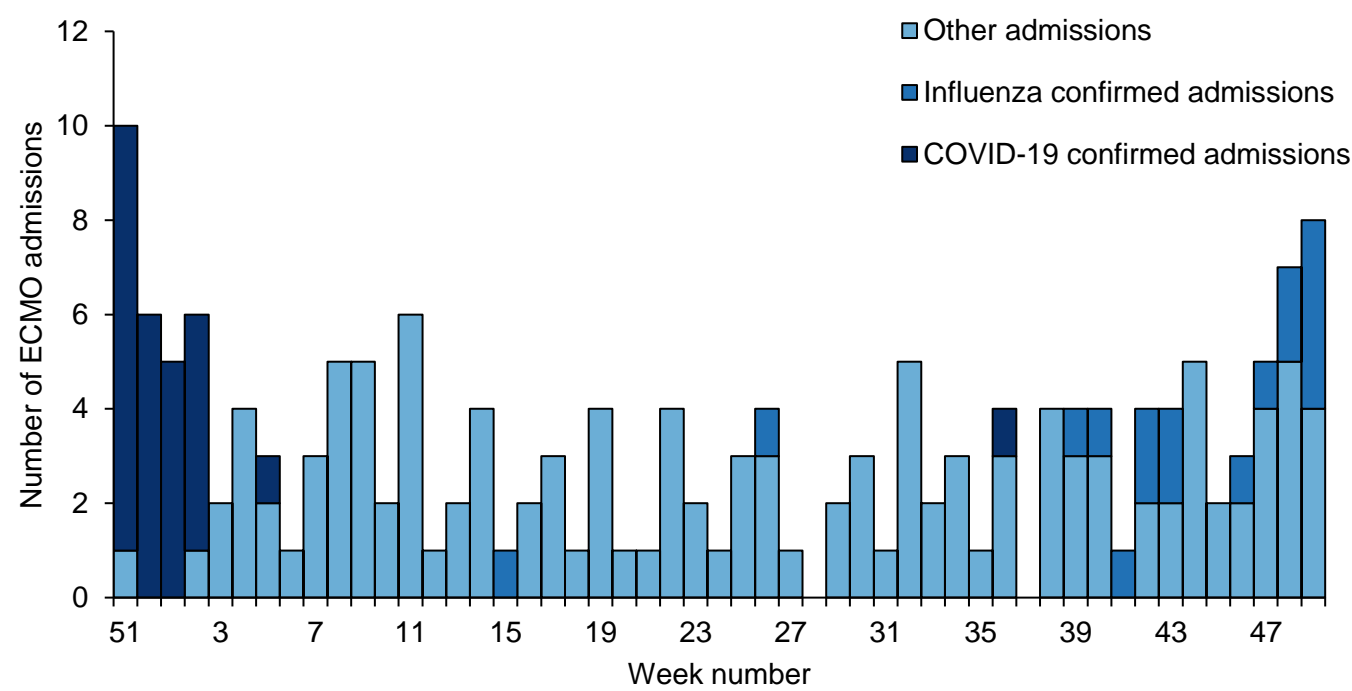
Figure 43: Weekly ICU or HDU admission rate by age group for new (a) COVID-19 positive cases and (b) influenza, reported through SARI Watch



ECMO, SARI Watch

There were 4 new laboratory confirmed influenza admission reported in week 49 from the 7 Severe Respiratory Failure (SRF) centres in the UK (Figure 44). No new COVID admissions were reported.

Figure 44: Laboratory confirmed ECMO admissions (COVID-19, influenza and non-COVID-19 confirmed) to Severe Respiratory Failure centres in the UK



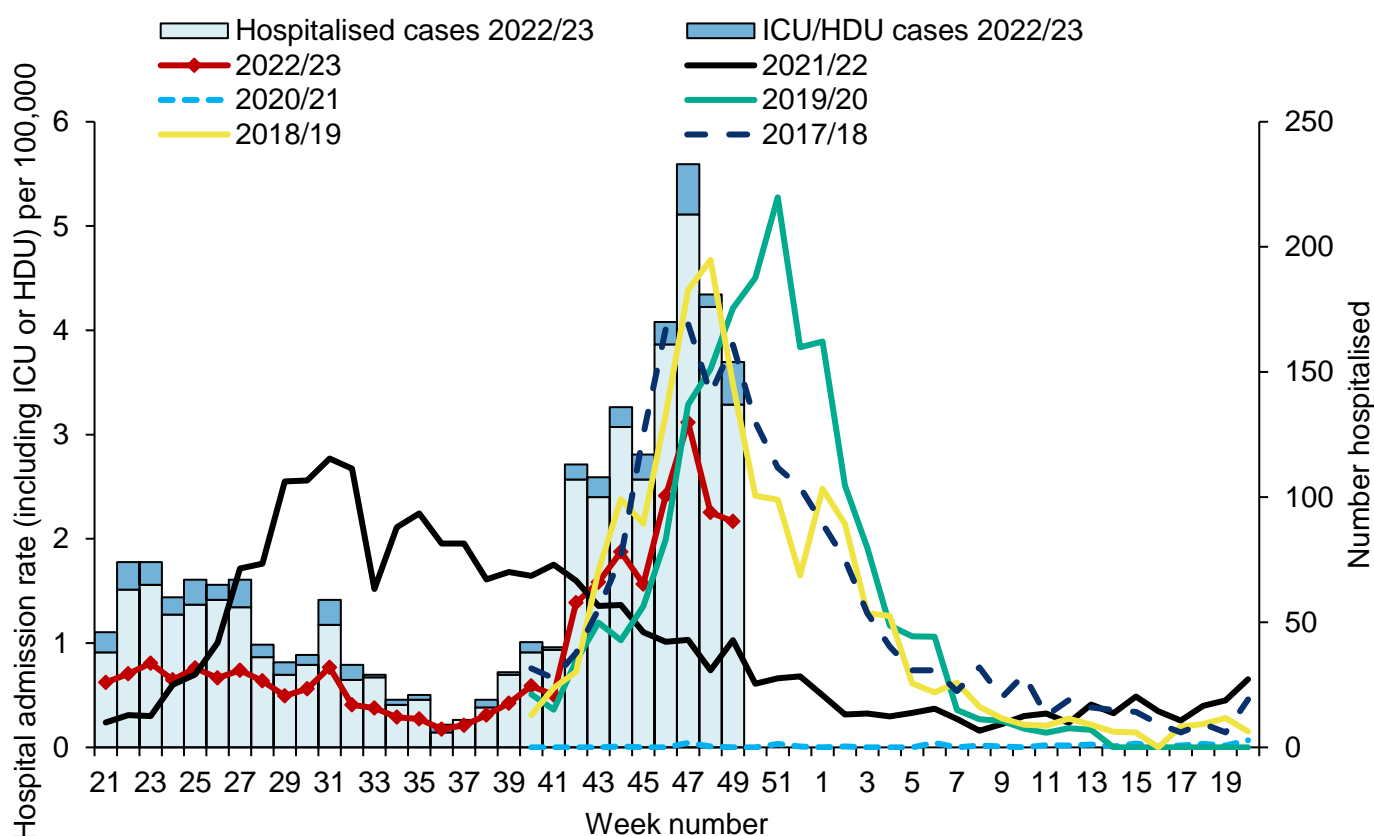
* SARI Watch data is provisional

RSV admissions, SARI Watch

Data on hospitalisations, including ICU or HDU admissions, with respiratory syncytial virus (RSV) are shown below. RSV SARI Watch surveillance is sentinel.

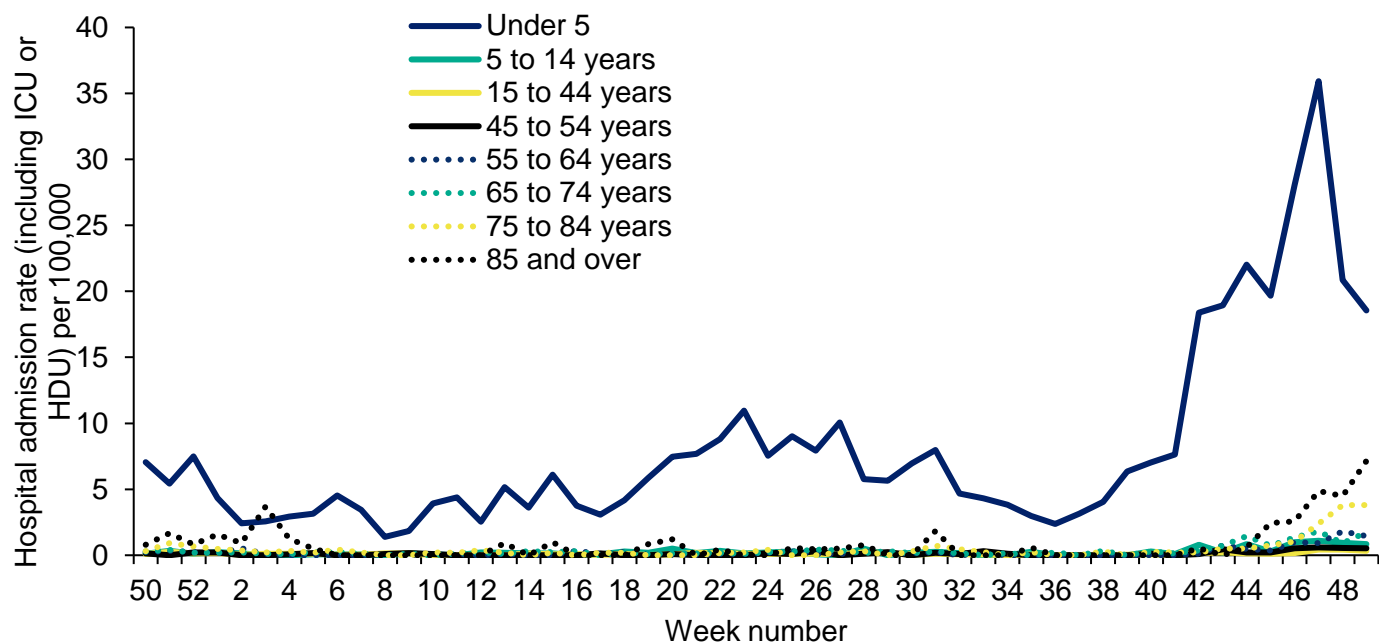
In week 49, the overall hospital admission rate for RSV was 2.17 per 100,000 compared to 2.25 per 100,000 in the previous week. The highest rates are seen in the under 5 year olds (18.5 per 100,000).

Figure 45: Weekly overall hospital admission rates (including ICU or 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 onwards this was extended to run throughout the year, to allow for surveillance of out-of-season trends

Figure 46: Weekly hospitalisation (including ICU or HDU) admission rates by age group for new RSV cases reported through SARI Watch, 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 is provisional

Emergency Department attendances, Syndromic surveillance

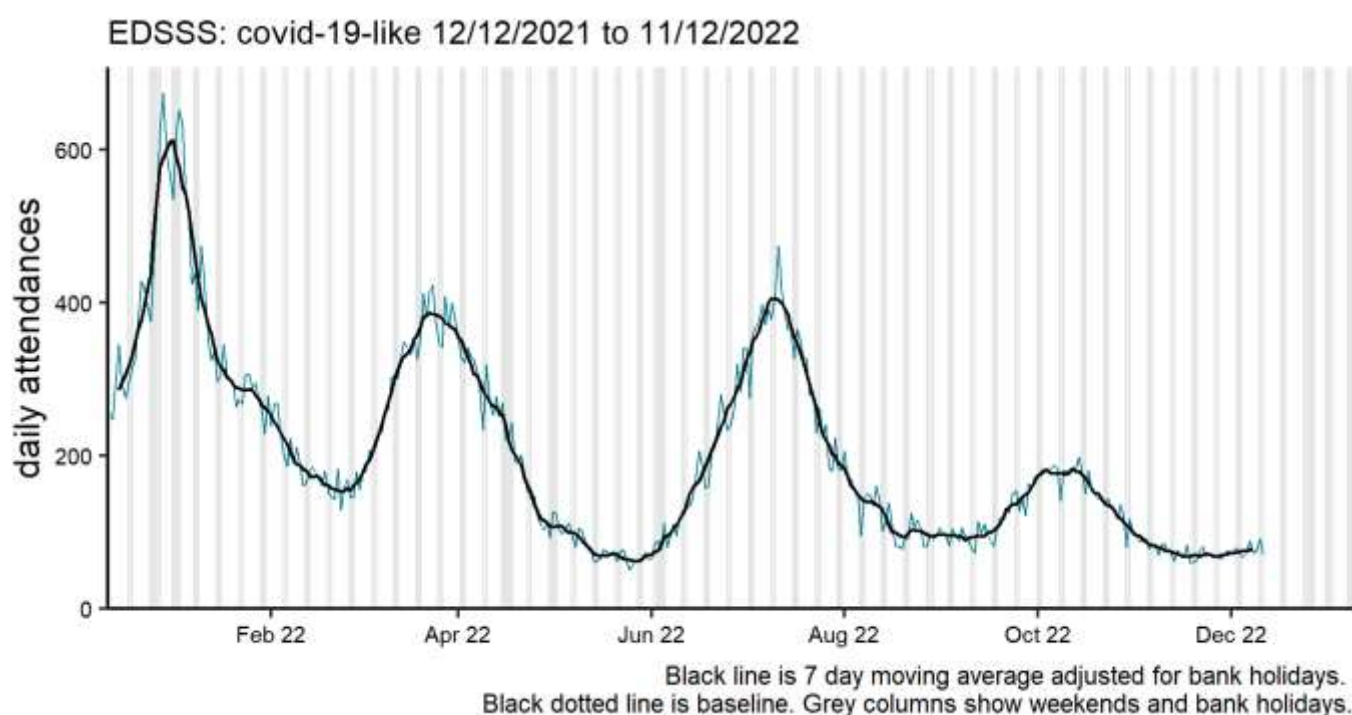
The [Emergency Department Syndromic Surveillance System \(EDSSS\)](#) monitors the daily visits in a network of emergency departments across England.

During week 49, acute respiratory infection attendances increased, observed across all age groups (except for children less than 1 years old) and all regions. There were further increases in attendances for influenza-like illness across all age groups and regions, however acute bronchiolitis attendances decreased in those under 1 year and in those aged 1 to 4 years (Figures 47, 48, 49 and 50).

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 [Emergency Department Syndromic Surveillance](#) bulletin.

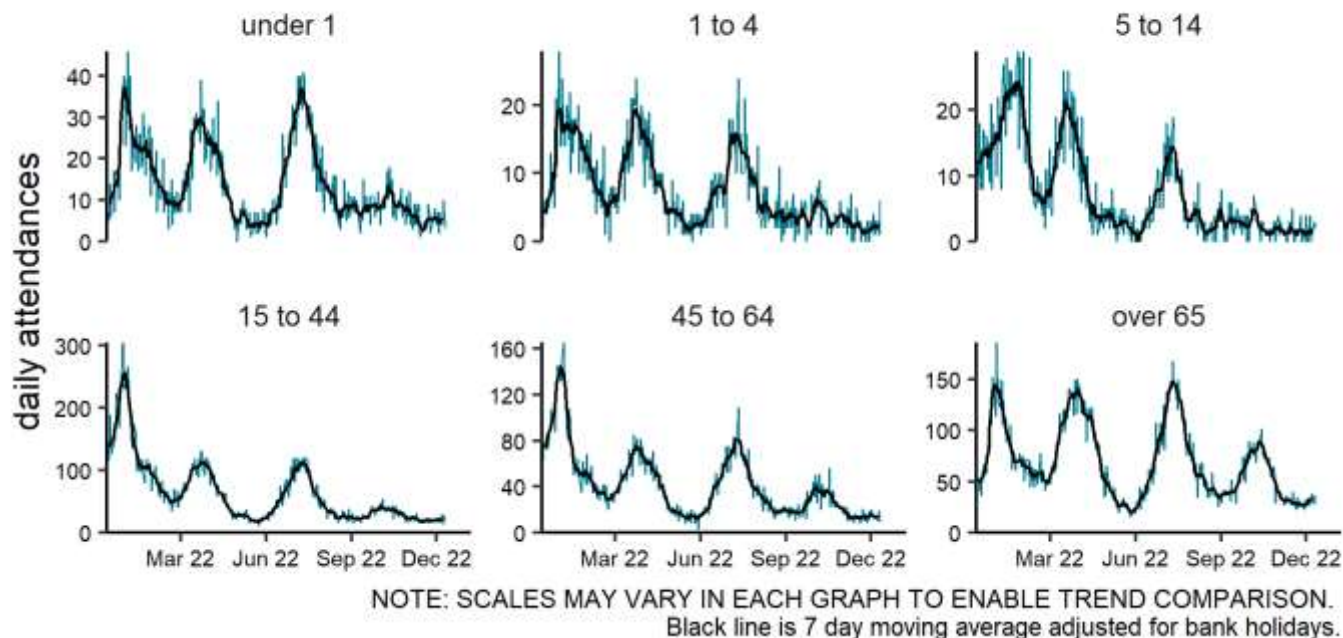
Figure 47: Daily ED attendances for COVID-19-like infections, England (a) nationally, (b) by age group and (c) by UKHSA centre

(a)



(b)

EDSSS: covid-19-like by age (years) 12/12/2021 to 11/12/2022



(c)

EDSSS: covid-19-like by region 12/12/2021 to 11/12/2022

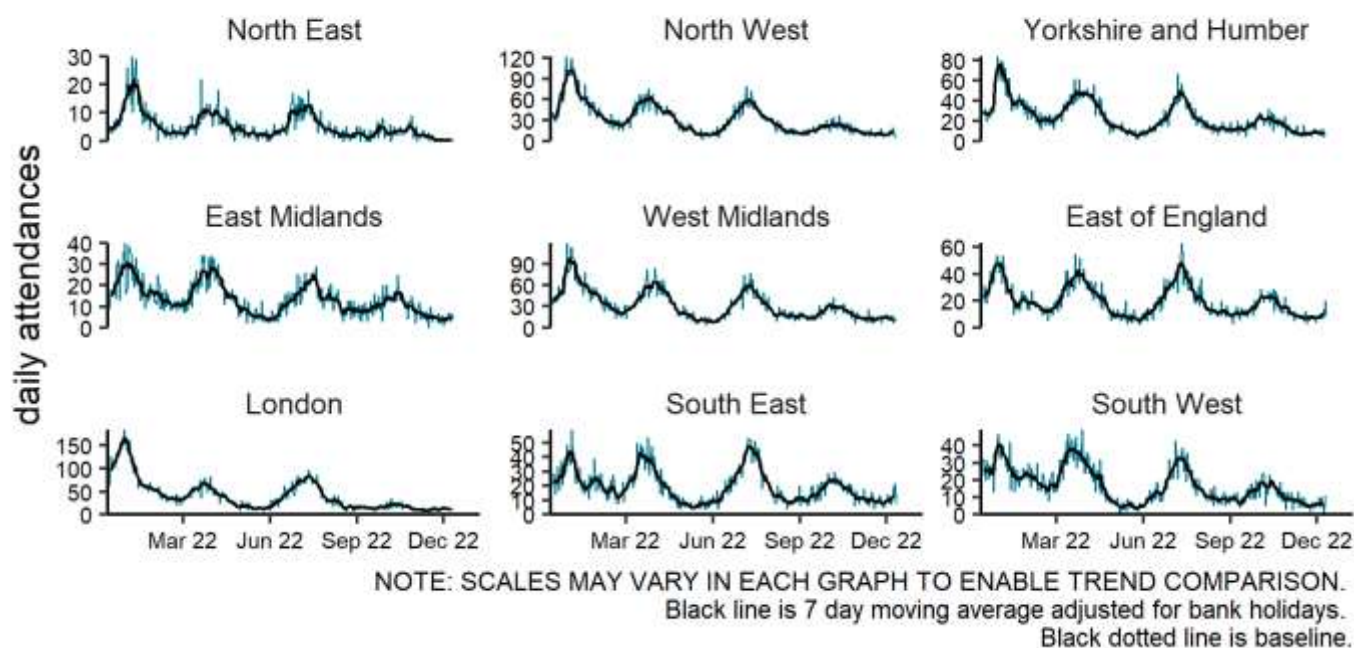
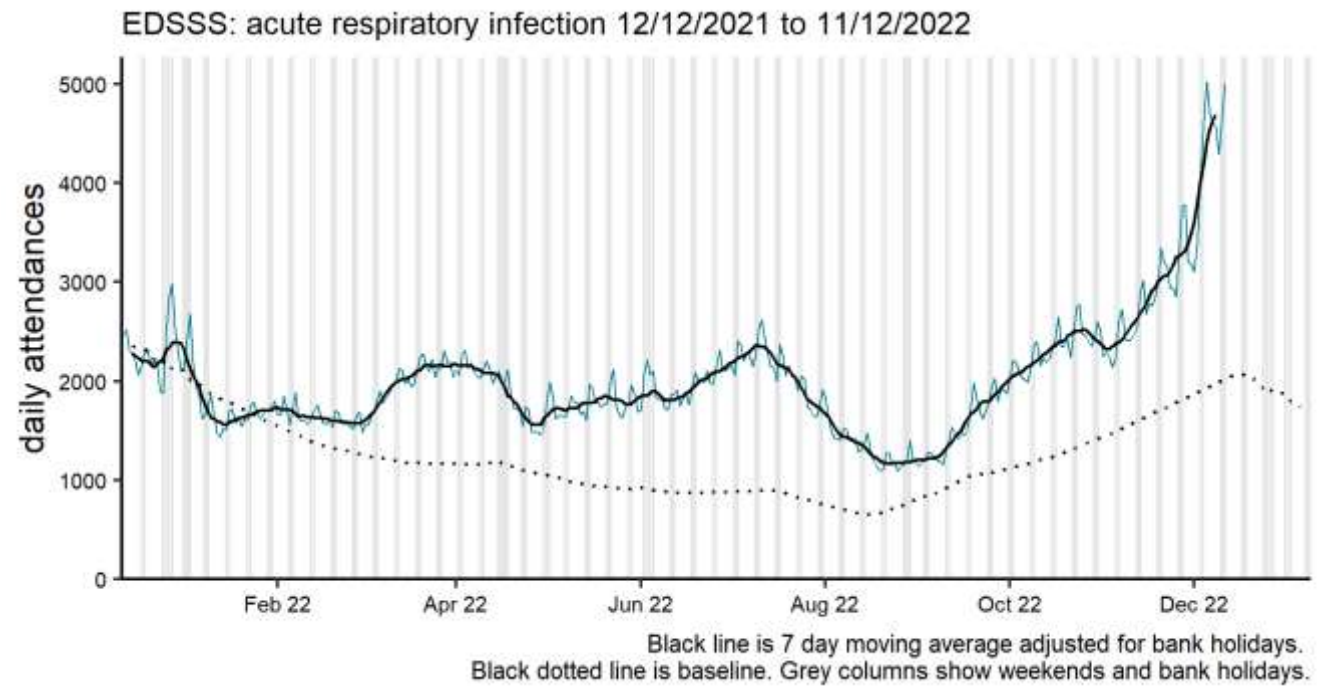
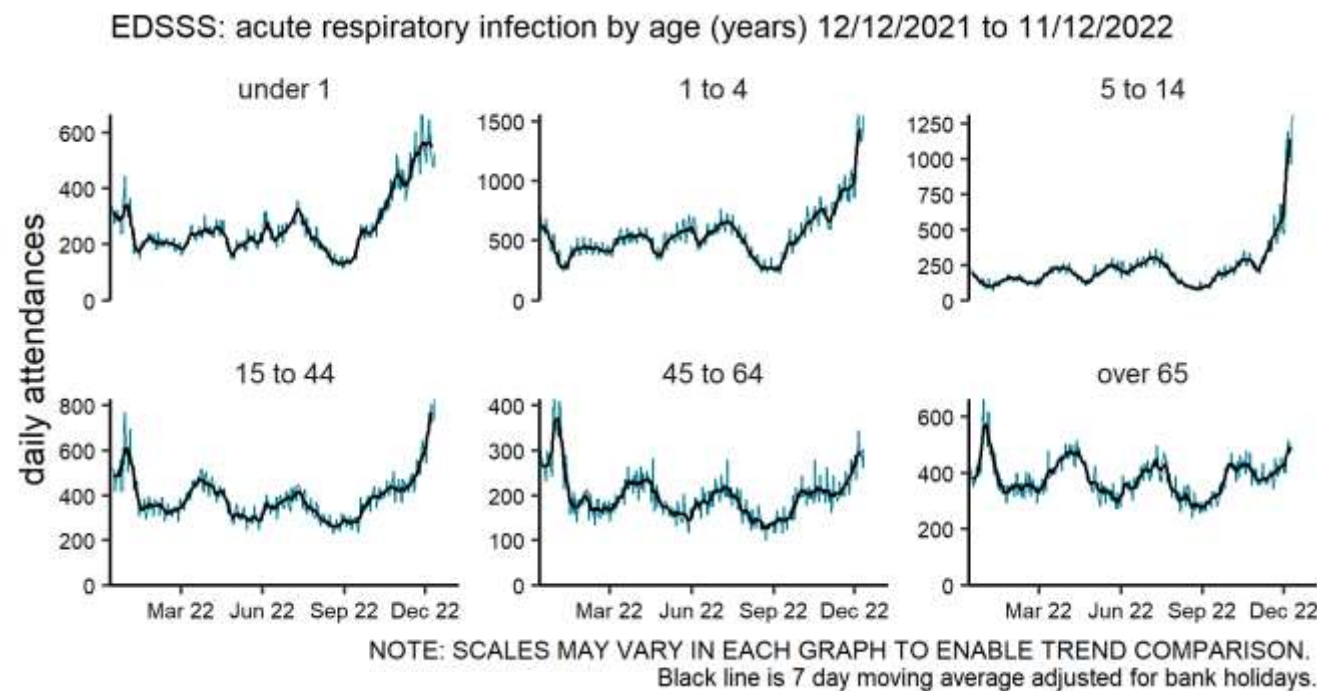


Figure 48: Daily ED attendances for acute respiratory infection, England (a) nationally, (b) by age group and (c) by UKHSA centre

(a)



(b)



(c)

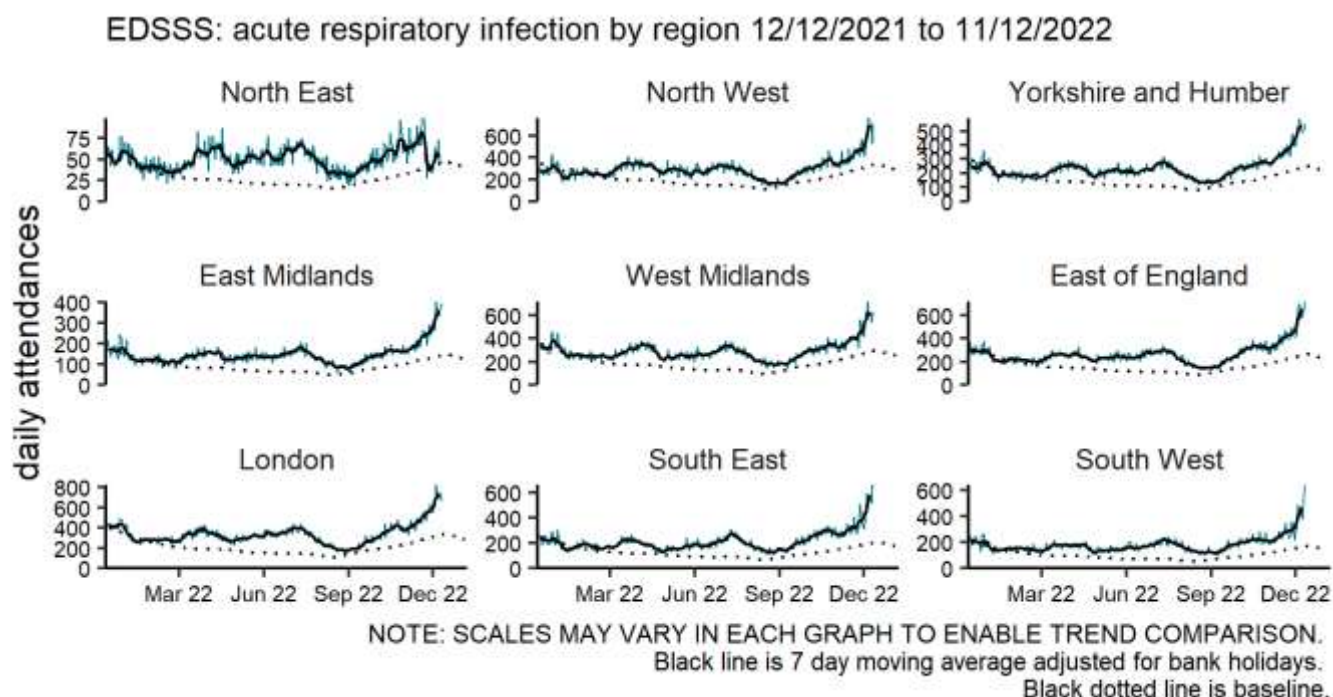
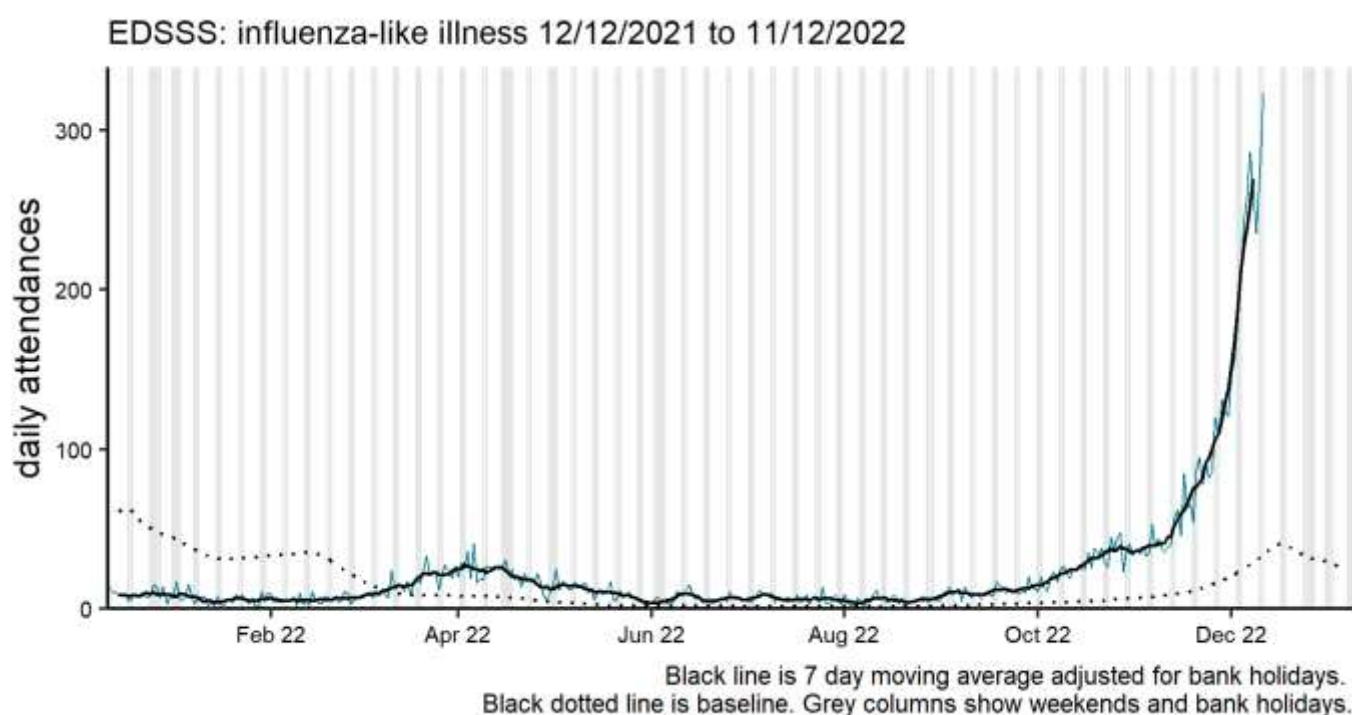


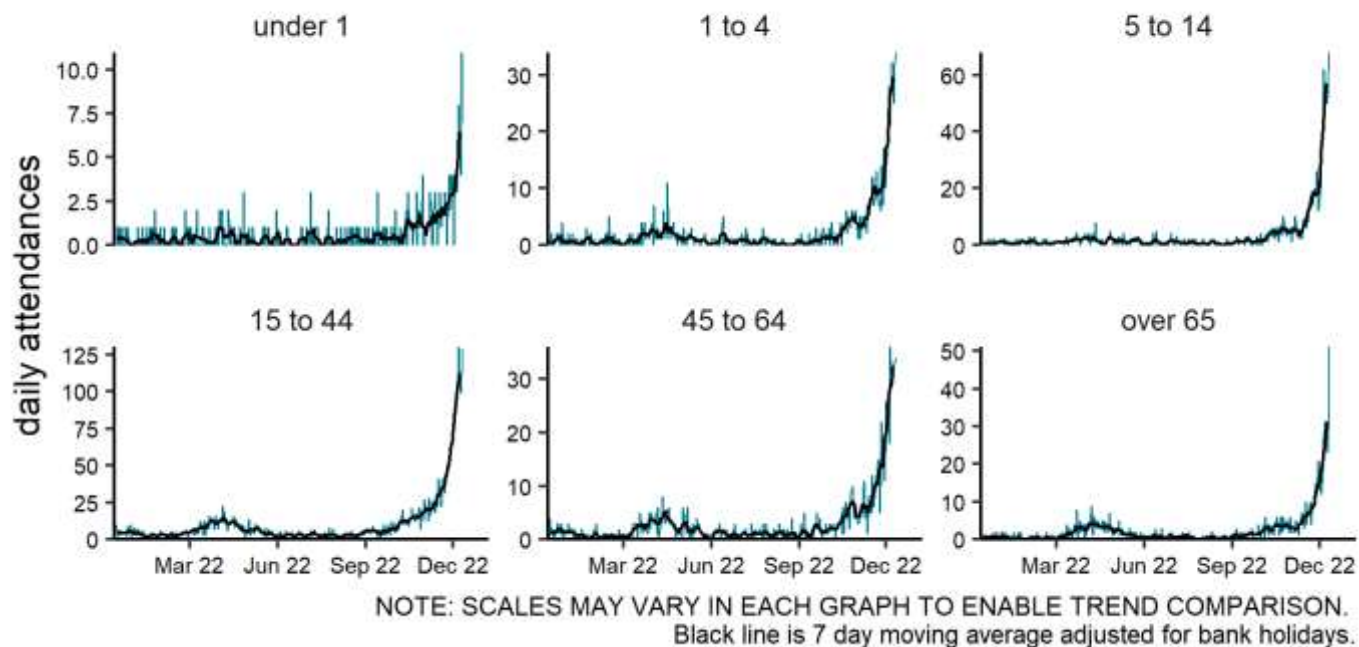
Figure 49: Daily ED attendances for influenza-like illness, England (a) nationally, (b) by age group and (c) by UKHSA centre

(a)



(b)

EDSSS: influenza-like illness by age (years) 12/12/2021 to 11/12/2022



(c)

EDSSS: influenza-like illness by region 12/12/2021 to 11/12/2022

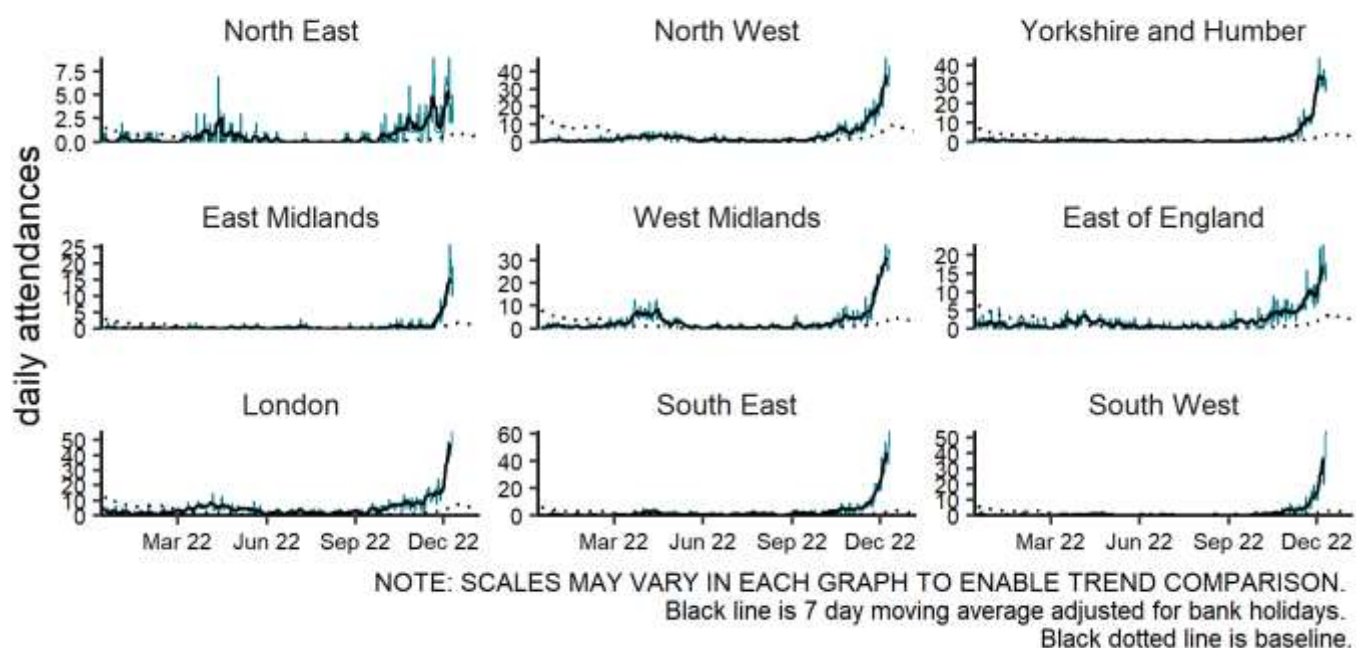
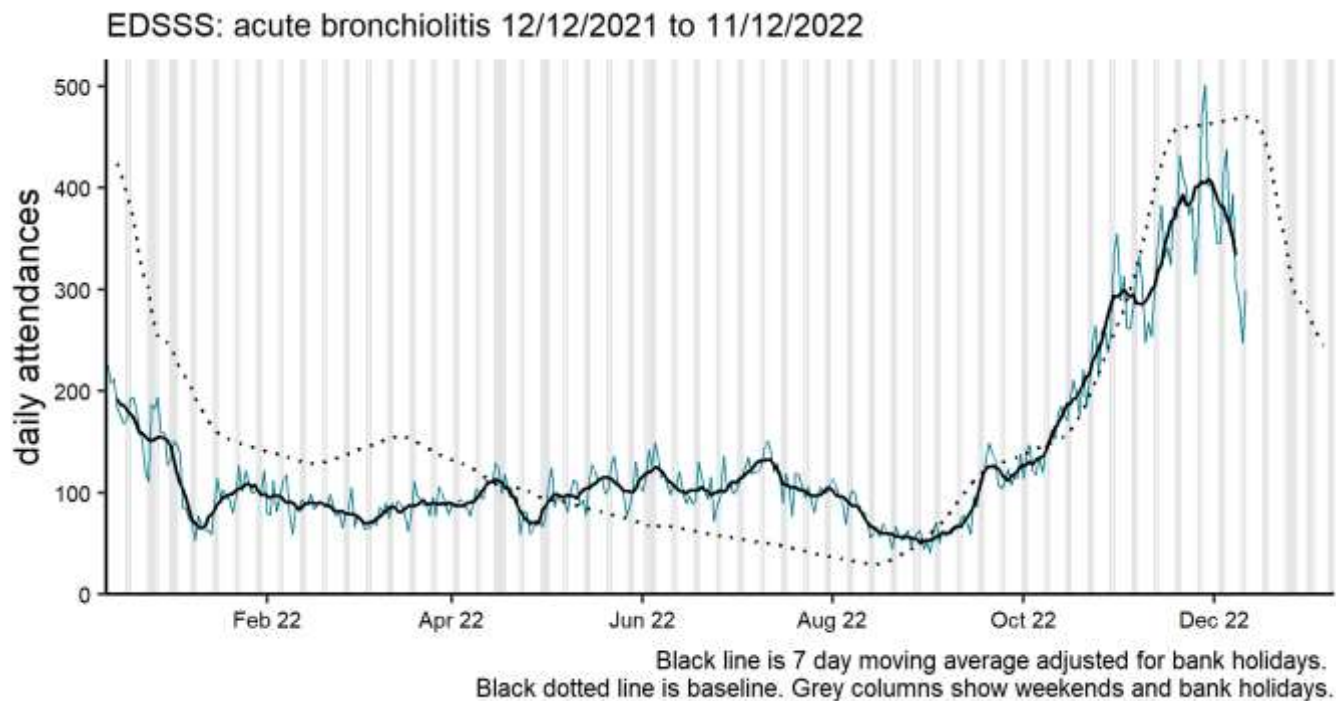
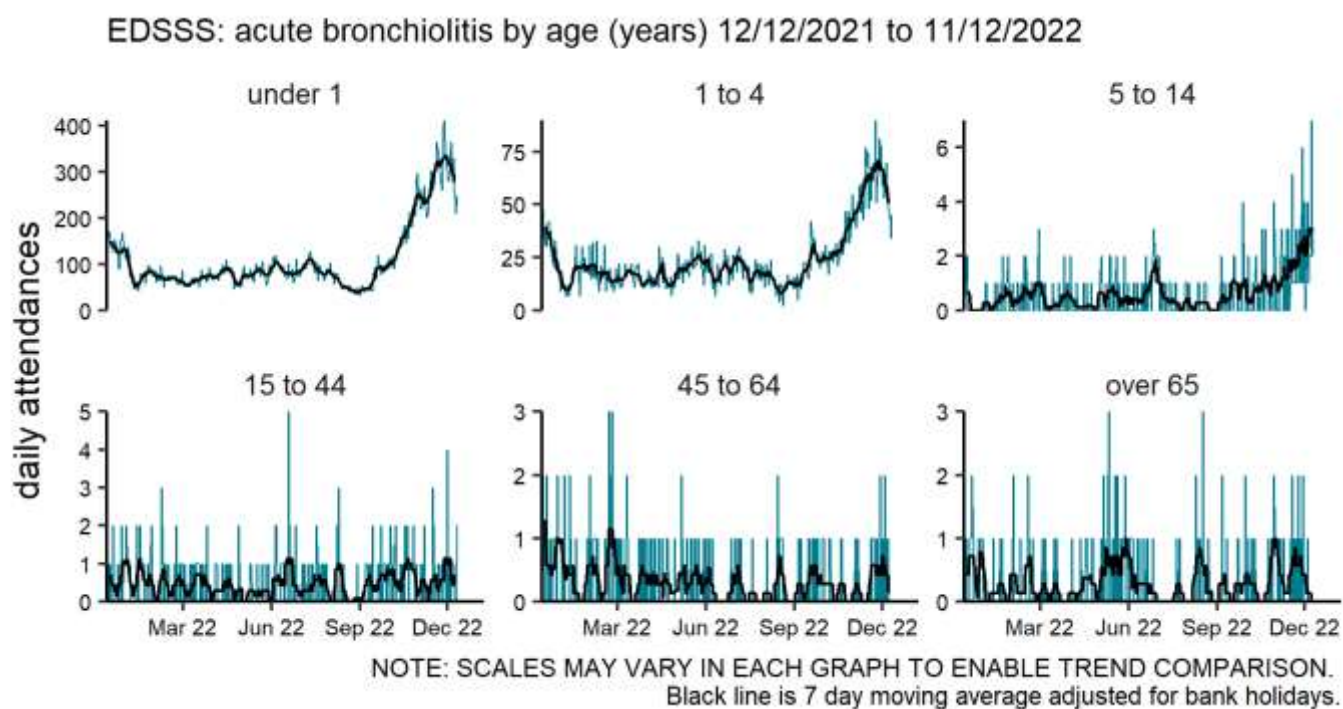


Figure 50: Daily ED attendances for acute bronchiolitis, England (a) nationally, (b) by age group and (c) by UKHSA centre

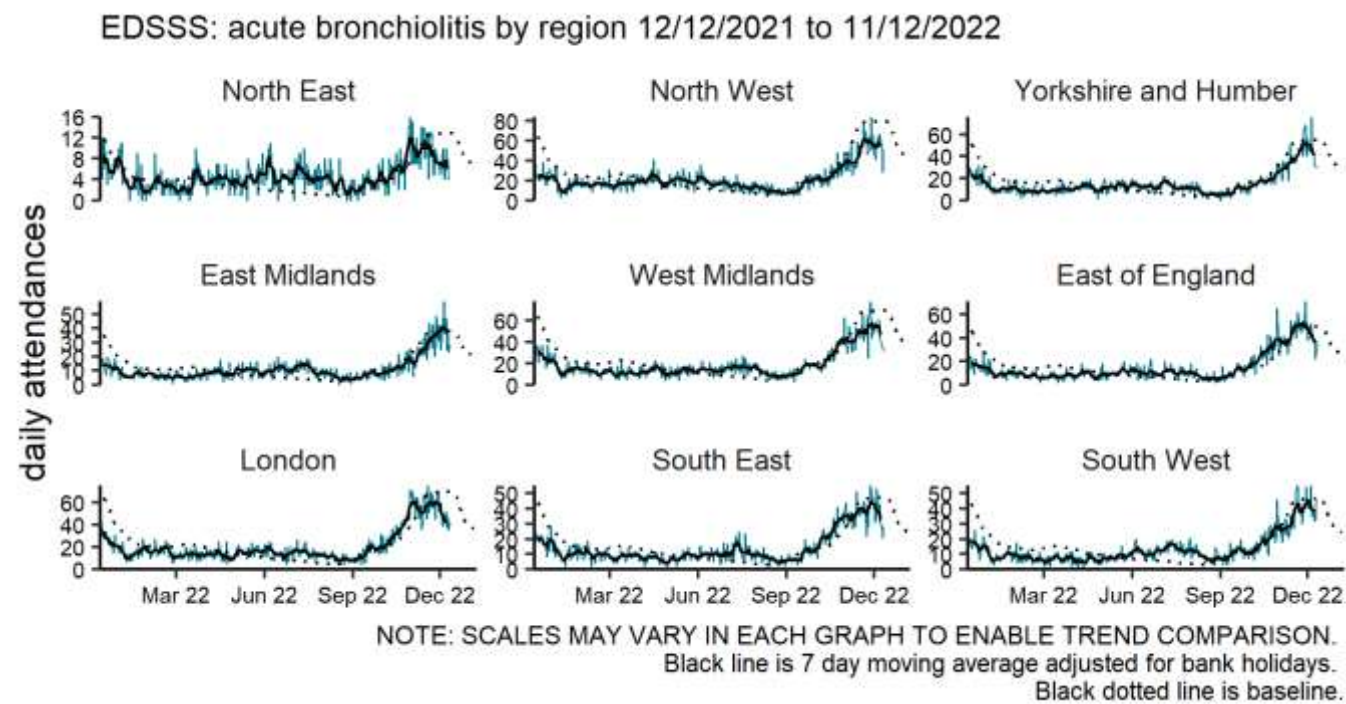
(a)



(b)



(c)

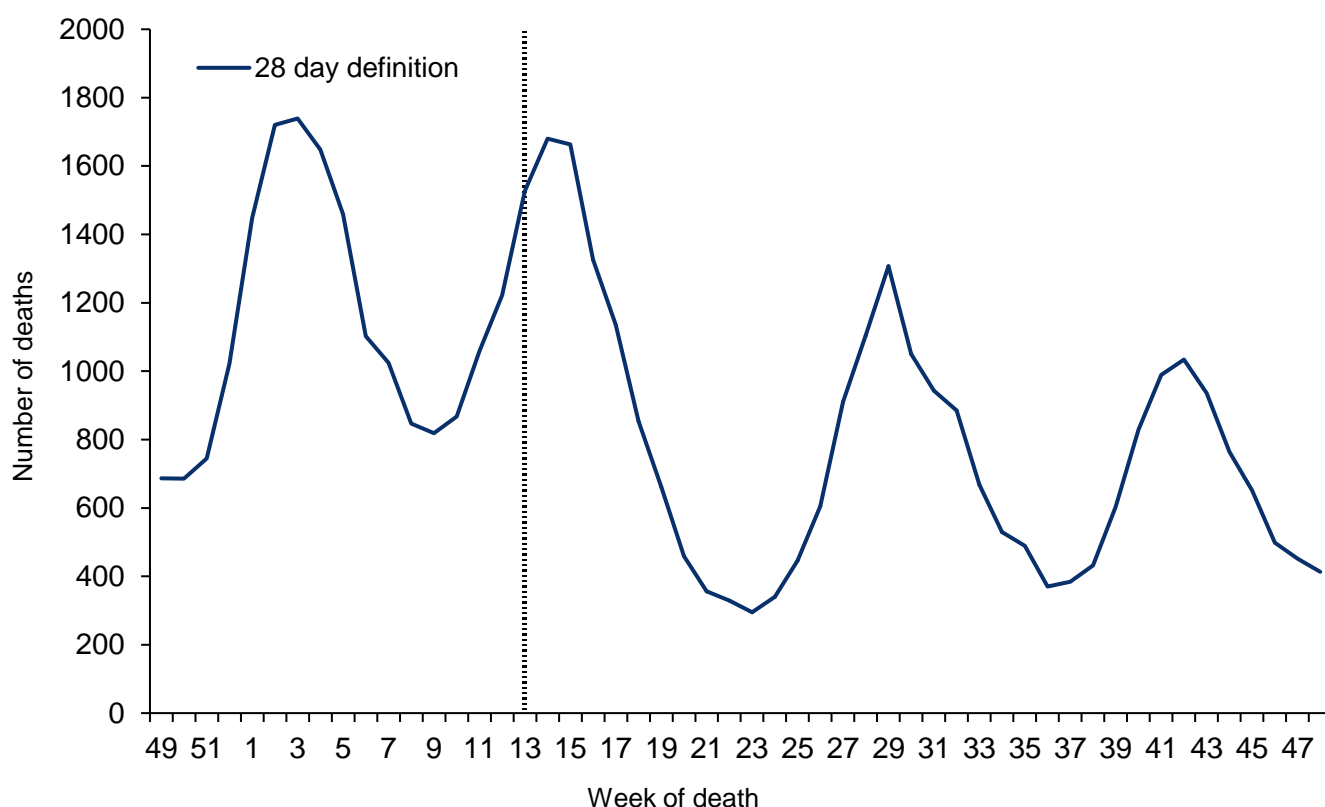


Mortality surveillance

COVID-19 deaths

COVID-19 related deaths by the 28 day definition are reported below. This metric includes a death in a person with a positive COVID-19 test who died within (equal to or less than) 28 days of the first positive specimen date in the most recent episode of infection.

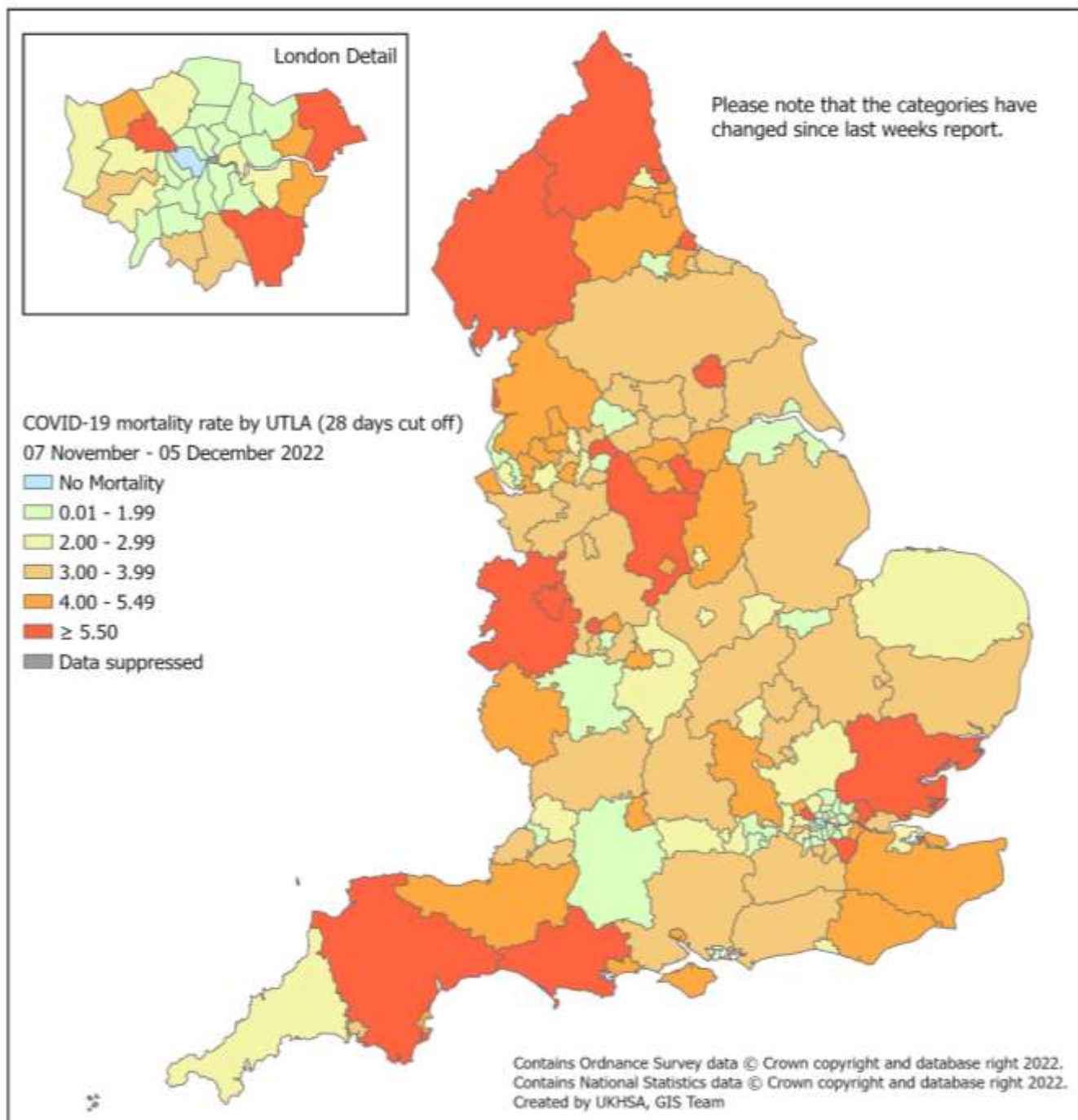
Figure 51: Number of deaths by week of death and time since a positive COVID-19 test (28 day definition), England



* Vertical dotted line indicates the end of provision of free universal testing for the general public in England, as outlined in the plan for [living with COVID-19](#).

* Data is 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 52: Cumulative mortality rate of COVID-19 cases per 100,000 population tested under Pillars 1 and 2 for the weeks 42 to 47 by 28 day definition



Daily excess all-cause mortality (England)

Deaths occurring from 1 January 2020 to 7 December 2022 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 53).

Weeks in which at least 2 days exceeded the 3SD threshold are shown in Table 3 and the daily difference from the baseline by age and region is given in Figure 55.

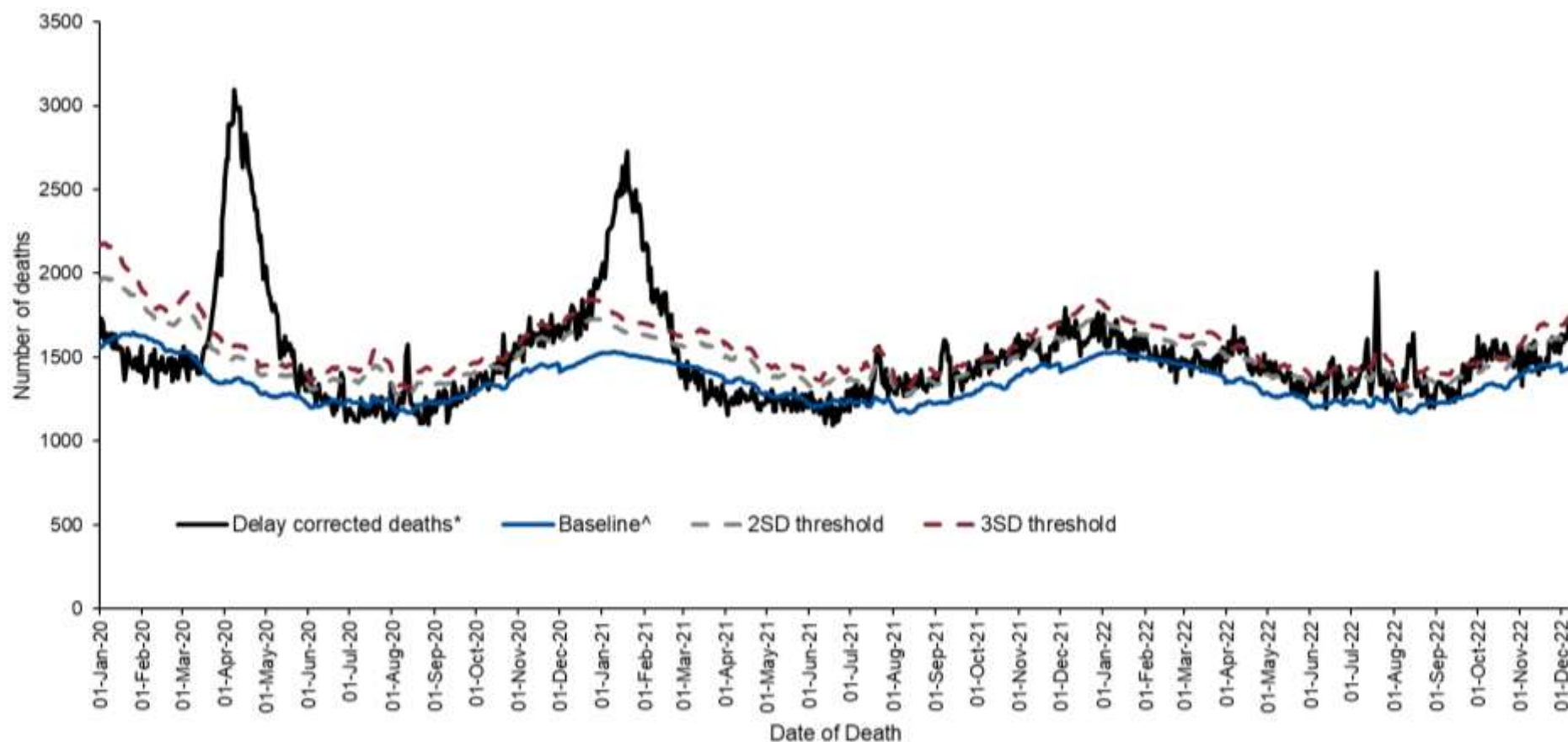
Note that as this data is by date of death with delay corrections, numbers are subject to change each week, particularly for more recent days. The current week's model supersedes models presented in previous week.

No excess all-cause mortality was observed in week 48.

Note that level 3 heat-health alerts were issued for June 17 to 18, July 11 to 21, and August 9 to 16 2022, and a level 4 heat-health alert issued for July 18 to 19 2022.

Other measures of excess mortality published by UKHSA are the [Fingertips excess mortality in England report](#), which uses ONS death registration data and [the all-cause mortality surveillance report](#), which uses the EuroMOMO model to measure excess deaths.

Figure 53: Daily excess all-cause deaths in all ages, England, 1 January 2020 to 7 December 2022



^Baseline calculation:

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

December 2020 to March 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

Table 3: Excess all-cause deaths by (a) age group and (b) UKHSA centres, England

(a)

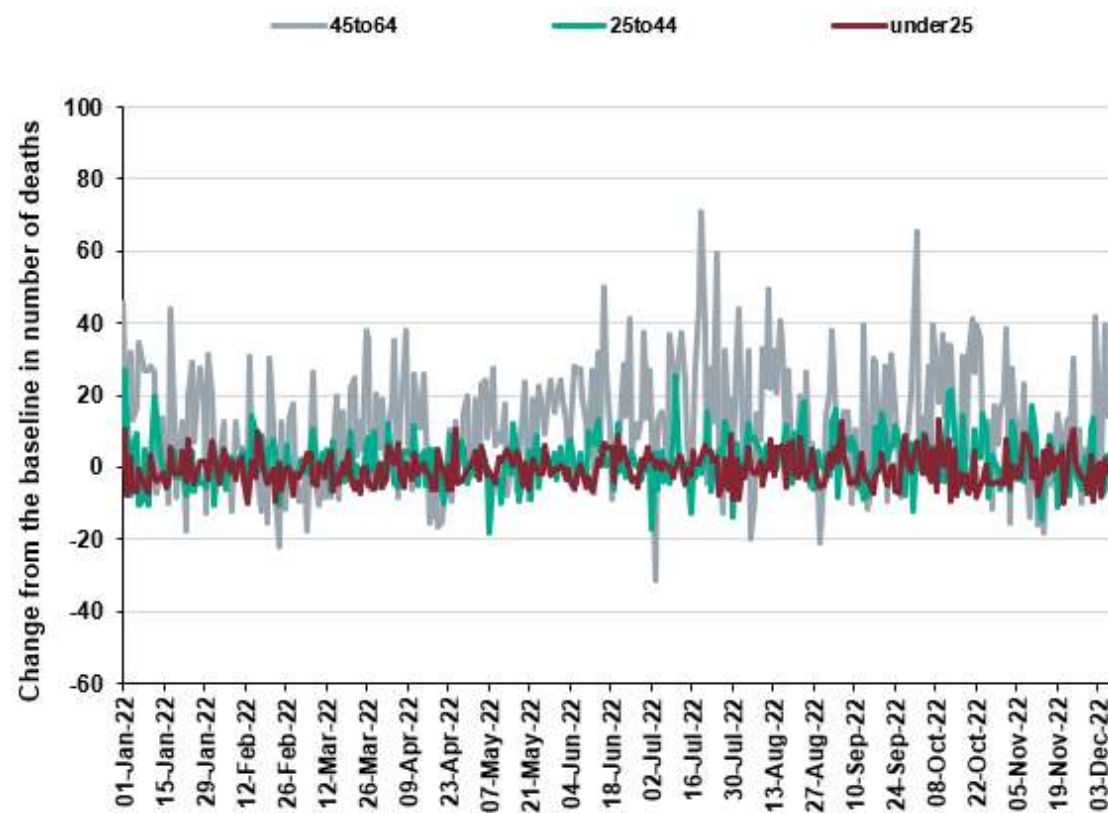
Age Group	Excess detected in week 48 2022	Weeks in excess from week 10 to 53 2020	Weeks in excess from week 1 to 52 2021	Weeks in excess from week 1 2022
All	x	13 to 21, 33, 43, 45, 50, 52 to 53	01 to 07, 29, 31 to 32, 35 to 36, 40 to 44, 48	14 to 15, 17 to 18, 23 to 24, 27 to 29, 32 to 33, 39 to 42
under 25	x	None	None	None
25 to 44	x	14 to 16	None	41
45 to 64	x	12 to 19, 49 to 50, 52 to 53	01 to 08, 23, 29 to 30, 36, 41 to 44, 48 to 49	29
65 to 74	x	13 to 19, 46, 48, 52 to 53	01 to 07, 36, 43, 48	32, 40
75 to 84	x	13 to 21, 33, 45, 49, 52 to 53	01 to 07, 32, 36, 40, 42	14 to 18, 22 to 24, 28 to 29, 31 to 32, 36, 38 to 42
85+	x	13 to 21, 33, 53	01 to 07, 31, 36	23, 28 to 29, 32, 39

(b)

UKHSA Centres	Excess detected in week 48 2022	Weeks in excess from week 10 to 53 2020	Weeks in excess from week 1 to 52 2021	Weeks in excess from week 1 2022
East of England	x	14 to 19, 52 to 53	01 to 07	23, 27, 29
East Midlands	x	13 to 19, 48	01 to 07	29
London	x	12 to 19, 33, 52 to 53	01 to 06, 36	32
North East	x	14 to 21	02 to 04	None
North West	x	13 to 19, 33, 42 to 47	01 to 07, 31 to 32, 36, 43	14 to 15, 29 to 30, 32, 42
South East	x	13 to 21, 33, 50 to 53	01 to 07, 36, 41, 49	14, 28, 32, 40 to 42
South West	x	13 to 19, 33	02 to 07, 29, 36	18, 29, 32, 34, 39
West Midlands	x	13 to 20, 45, 48	01 to 07, 29, 36, 40, 48	13, 29, 32, 41 to 42
Yorkshire and Humber	x	14 to 21, 23, 43 to 50	02 to 04, 32, 35 to 36	29, 32, 42

Figure 54: Daily excess all-cause deaths by age group, England, 1 January to 7 December 2022

(a)



(b)

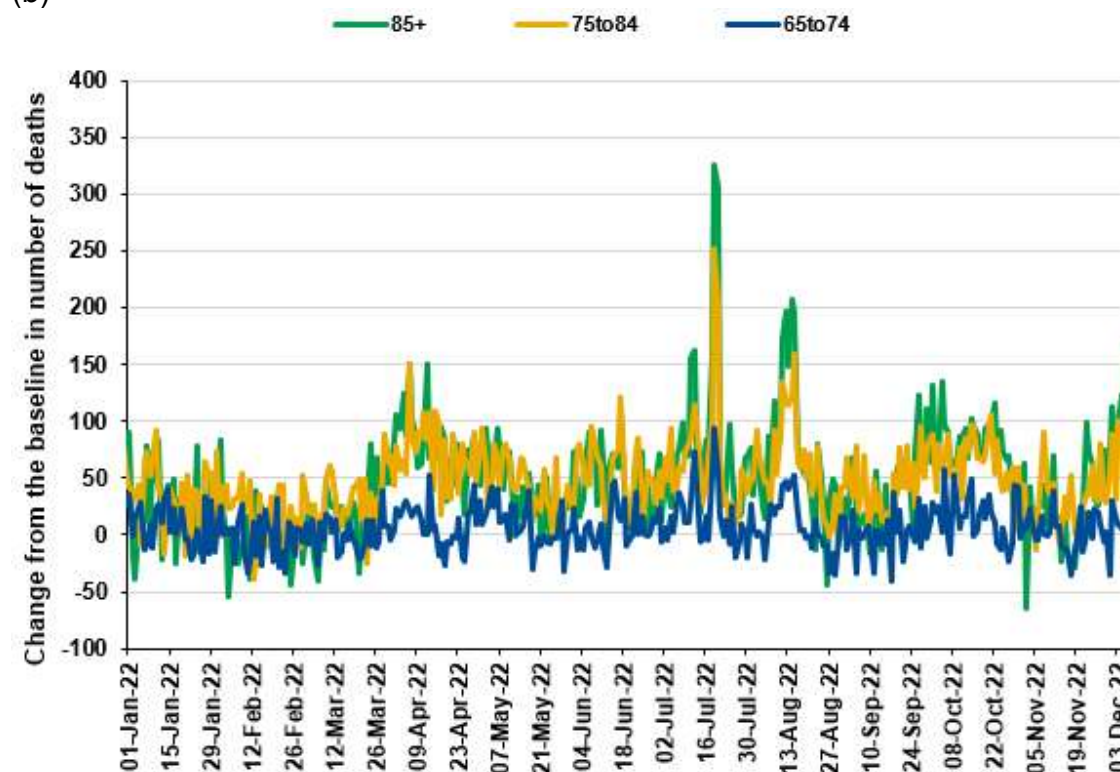
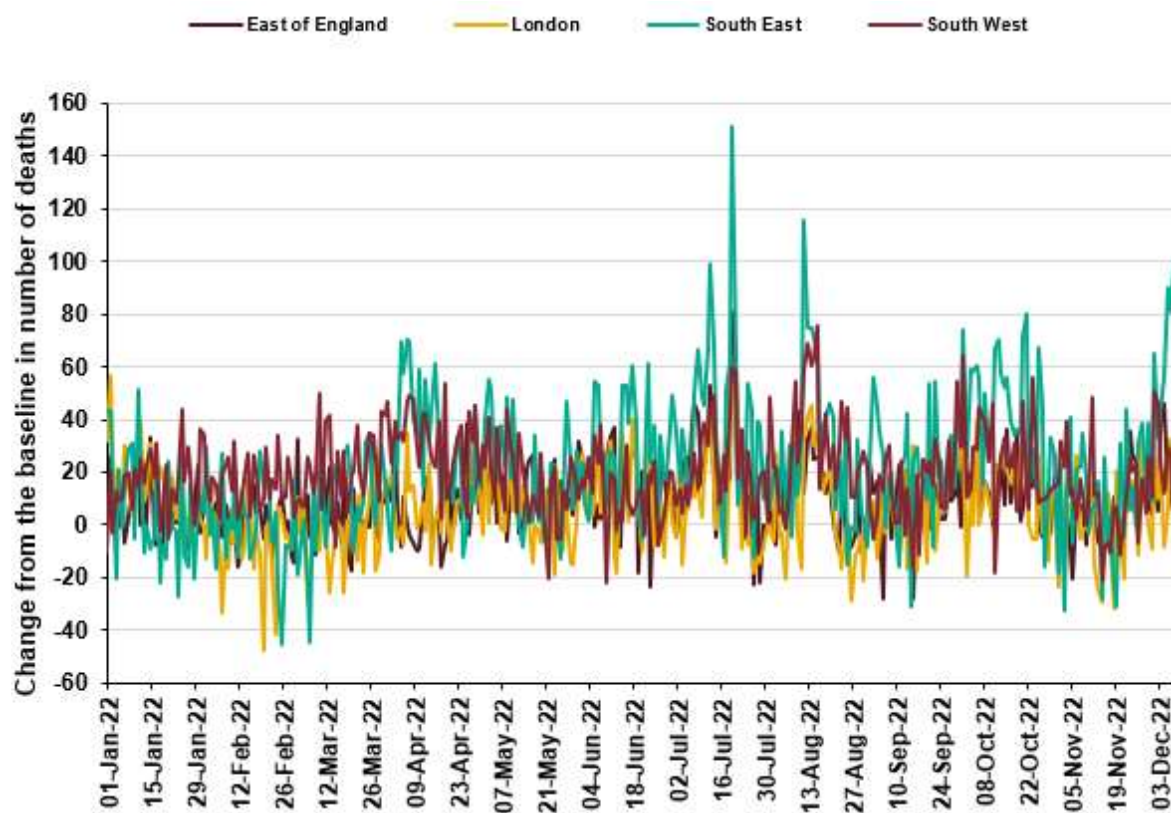
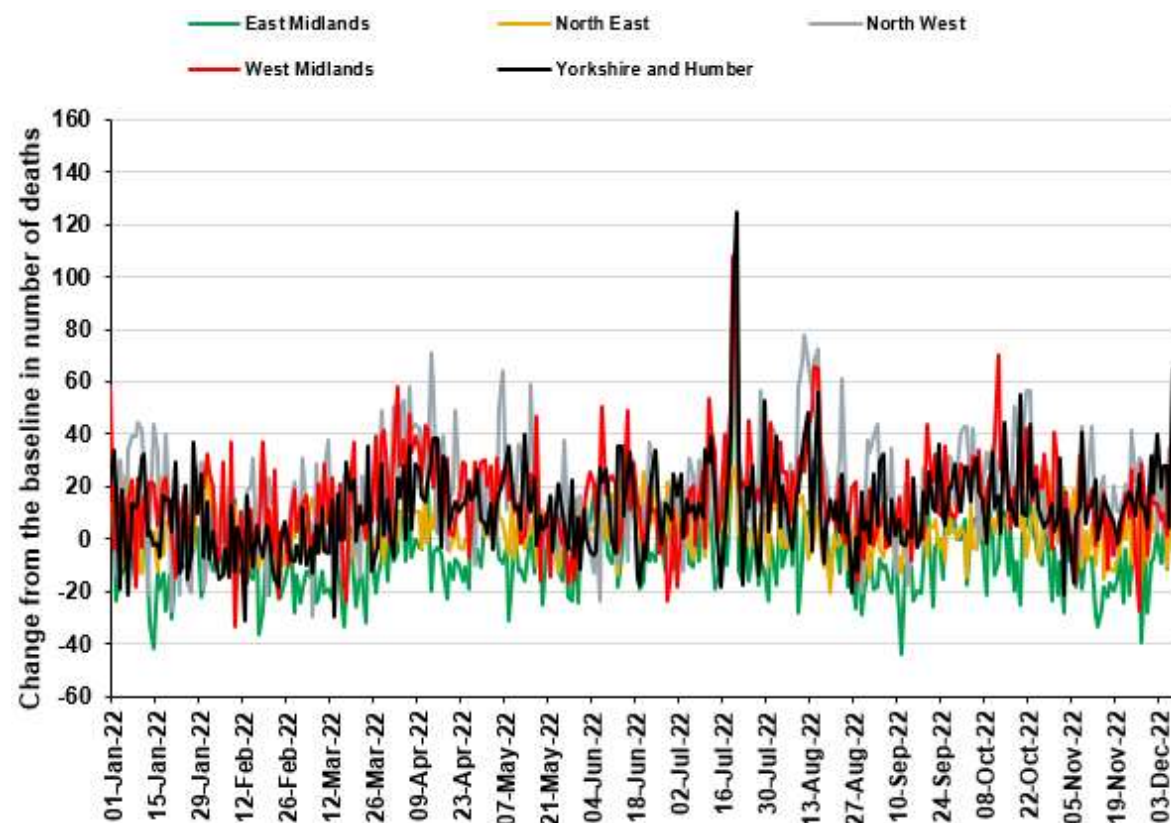


Figure 55: Daily excess all-cause deaths by UKHSA centre, England, 1 January to 7 December 2022

(a)



(b)



Microbiological surveillance

Influenza virus characterisation

UKHSA characterises the properties of influenza viruses through one or more tests, including genome sequencing (genetic analysis) and haemagglutination inhibition (HI) assays (antigenic analysis). These data are used to compare how similar the currently circulating influenza viruses are to the strains included in seasonal influenza vaccines, and to monitor for changes in circulating influenza viruses. The interpretation of genetic and antigenic data sources is complex due to a number of factors, for example, not all viruses can be cultivated in sufficient quantity for antigenic characterisation, so that viruses with sequence information may not be able to be antigenically characterised as well. Occasionally, this can lead to a biased view of the properties of circulating viruses, as the viruses which can be recovered and analysed antigenically, may not be fully representative of majority variants, and genetic characterisation data does not always predict the antigenic characterisation.

As of week 50 2022, the UKHSA Respiratory Virus Unit have genetically characterised, by sequencing of the haemagglutinin (HA) gene, 537 influenza A viruses (273 A(H3N2) and 264 A(H1N1)pdm09 viruses) and 3 influenza B viruses, of which 92 influenza A viruses (41 A(H3N2) and 51 A(H1N1)pdm09 viruses) and 2 influenza B viruses were detected in weeks 34 to 39 prior to the official start of the influenza season in week 40.

The 273 influenza A(H3N2) viruses genetically characterised, all belong in the genetic subclade 3C.2a1b.2a.2. The Northern Hemisphere 2022/2023 influenza A(H3N2) vaccine strain (an A/Darwin/9/2021-like virus) also belongs in this 3C.2a1b.2a.2 genetic subclade.

The 264 influenza A(H1N1)pdm09 viruses characterised to date this season, all belong in genetic subgroup 6B.1A.5a.2. The Northern Hemisphere 2022/2023 influenza A(H1N1)pdm09 vaccine strain (an A/Victoria/2570/2019-like virus) also belongs in genetic subclade 6B.1A.5a, within the 6B.1A.5a.2 cluster.

Three influenza B/Victoria lineage viruses have been genetically characterised, both belonging in subclade V1A3, within the subgroup V1A3a.2. The Northern Hemisphere 2022/2023 influenza B/Victoria lineage vaccine strain (a B/Austria/1359417/2021-like virus) also belongs in this V1A3a.2 subclade/group.

It is too early to predict which influenza lineages will dominate throughout the season, and a close watch will be kept on the proportion of different viruses circulating to assist with the evaluation of vaccine effectiveness.

The Respiratory Virus Unit has confirmed by genome sequencing the detection of live attenuated influenza vaccine (LAIV) viruses in one influenza A positive sample collected since week 37, from a child aged 2 to less than 16 years of age.

Influenza antiviral susceptibility

Influenza positive samples are genome sequenced and screened for mutations in the virus neuraminidase (NA) and the cap-dependent endonuclease (PA) genes known to confer neuraminidase inhibitor or baloxavir resistance, respectively. The samples tested are routinely obtained for surveillance purposes, but diagnostic testing of patients suspected to be infected with antiviral-resistant virus is also performed.

Influenza virus sequences from samples collected between weeks 34 2022 and 50 2022 have been analysed. No viruses with known markers of resistance to neuraminidase inhibitors were detected in 250 A(H3N2), 249 A(H1N1)pdm09 and 3 Influenza B NA sequences analysed. No viruses with known markers of resistance to baloxavir marboxil were detected in 201 A(H3N2), 187 A(H1N1)pdm09 and 2 influenza B PA sequences analysed.

Table 4: Antiviral susceptibility of influenza positive samples tested at UKHSA-RVU

(Sub)type	Neuraminidase Inhibitors		Baloxavir	
	Susceptible	Reduced Susceptibility	Susceptible	Reduced Susceptibility
A(H3N2)	250	0	201	0
A(H1N1)pdm09	249	0	187	0
B/Victoria-lineage	3	0	2	0

SARS-CoV-2 variants

UKHSA conducts genomic surveillance of SARS-CoV-2 variants.

This section provides an overview of new and current circulating variants in England.

Detailed surveillance of particular variants of concerns can be found in recent [technical briefings](#).

Information on whole genome sequencing coverage can be found in the accompanying slide set.

The prevalence of different UKHSA-designated variants amongst sequenced episodes is presented in Figure 56.

Of the sequenced episodes from 30 October 2022 to 11 December 2022, 0.9% were BA.2 (V-22JAN-01), 1.8% were BA.4.6 (V-22SEP-01), 17.4% were BA.5 (V-22APR-04), 54.8% were BQ.1 (V-22OCT-01), 19.6% were BA.2.75 (V-22JUL-01), 5.0% were classified as XBB (V-22OCT-02) and 0.6% as Other.

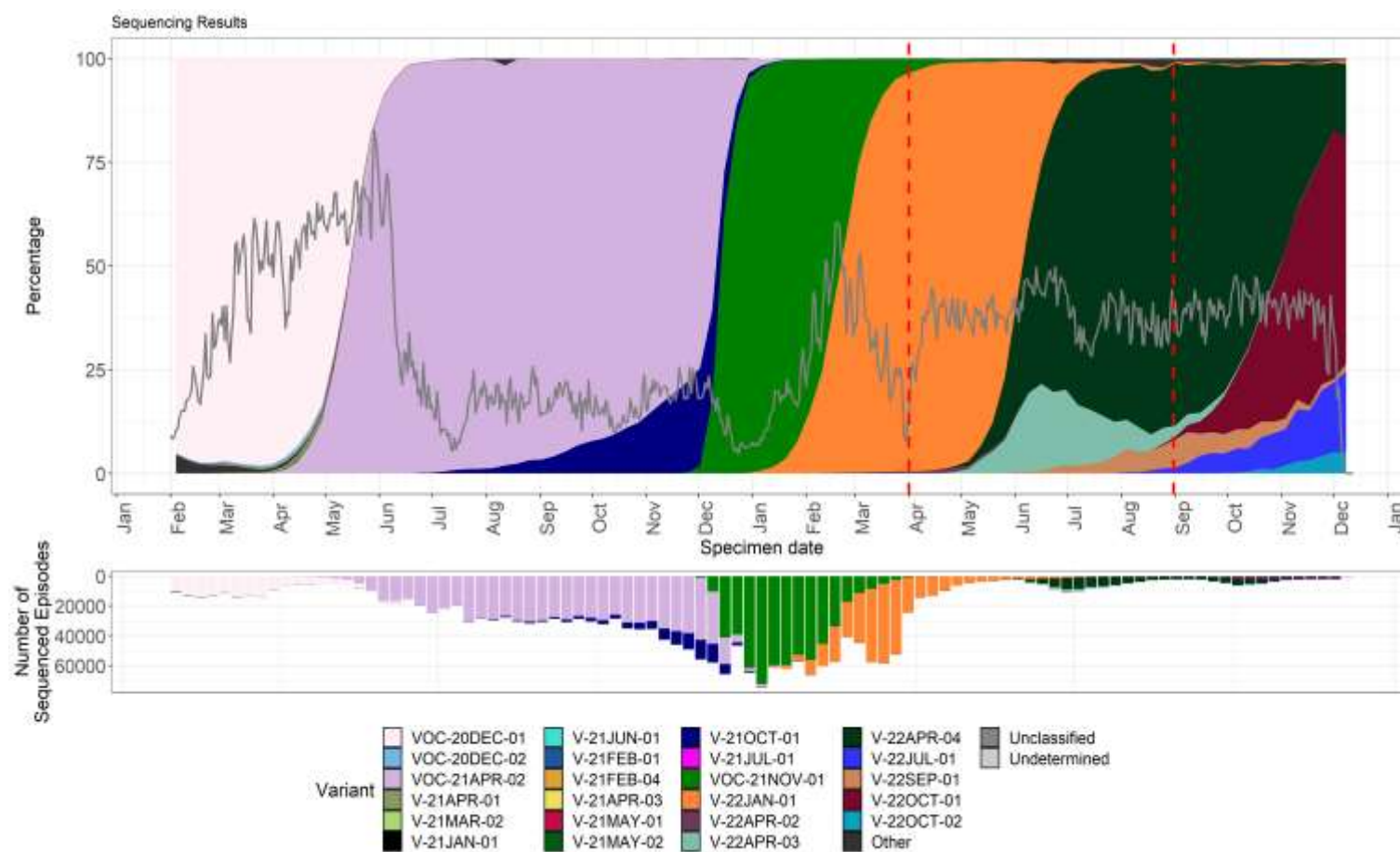
Figure 56. Prevalence of SARS-CoV-2 variants amongst available sequences episodes for England from 1 February, as of 13 December 2022

The grey line indicates proportion of cases sequenced.

The vertical dashed lines (red) denote changes in policies:

- April line denotes the start of England's 'Living with COVID' Plan.
- End of August line denotes the change in asymptomatic testing

Note: Recombinants such as XD, are not specified but are largely within the 'other' group currently as numbers are too small.



As of week 49 2022, BQ.1 continues to be the predominant circulating variant in England (Table 5).

Table 5. Total distribution of SARS-CoV-2 variants detected in England in the last 12 weeks, up to week 49 (week ending 11 December 2022)

Variant	Other names by which this variant is known	Total confirmed (sequencing) cases in the last 12 weeks	Last reported specimen date
VOC-21APR-02	Delta	1	04-11-2022
VOC-21NOV-01	Omicron BA.1	14	25-11-2022
V-22JAN-01	Omicron BA.2	161	06-12-2022
V-22APR-03	Omicron BA.4	244	01-12-2022
V-22APR-04	Omicron BA.5	24125	07-12-2022
V-22JUL-01	Omicron BA.2.75	3406	08-12-2022
V-22SEP-01	Omicron BA.4.6	1493	07-12-2022
V-22OCT-01	Omicron BQ.1	11331	07-12-2022
V-22OCT-02	Omicron XBB	579	07-12-2022

*Sequencing data has a lag of approximately two weeks therefore the presented numbers should be interpreted in this context

*Cumulative numbers may be revised up or down as a results of reclassification of results, re-infections and changes to diagnostic tests, new variants, or public health management levels

*Confirmed individuals are confirmed COVID-19 cases with a validated sequencing result meeting the confirmed case definitions

Antimicrobial susceptibility

Table 6 shows in the 12 weeks up to week 49 2022, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, MRSA (Methicillin-resistant *Staphylococcus aureus*) and MSSA (methicillin-susceptible *Staphylococcus aureus*) tested and susceptible to antibiotics. These organisms are the important 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 6: Antimicrobial susceptibility surveillance in lower respiratory tract

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	2,112	88
	Macrolides	2,368	82
	Tetracycline	2,157	82
<i>H. influenzae</i>	Amoxicillin or ampicillin	9,172	43
	Co-amoxiclav	10,901	48
	Macrolides	2,341	4
	Tetracycline	10,915	98
<i>S. aureus</i>	Methicillin	5,012	93
	Macrolides	5,874	70
MRSA	Clindamycin	253	45
	Tetracycline	298	71
MSSA	Clindamycin	3,375	75
	Tetracycline	4,085	94

* Macrolides = erythromycin, azithromycin and clarithromycin

Data source: UKHSA's SGSS Antimicrobial Resistance (AMR) module, please note that this is different to the data source used in the reports published between weeks 41, 2020 to 5, 2021 inclusive of the 2020 to 2021 influenza season when the SGSS Communicable Disease Report (CDR) module was used instead due to a UKHSA 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 5, 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 UKHSA since mid-March 2020.

COVID-19 sero-prevalence surveillance

Since week 42 2021, updates on COVID-19 sero-prevalence estimates have been published in the weekly [COVID-19 vaccine surveillance report](#).

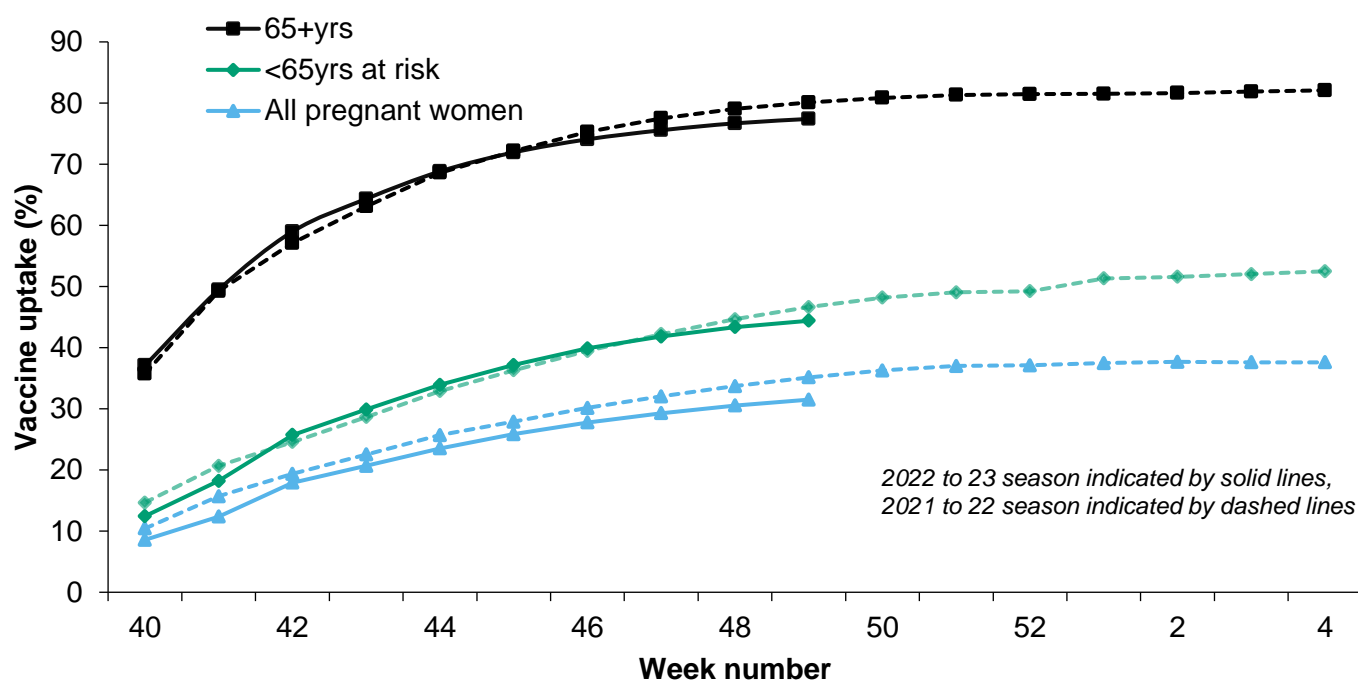
Influenza vaccination

Influenza vaccine uptake in GP patients

Up to week 49 of 2022, in 96.4% of GP practices reporting weekly to ImmForm for the main collection, the provisional proportion of people in England who had received the 2022 to 2023 influenza vaccine in targeted groups was as follows:

- 44.4% in under 65 years in a clinical risk group
- 31.5% in all pregnant women
- 77.4% in all 65 year olds and over
- 37.3% in those aged 50 to 64 who are not in a clinical risk group

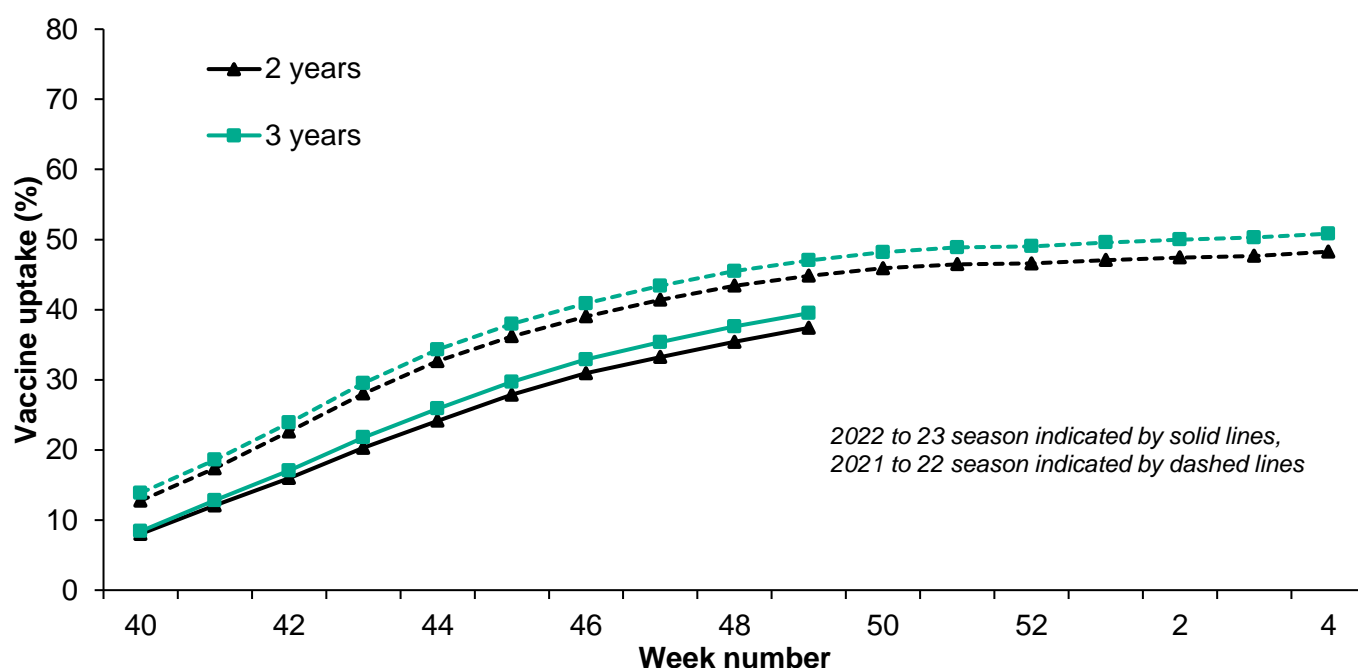
Figure 57: Cumulative weekly influenza vaccine uptake by target group in England



In 2022 to 2023, all 2 and 3 year olds continue to be eligible for influenza vaccination through their GPs. Up to week 49 of 2022, in 98.1% of GP practices reporting weekly to ImmForm for the childhood collection, the provisional proportion of children in England who had received the 2022 to 2023 influenza vaccine in targeted groups was as follows:

- 37.4% in all 2 year olds
- 39.5% in all 3 year olds

Figure 58: Cumulative weekly influenza vaccine uptake in 2 and 3 year olds, in England



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 49 2022 (week ending 11 December 2022) was extracted from the National Immunisation Management Service (NIMS). The data presented this week is the provisional proportion of living people resident in England who had received COVID-19 vaccinations. Individuals vaccinated in England who have a registered address outside of England or where their address, age, or sex is unknown have been excluded. Due to changes in GP practice lists, in order to include newly registered patients and remove those who are no longer resident, there will be slight variation to the figures to reflect those who are currently resident in England.

Age is calculated on the date data is extracted. The weekly vaccine coverage data is extracted on a Tuesday with data capped to the previous Sunday and all backing data is updated each week going back to the start of the programme

Data is 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 UKHSA are for public health surveillance purposes only.

Autumn Booster Campaign

Immunity derived from vaccination declines over time and following on from the Spring campaign, the JCVI has recommended an Autumn Booster campaign with the primary objective to boost immunity in those at higher risk from COVID-19 and thereby optimise protection against severe COVID-19, specifically hospitalisation and death, over winter 2022 to 2023.

The Autumn booster data reported below covers any booster dose administered from the 1 September 2022 provided there is at least 3 months from the previous dose. Eligible groups for the Autumn booster campaign are defined in the COVID-19 healthcare guidance [Green Book](#) and include residents in a care home for older adults, staff working in care homes for older adults, frontline health and social care workers, all adults aged 50 years and over, persons aged 5 to 49 years in a clinical risk group, household contacts of people with immunosuppression, and carers.

Table 7 presents coverage as measured against the total population and includes people who are not yet due to have their Autumn booster. It is important that unvaccinated individuals, especially vulnerable adults, receive a primary course of vaccination, irrespective of whether individuals have had previous infection. Table 8 should be interpreted in the context of Table 7

which shows how recently a person who is living and resident in England has been vaccinated either through the primary vaccination campaign or a subsequent booster campaign. This helps us understand the data in the context of vaccine waning across the whole COVID-19 programme.

By the end of week 49 2022 (week ending 11 December 2022), 63.2% (14,727,173 out of 23,295,086) of all people aged over 50 years old had been vaccinated with an Autumn booster dose since 1 September 2022 (Table 7 and Figure 58). Vaccine uptake of those aged over 80 years old was 81.2% (2,421,167 out of 2,980,919).

Table 7: Provisional cumulative people vaccinated by age with a booster of COVID-19 vaccine from the 1 September 2022 as part of the Autumn booster campaign in England

National	People in NIMS cohort who are living and resident in England	Vaccinated with an Autumn booster since 1 September 2022*	Percentage vaccine uptake
Over 80	2,980,919	2,421,167	81.2
75 to under 80	2,414,218	1,968,564	81.5
70 to under 75	2,736,073	2,142,267	78.3
65 to under 70	3,030,885	2,155,912	71.1
60 to under 65	3,681,823	2,201,803	59.8
55 to under 60	4,197,819	2,112,127	50.3
50 to under 55	4,253,349	1,725,333	40.6
Total aged 50 and over	23,295,086	14,727,173	63.2

*Autumn booster defined as any additional dose of vaccine after a 2 dose primary course provided there is an interval of at least 3 months, and it is given since the 1 September 2022.

Figure 59: Cumulative weekly COVID-19 vaccine uptake by age in those who are living and resident in England for those vaccinated with an Autumn booster since 1 September 2022

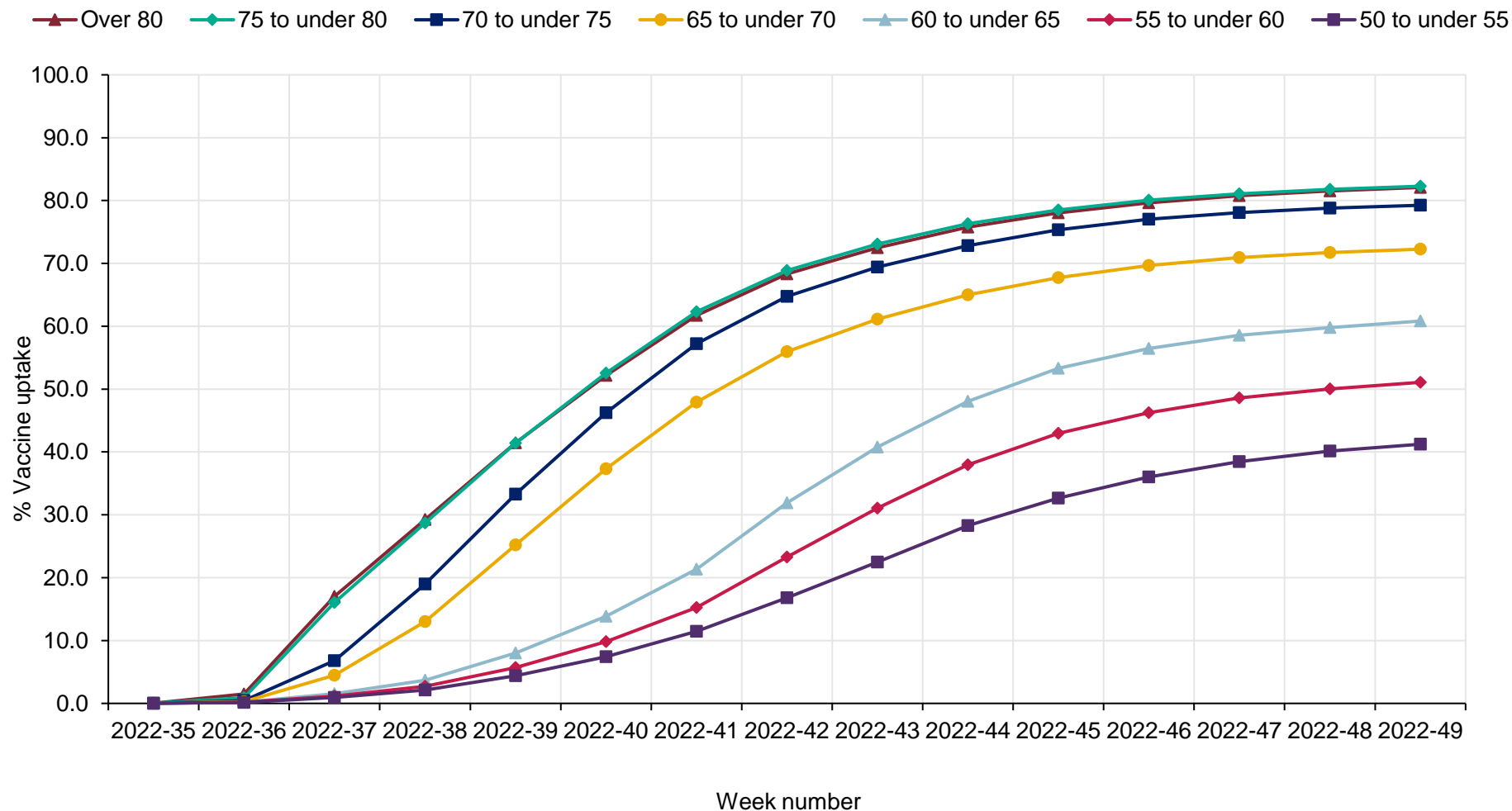


Table 8 presents data by eligibility at the end of December 2022 for the autumn booster campaign if they have completed a primary course of 2 doses and are at least 3 months (84 days) from their previous dose.

Table 8: Provisional cumulative people vaccinated with an autumn booster COVID-19 vaccine against those eligible by the end of December 2022

Age at end of December	Eligible by the end of December	Of those eligible by the end of December, numbers vaccinated	Percentage vaccine uptake eligible end of December
Over 80	2,848,298	2,434,723	85.5
75 to under 80	2,301,730	1,974,795	85.8
70 to under 75	2,546,391	2,138,954	84.0
65 to under 70	2,760,763	2,156,232	78.1
60 to under 65	3,287,136	2,201,584	67.0
55 to under 60	3,661,421	2,109,044	57.6
50 to under 55	3,581,681	1,713,995	47.9
Total aged 50 and over	20,987,420	14,729,327	70.2

Please note that this uses a different age cut off definition to the rest of the report and is therefore not a subset of other tables.

Eligible population figures in this table do not include those who are aged 50 and over and have not been vaccinated; unvaccinated people are taken into consideration in the coverage tables above. This table is based on those who have been vaccinated and may include those who are no longer resident in England or have an unknown address.

Proportion of people vaccinated by time since last vaccination

Table 9: Provisional cumulative people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago

National	People in NIMS cohort who are living and resident in England	Vaccinated in the last 3 months (84 days)		Vaccinated 3 to 6 months ago (85 to 168 days)		Vaccinated 6 months ago (169 or more days)	
		Numbers vaccinated	Percentage vaccinated	Numbers vaccinated	Percentage vaccinated	Numbers vaccinated	Percentage vaccinated
Over 80	2,980,919	1,957,634	65.7	512,184	17.2	381,504	12.8
75 to under 80	2,414,218	1,619,011	67.1	393,978	16.3	298,155	12.3
70 to under 75	2,736,073	1,987,786	72.7	174,777	6.4	411,485	15.0
65 to under 70	3,030,885	2,047,339	67.5	129,124	4.3	615,369	20.3
60 to under 65	3,681,823	2,158,418	58.6	66,316	1.8	1,107,163	30.1
55 to under 60	4,197,819	2,073,700	49.4	64,108	1.5	1,587,409	37.8
50 to under 55	4,253,349	1,695,300	39.9	59,045	1.4	1,909,009	44.9
45 to under 50	3,962,281	518,806	13.1	49,839	1.3	2,646,284	66.8
40 to under 45	4,438,867	399,466	9.0	55,690	1.3	2,930,762	66.0
35 to under 40	4,772,411	331,517	6.9	63,892	1.3	3,030,031	63.5
30 to under 35	4,960,186	281,569	5.7	73,757	1.5	3,058,666	61.7
25 to under 30	4,633,268	209,738	4.5	80,539	1.7	2,826,456	61.0
20 to under 25	3,956,653	145,194	3.7	86,883	2.2	2,579,240	65.2
18 to under 20	1,424,196	42,802	3.0	54,134	3.8	909,433	63.9
16 to under 18	1,418,380	48,138	3.4	86,620	6.1	764,267	53.9
12 to under 16	2,990,187	75,487	2.5	190,107	6.4	1,206,424	40.3
5 to under 12	5,106,918	137,402	2.7	282,156	5.5	139,869	2.7

Table 9 is presented to provide an overview of how recently a person has been vaccinated either through the primary vaccination campaign or subsequent booster campaigns. This helps us understand the data in the context of vaccine waning across the whole COVID-19 programme. Breakdowns by Ethnicity, and IMD, by age can be found in the backing tables.

Figure 60: Provisional cumulative people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago

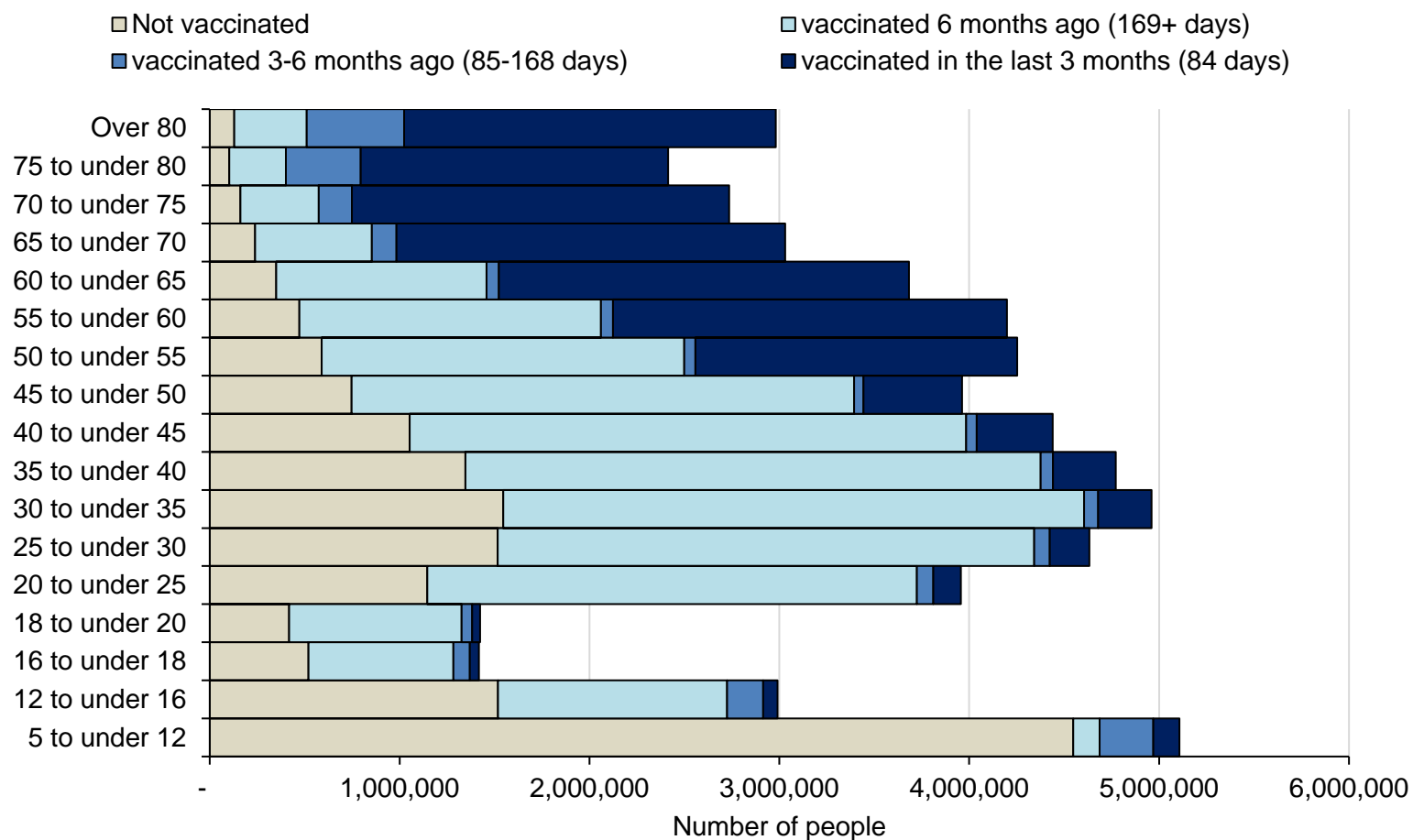


Figure 61: Provisional data on the proportion of people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago by ethnicity in those living and resident in England, aged 50 and over

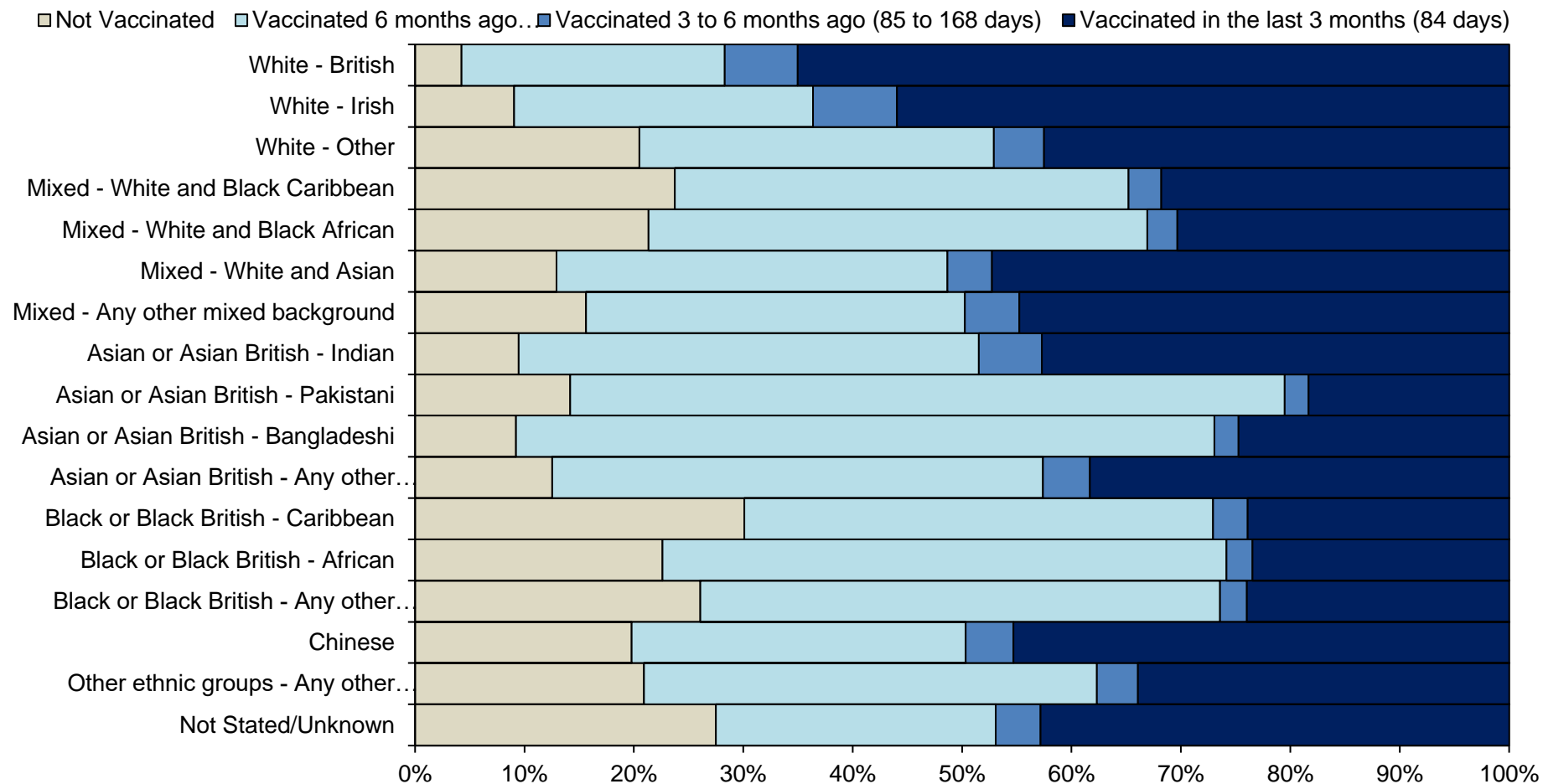
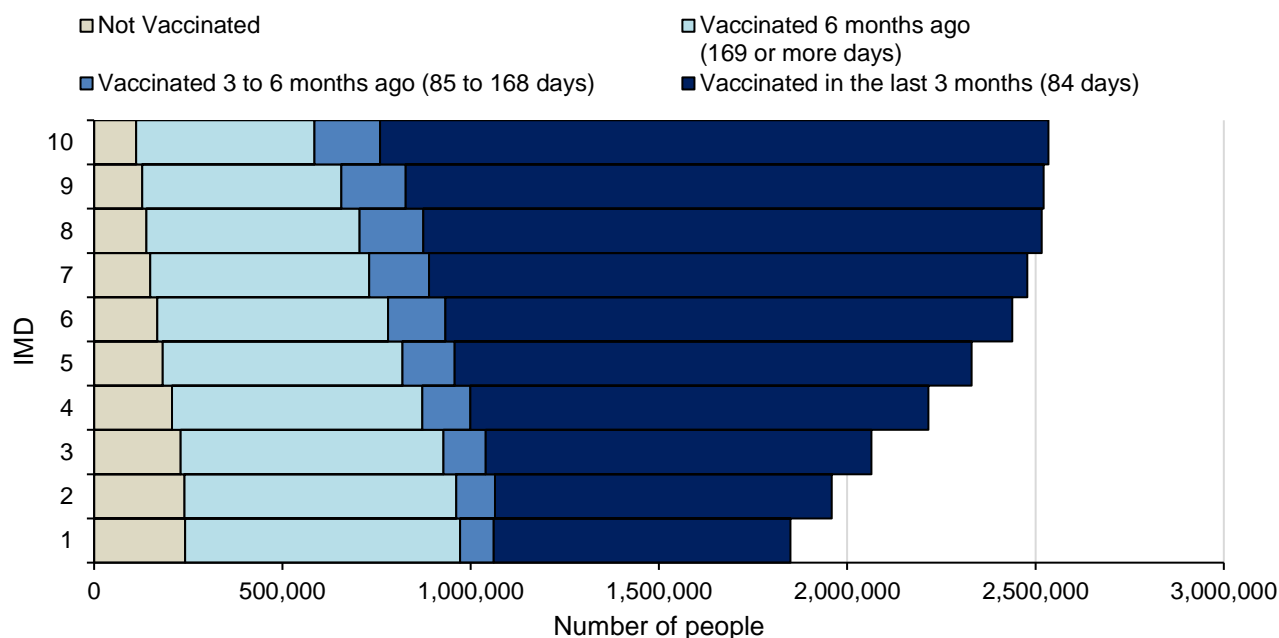


Figure 62: Provisional cumulative people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago by indices of multiple deprivation (IMD)* in those living and resident in England, aged 50 and over.



*Decile 1 represents the most deprived 10% (or decile) of small areas in England and Decile 10 represents the least deprived 10% (or decile) of small areas in England.

For a regional breakdown of the ethnicity data, please see the data file that accompanies this report.

Immunosuppression

Provisional autumn booster vaccine uptake data in living and resident people identified as immunosuppressed in England to the end of week 49 (week ending 11 December 2022) was 66.4% (Table 10). Many people in this group have been vaccinated more recently and are still becoming eligible for their autumn booster. Table 11 is presented to provide an overview of how recently a person identified as immunosuppressed has been vaccinated either through the primary vaccination campaign or a subsequent booster campaign. This helps us understand the data in the context of vaccine waning across the whole COVID-19 programme and shows that most people identified as immunosuppressed have been recently vaccinated. This can be seen in Table 11, in which 70.7% of people identified as immunosuppressed are covered by a vaccine given in the last 6 months.

Table 10: Vaccine uptake in people identified as immunosuppressed in England with a booster of COVID-19 vaccine from the 1 September 2022 as part of the Autumn booster campaign*

Immuno-suppression	People in NIMS cohort who are living and resident in England	Vaccinated with an autumn booster since 1 September 2022*	Percentage vaccine uptake
England	493,224	327,642	66.4

*Autumn booster defined as any additional dose of vaccine after a 2 dose primary course provided there is an interval of at least 3 months, and it is given since the 1 September 2022.

Table 11: People identified as immunosuppressed in England vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago

People in NIMS Immuno-suppression cohort who are living and resident in England	Vaccinated in the last 3 months (84 days)		Vaccinated 3 to 6 months ago (85 to 168 days)		Vaccinated 6 months ago (169 or more days)	
	Numbers vaccinated	Percentage vaccinated	Numbers vaccinated	Percentage vaccinated	Numbers vaccinated	Percentage vaccinated
493,224	298,790	60.6	50,154	10.2	123,027	24.9

Detailed information on the NHS Digital characterisation of the immunosuppressed group can be found on the [NHS Digital website](#).

For COVID-19 data on the real-world effectiveness of the COVID-19 vaccines, and on COVID-19 vaccination in pregnancy, please see [the COVID-19 vaccine surveillance reports](#).

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.

For UK COVID-19 daily vaccination figures and definitions, please see the [Vaccinations' section of the UK COVID-19 dashboard](#)

The population coverage data representing the evergreen offer of doses 1, 2, and 3 has changed little in recent months and are no longer presented in both the UKHSA weekly flu and COVID-19 surveillance reports and in the UK COVID-19 Dashboard. Both the UKHSA weekly flu and COVID-19 surveillance reports and in the UK COVID-19 Dashboard now highlight data on the most recent vaccination campaign in those at higher risk from COVID-19 as immunity derived from vaccination declines over time. The overall vaccine uptake in the living and resident population for those with at least dose 1, 2 and 3 doses is still available within the backing tables for this section and in the dashboard APIs.

For a summary of the differences in denominators used to present administrative vaccine uptake by NHS England and vaccine coverage by UKHSA since the start of the COVID-19 programme, please see [explainer](#). Please note that some administrative vaccine uptake data uses an ONS mid-year estimate as a denominator because not all devolved administrations have a national vaccine register. Please note that not everyone in the numerator will be in the denominator for administrative vaccine uptake where ONS mid-year estimates are used.

International update

Global COVID-19 update

For further information on the global COVID-19 situation please see the [World Health Organisation \(WHO\) COVID-19 situation reports](#).

Global influenza update

Updated 12 December 2022 (based on data up to 27 November 2022) ([WHO website](#)).

Globally, influenza activity increased and where subtyped, influenza A(H3N2) viruses predominated.

In the countries of North America, influenza positivity and influenza-like-illness (ILI) activity continued to increase steeply in recent weeks. Many indicators were above levels typically observed at this time of year and some are near or above levels observed at the peak of previous epidemics. Influenza A(H3N2) was the predominant virus detected.

In Europe, overall influenza activity continued to increase with influenza positivity from sentinel sites remaining above the epidemic threshold at the regional level. Influenza A viruses predominated among the reported detections in general, with A(H3N2) viruses accounting for the majority of subtyped influenza A viruses from sentinel sites and influenza A(H1N1)pdm09 viruses predominant among non-sentinel samples.

In central Asia, influenza B virus activity continued to be reported from Kazakhstan and other countries reporting a few influenza A and B virus detections.

In Northern Africa, influenza detections were low in reporting countries.

In Western Asia, influenza activity appeared to decrease overall with all seasonal influenza subtypes detected in similar proportions.

In East Asia, influenza activity of predominantly influenza A(H3N2) remained low overall among reporting countries but with some increases reported in southern China and the Republic of Korea.

In the Caribbean and Central American countries, influenza activity of predominately influenza A(H3N2) increased in Mexico but remained low in most other reporting countries.

In the tropical countries of South America, influenza detections were low and A(H3N2) viruses predominated followed by influenza B/Victoria lineage viruses.

In tropical Africa, influenza activity remained low with detections of all seasonal influenza subtypes reported.

In Southern Asia, influenza activity decreased this period mainly due to decreased activity reported in Iran (Islamic Republic of). Influenza A(H3N2) was the most frequently detected subtype in the subregion.

In South-East Asia, detections of predominantly influenza A(H3N2) and influenza B continued to decrease.

In the temperate zones of the southern hemisphere, influenza activity was low in most reporting countries, except in temperate South America where activity remained elevated in Argentina and Chile.

The WHO GISRS laboratories tested more than 560,422 specimens during that time period. 93,082 were positive for influenza viruses, of which 91,170 (97.9%) were typed as influenza A and 1,912 (2.1%) as influenza B. Of the sub-typed influenza A viruses, 2,203 (14.4%) were influenza A(H1N1)pdm09 and 13,091 (85.6%) were influenza A(H3N2). Of the characterized B viruses (400), 100% belonged to the B/Victoria lineage.

Influenza in Europe

Updated for data for week 48 2022 ([Joint ECDC-WHO Europe Influenza weekly update](#)).

The percentage of all sentinel primary care specimens from patients presenting with ILI or ARI symptoms that tested positive for an influenza virus remained above the epidemic threshold (10%) for the fourth consecutive week, and increased to 20% from 15% in the previous week.

For week 48 2022, of 39 countries and areas reporting on intensity of influenza activity, 11 reported baseline-intensity (across the Region), 16 reported low-intensity (across the Region), 9 reported medium-intensity (across the Region), 2 reported high-intensity (Austria and Malta) and 1 reported very high-intensity (Russian Federation).

Of 39 countries and areas reporting on geographic spread of influenza viruses, 3 reported no activity (Azerbaijan, Bulgaria and Kosovo), 16 reported sporadic spread (across the Region), 6 reported local spread (Belarus, Georgia, Ireland, Lithuania, Malta and United Kingdom (Northern Ireland)), 4 reported regional spread (Kyrgyzstan, Norway, Republic of Moldova and Sweden) and 10 reported widespread activity (eastern, northern and western areas).

For week 48 2022, 705 (20%) of 3,490 sentinel specimens tested positive for an influenza virus; 93% were type A and 7% were type B. Of 575 subtyped A viruses, 92.5% were A(H3) and 7.5% A(H1)pdm09. All 12 type B viruses ascribed to a lineage were B/Victoria. Of 27 countries and areas across the Region that each tested at least 10 sentinel specimens in week 48 2022, 16 reported positivity rates of influenza virus detections above 10% (median 25%; range 11% - 50%): Germany (50%), Greece (46%), Kyrgyzstan (46%), Uzbekistan (44%), Italy (40%), Slovakia (37%), France (26%), Estonia (26%), Poland (25%), Belgium (22%), Republic of Moldova (18%), Spain (18%), Netherlands (17%), Luxembourg (15%), Czechia (11%) and Ukraine (11%).

For the season to date, 3,030 (12%) of 25,886 sentinel specimens tested positive for an influenza virus. More influenza type A (n=2,739, 90%) than type B (n=291, 10%) viruses have been detected. Of 2,411 subtyped A viruses, 2,112 (88%) were A(H3) and 328 (12%) were A(H1)pdm09. All 128 influenza type B viruses ascribed to a lineage were B/Victoria (56% of type B viruses were reported without a lineage).

For week 48 2022, 4,545 of 51,917 specimens from non-sentinel sources (such as hospitals, schools, primary care facilities not involved in sentinel surveillance, or nursing homes and other institutions) tested positive for an influenza virus; 4,374 (96%) were type A and 171 (4%) were type B. Of 1,937 subtyped A viruses, 1,271 (66%) were A(H1)pdm09 and 666 (34%) were A(H3). All 7 type B viruses ascribed to a lineage were B/Victoria.

For the season to date, more influenza type A (n=20,275, 93%) than type B (n=1,432, 7%) viruses have been detected. Of 7,431 subtyped A viruses, 4,208 (57%) were A(H3) and 3,223 (43%) were A(H1)pdm09. All 193 influenza type B viruses ascribed to a lineage were B/Victoria (89% of type B viruses were reported without a lineage).

Influenza in North America

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](#).

Influenza in Australia

For further information on influenza in Australia please see the [Australian Influenza Surveillance Report and Activity Updates](#).

Other respiratory viruses

Avian influenza and other zoonotic influenza

[Latest WHO update on 11 November 2022](#)

From 6 October to 11 November 2022, one human case of infection with an avian influenza A(H5) virus, three human case of infection with an avian influenza A(H5N1) viruses, one human case of infection with an influenza A(H9N2) virus, one human case of infection with an influenza A(H1N1) variant virus, and one human case with an influenza A(H1N2) variant virus were reported officially. Additionally, two human cases of infection with influenza A(H3N2) variant viruses were detected.

The overall public health risk from currently known influenza viruses at the human-animal interface has not changed, and the likelihood of sustained human-to-human transmission of these viruses remains low. Human infections with viruses of animal origin are expected at the human-animal interface wherever these viruses circulate in animals.

Middle East respiratory syndrome coronavirus (MERS-CoV)

From April 2012 to October 2022, a total of 2,600 laboratory-confirmed cases of MERS-CoV and 935 associated deaths were reported globally to [WHO](#) under the International Health Regulations (IHR 2005).

Between 29 December 2021 and 31 October 2022, four laboratory-confirmed cases of MERS-CoV were reported to WHO by the Ministry of Health of the Kingdom of Saudi Arabia. No deaths were reported ([WHO website](#)).

On 28 April 2022, the National IHR Focal point of Oman notified WHO of one case of MERS-CoV in Oman ([WHO website](#)).

Between 22 March and 3 April 2022, the National IHR Focal Point of Qatar reported 2 laboratory-confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection to the WHO ([WHO website](#)).

A total of 5 cases of Middle East respiratory syndrome coronavirus, MERS-CoV, (3 imported and 2 linked cases) have been confirmed in the UK through ongoing surveillance since September 2012.

[Further information on management and guidance of possible cases](#) is available online. The latest [ECDC MERS-CoV risk assessment](#) highlights 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](#)

[Previous COVID-19 vaccine surveillance reports](#)

[Public Health England \(PHE\) monitoring of the effectiveness of COVID-19 vaccination](#)

[Investigation of SARS-CoV-2 variants of concern: technical briefings](#)

[Sources of surveillance data for influenza, COVID-19 and other respiratory viruses](#)

UKHSA 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 the UK Health Security Agency

The [UK Health Security Agency](#) is an executive agency, sponsored by the [Department of Health and Social Care](#).

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