UK Health Security Agency

Weekly national Influenza and COVID-19 surveillance report

Week 1 report (up to week 52 data)

5 January 2023

Contents

Executive summary 4
Laboratory surveillance 7
Confirmed COVID-19 cases (England) 7
Possible SARS-CoV-2 reinfection in England 13
Respiratory DataMart system (England) 14
Community surveillance 19
Acute respiratory infection incidents 19
FluSurvey 26
Google search queries 29
Flu Detector 31
NHS 111 32
Primary care surveillance 35
RCGP (England) 35
UK 37
Sentinel swabbing scheme in England 38
GP In Hours, Syndromic Surveillance 40
GP Out of Hours, Syndromic Surveillance 42
Secondary care surveillance 43
SARI Watch 43
Hospitalisations, SARI Watch 44
ICU or HDU admissions, SARI Watch 49
ECMO, SARI Watch 54
RSV admissions, SARI Watch 55
Emergency Department attendances, Syndromic surveillance 57
Mortality surveillance 64
COVID-19 deaths 64
Daily excess all-cause mortality (England) 66
Microbiological surveillance 71
Influenza virus characterisation 71

Influenza antiviral susceptibility 72
SARS-CoV-2 variants 73
Antimicrobial susceptibility 76
COVID-19 sero-prevalence surveillance 77
Influenza vaccination 78
COVID-19 vaccination 80
COVID-19 vaccine uptake in England 80
International update 91
Global COVID-19 update 91
Global influenza update 91
Other respiratory viruses 95
Related links 96
About the UK Health Security Agency 97

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 52 (between 26 December 2022 and 1 January 2023) and for some indicators daily data up to 27 December 2022. Data for week 51 (19 December to 25 December 2022) is also newly published. Due to reporting delays and bank holidays over Christmas and New Year, findings should be interpreted with caution.

Overall

In week 52, from activity seen across multiple disease surveillance systems, influenza activity decreased compared with week 51. COVID-19 activity has also decreased in most indicators. We expect that surveillance indicators will be affected by the Christmas and New Year period and may underestimate activity in week 52. Reductions in social contact rates over the holiday period (as seen in FluSurvey participants) may contribute to transient reductions in transmission of respiratory pathogens.

COVID-19

COVID-19 case rates through Pillar 1 slightly decreased. Case rates decreased in most regions and most age groups.

Pillar 1 positivity decreased at 9.67% compared with 12.72% the previous week. Through Respiratory Datamart, SARS-CoV-2 positivity slightly decreased to 9.1% compared with 9.7% the previous week.

Through primary care surveillance, COVID-19 indicators decreased compared with week 51.

The overall number of reported COVID-19 confirmed outbreaks decreased compared with the previous week. The highest number of incidents continue to be in care homes, with 53 COVID-19 confirmed outbreaks occurring in England in week 52 compared with 124 in week 51.

Overall, COVID-19 hospitalisations and ICU admissions decreased in week 52 compared with week 51. Hospitalisations were highest in the 85 years and over age group. Through syndromic surveillance indicators, emergency department attendances for covid-like illness slightly decreased.

Deaths with COVID-19 increased in week 51.

The COVID-19 Autumn booster vaccination campaign commenced in early September. By the end of week 52, 64.1% of all people aged over 50 years had been vaccinated with an Autumn booster dose.

Influenza

Influenza swab positivity has remained high at sentinel laboratories. In week 52, influenza positivity decreased to 23.6% compared with 29.4% in week 51; with highest positivity seen in the 15 to 44 years age group at 31.0%.

Through primary care surveillance, the influenza-like-illness consultations indicator increased in week 51, before decreasing in week 52 and remains at medium activity level.

The overall number of reported influenza-confirmed outbreaks decreased slightly in week 52 compared with week 51, with both weeks' counts higher than week 50. The highest number of incidents continue to be in care homes, with 88 influenza confirmed outbreaks occurring in England in week 52 compared with 93 in week 51.

Influenza hospital admissions increased in week 51 to very high. The week 50 admissions rate was retrospectively updated to high activity level. The rate decreased in week 52 to the medium activity range. Admissions data is provisional. Influenza admissions were highest in the 85 years and over and 75 to 84 year olds age groups. Influenza ICU admissions increased in week 51, before decreasing slightly in week 52, remaining within the medium intensity range. ICU influenza admissions remain above COVID-19 ICU admissions.

Emergency department attendances for influenza-like illness decreased nationally, for all age groups and regions.

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 those aged 65 years and over, for those under 65 years in clinical risk groups, and for pregnant women, but lower in and 2 and 3 year olds.

RSV

The overall positivity for RSV continued to decrease to 5.9% with the highest positivity of 13.5% in those under 5 years. Decreases in positivity were seen in all age groups. The RSV hospitalisation rate decreased overall, including in the under 5 years and 85 years and over age groups. Emergency department attendances for acute bronchiolitis increased slightly nationally.

Other viruses

Adenovirus positivity remained low and stable at 2.8%. Rhinovirus positivity decreased to 6.7% overall. Parainfluenza positivity remained low and stable at 1.3%. Human metapneumovirus (hMPV) positivity increased to 5.8% in week 51, remaining at 5.8% in week 52, with the highest positivity seen in children under 5 years of age.

Other indicators

Through NHS 111, calls for cold or flu and for cough decreased nationally compared with week 51. NHS 111 calls for cold or flu and cough continue to increase in those aged over 45 years.

The primary care lower respiratory tract infection rate decreased compared with week 51.

Emergency department attendances for acute respiratory infection decreased nationally. Attendances for acute respiratory infection continued to increase in those aged over 45 years.

Excess deaths (from all cause) were observed in week 50.

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 1 January 2023, a total of 1,962,624 episodes have been confirmed for COVID-19 in England under Pillar 1, and 18,491,769 episodes have been confirmed under Pillar 2, since the beginning of the pandemic. COVID-19 case rates through Pillar 1 slightly increased in week 51 and decreased in week 52 compared with week 50. Case rates decreased in most regions and most age groups in week 52 compared with week 51. Pillar 1 positivity decreased at 9.67% in week 52 compared with 12.72% the previous week and 12.22% in week 50.

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.

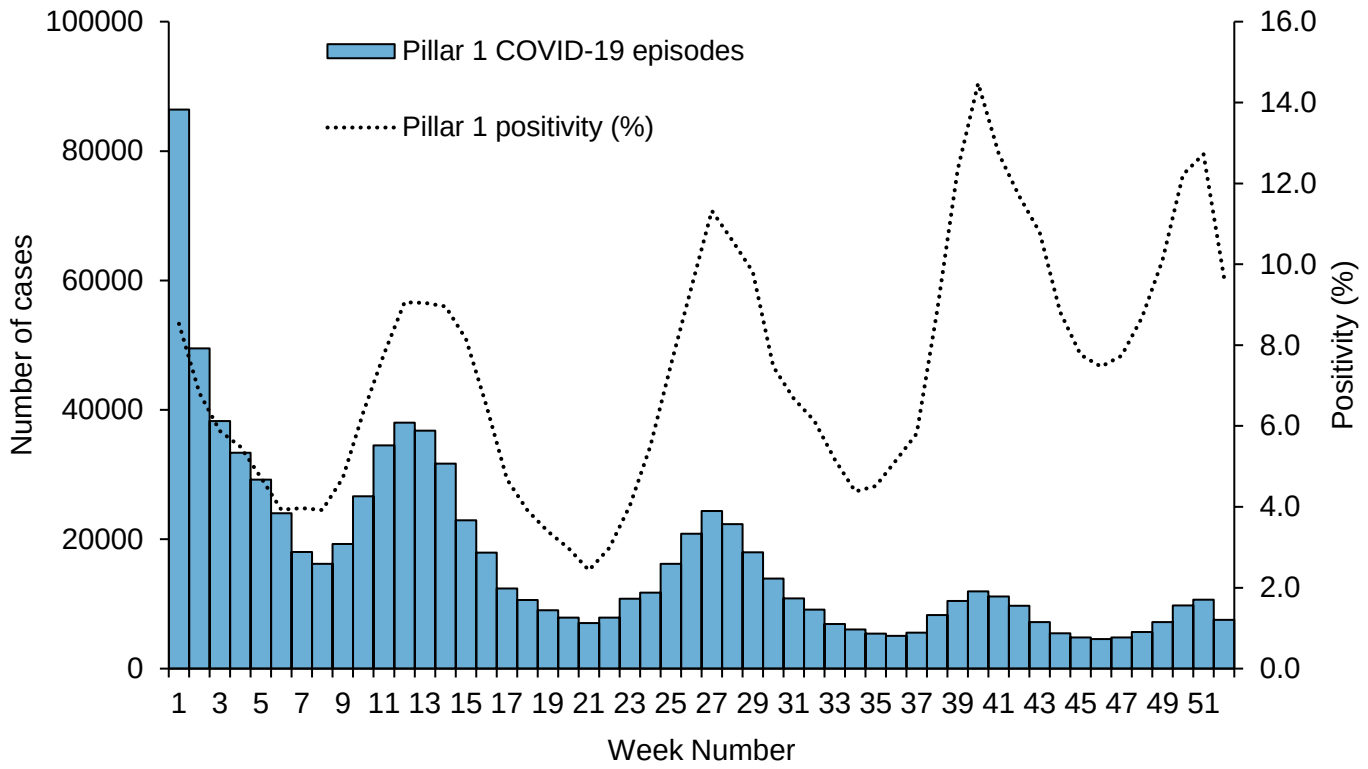
Please note that positivity is presented as positivity by PCR testing only. Positivity is calculated as the number of individuals testing positive during the week divided by the number of individuals tested during the week through PCR testing.

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 from the most recent week is subject to reporting lags and may change in future iterations.

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

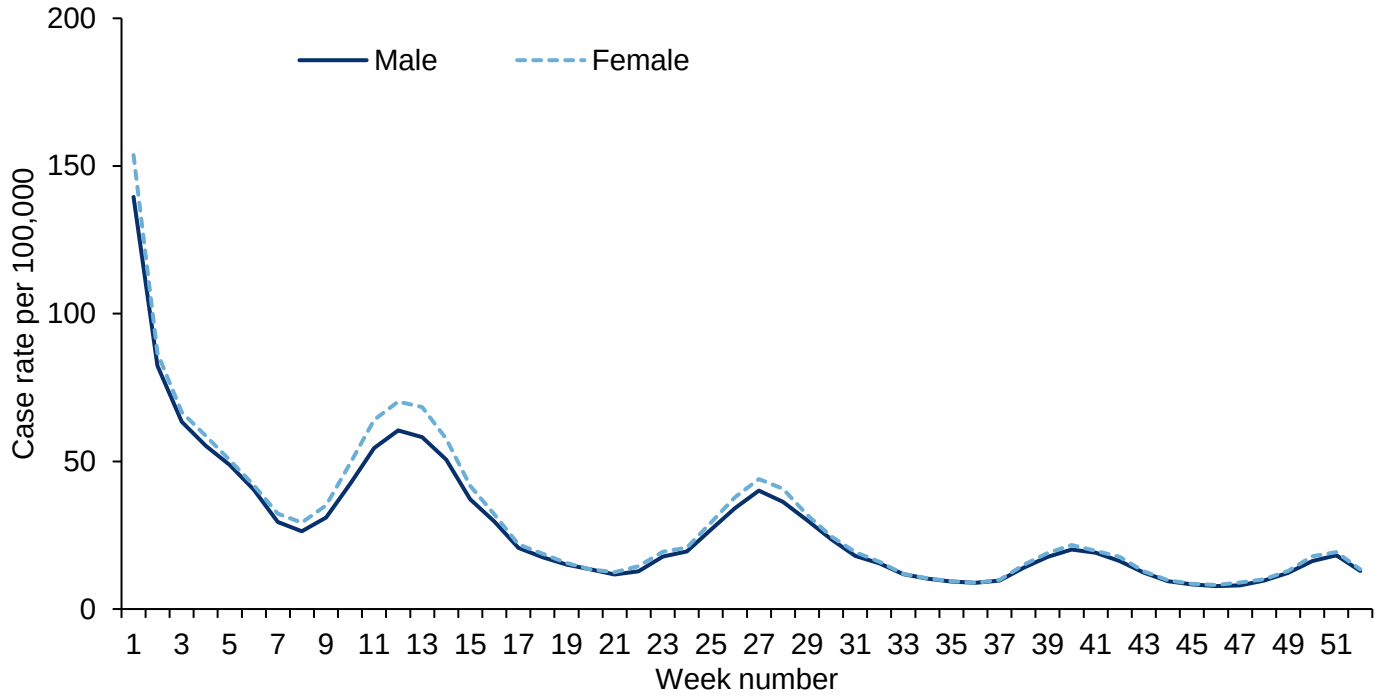


Figure 3: Weekly confirmed COVID-19 case rates per 100,000, by episode, tested under Pillar 1, by age group

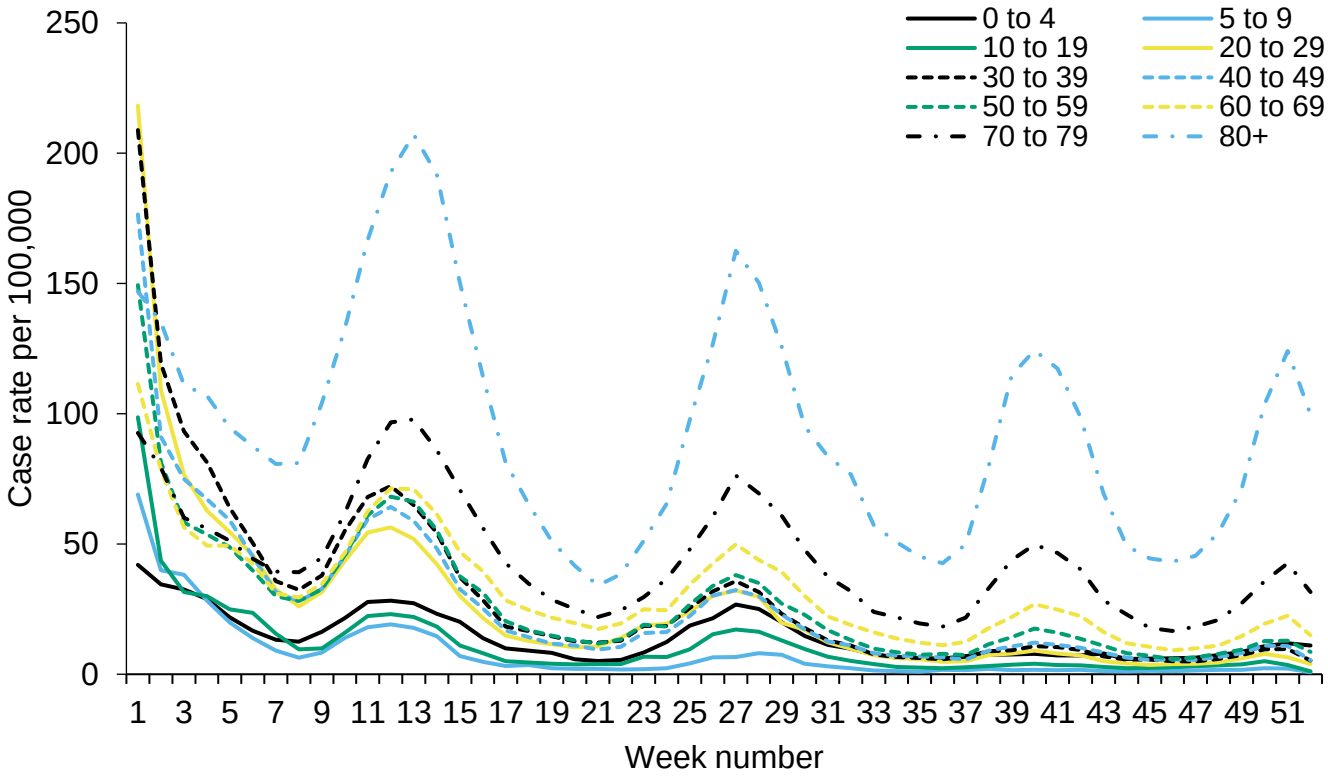


Figure 4: Weekly PCR positivity (%) of confirmed COVID-19 cases tested overall and by sex under Pillar 1

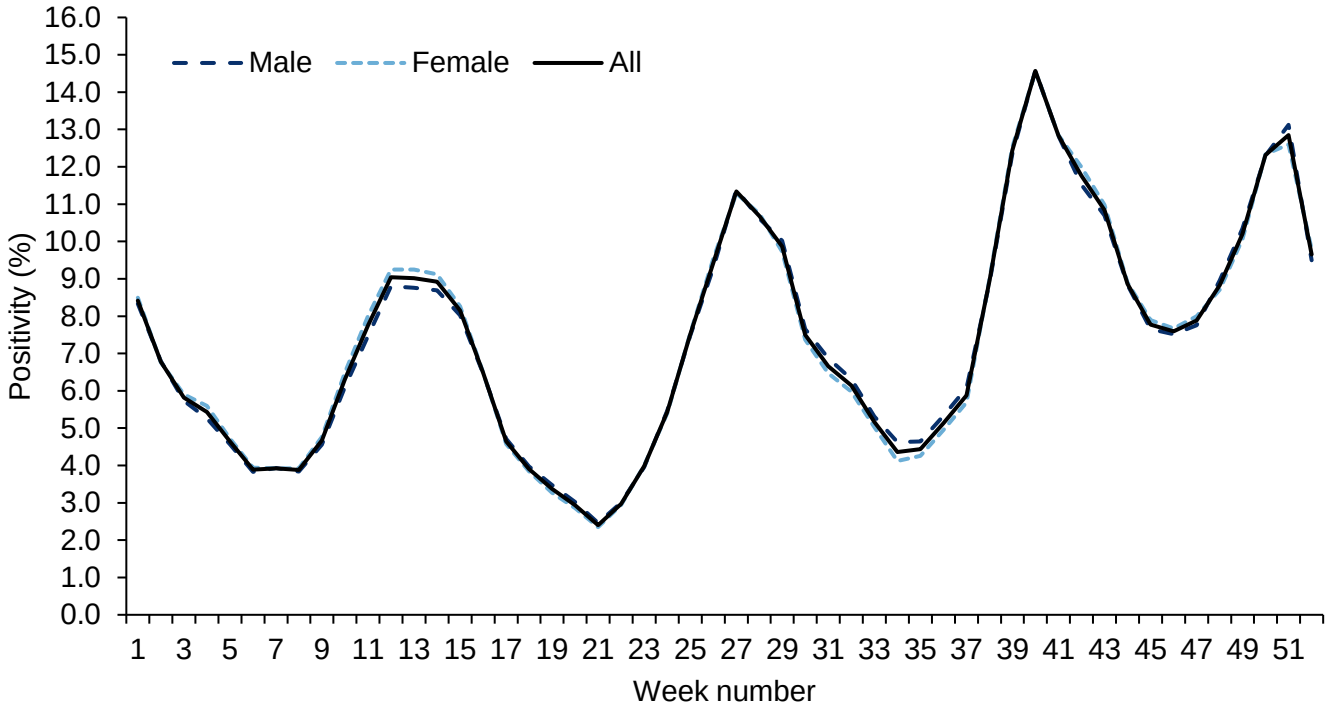
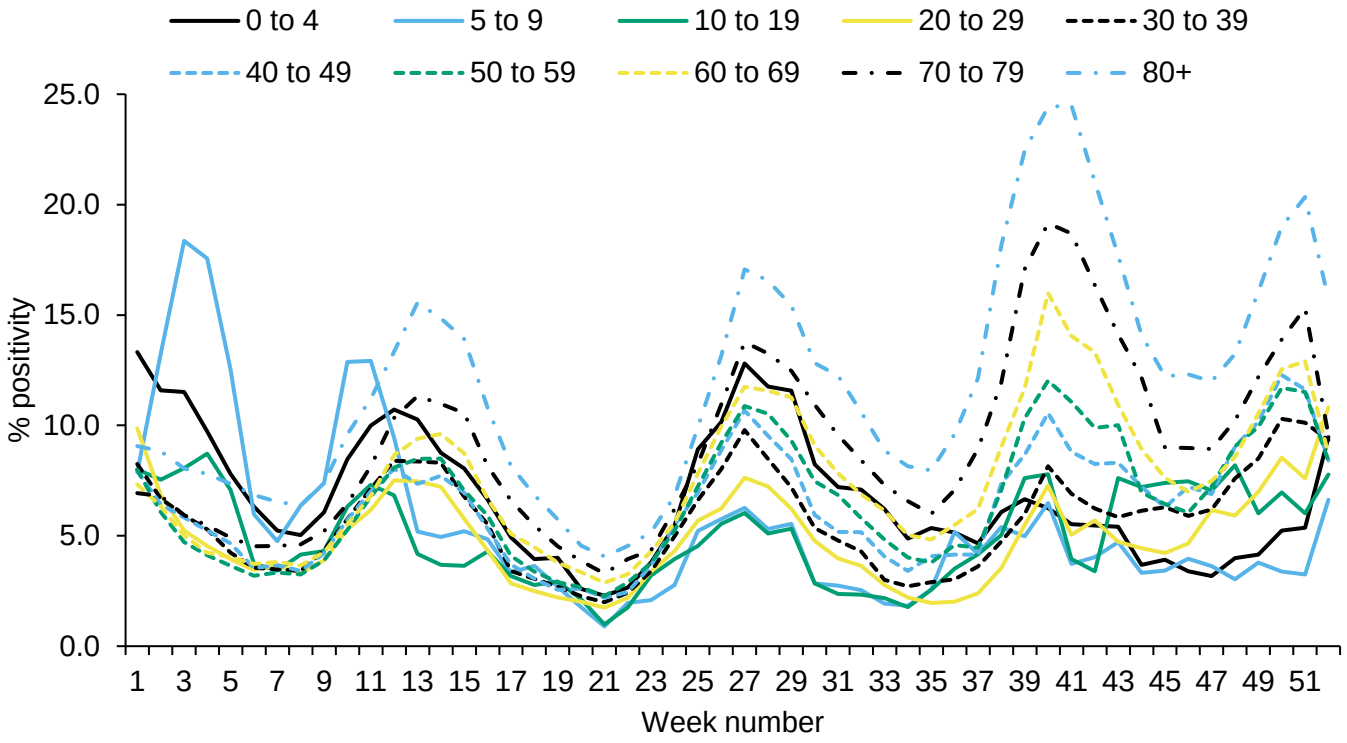
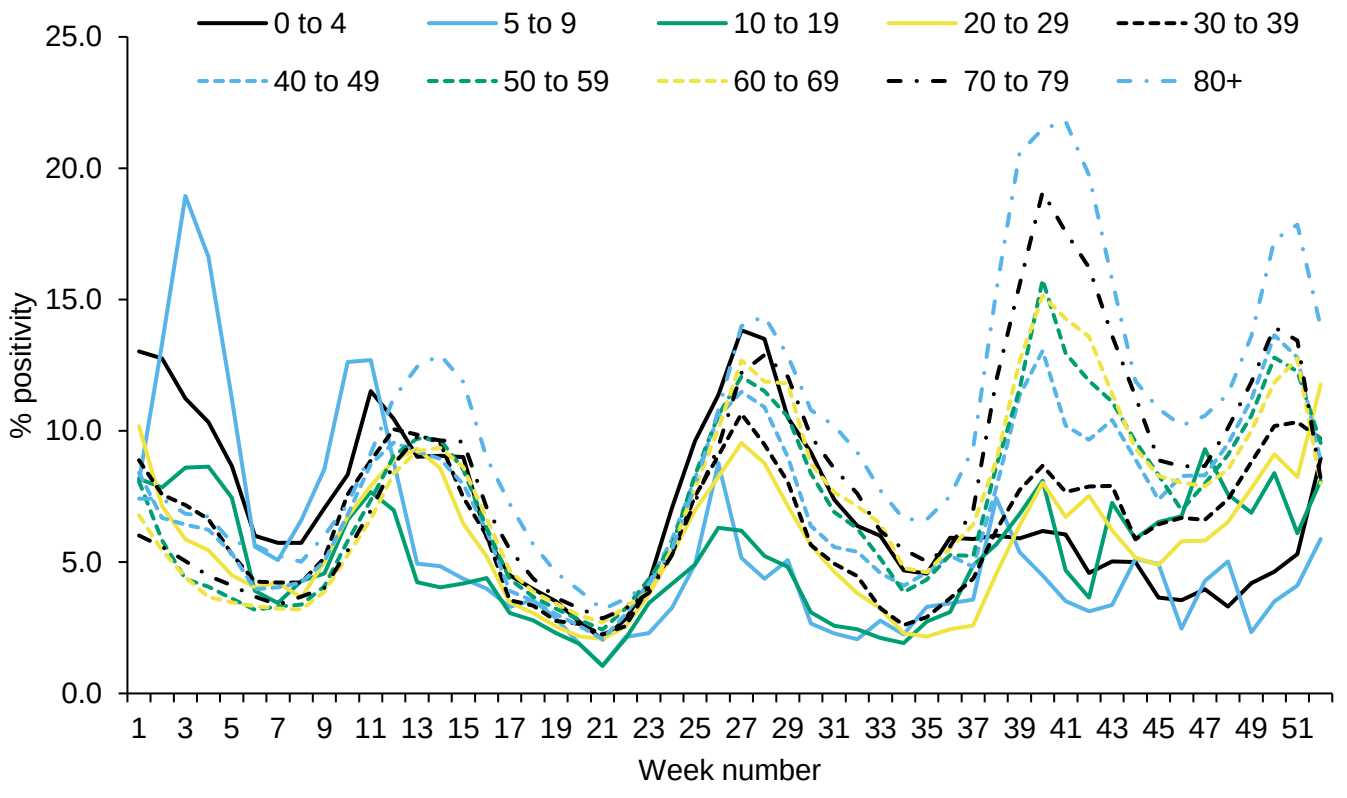


Figure 5: Weekly PCR positivity (%) of confirmed COVID-19 cases tested under Pillar 1, (a) by male and age group and (b) by female and age group

(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

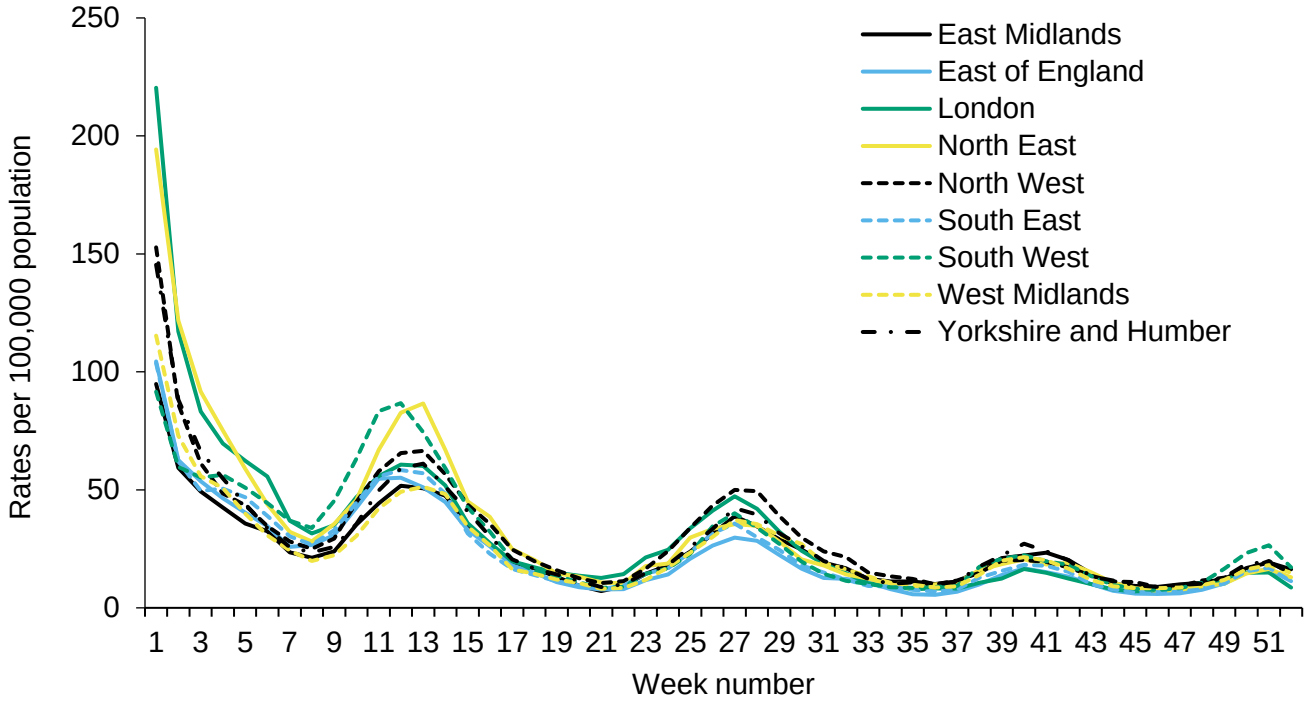


Figure 7: Weekly PCR positivity of confirmed COVID-19 cases tested under Pillar 1 (%) by UKHSA centres and sample week

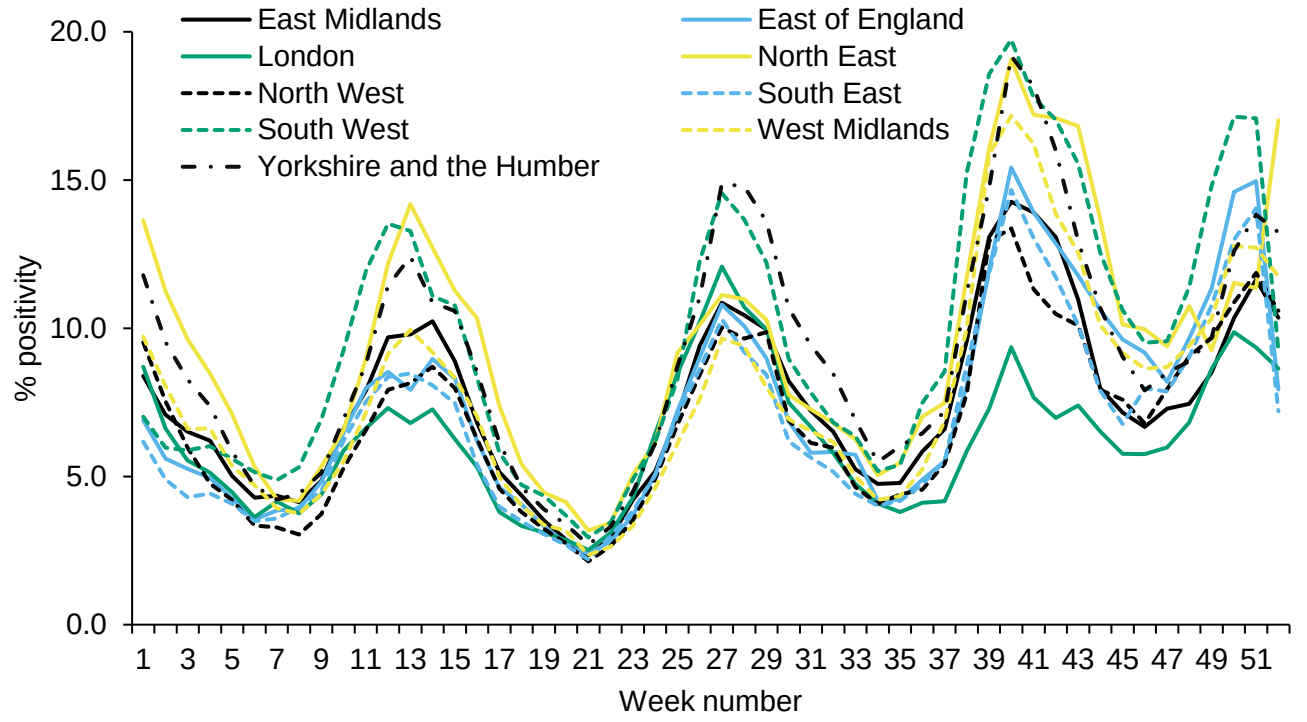
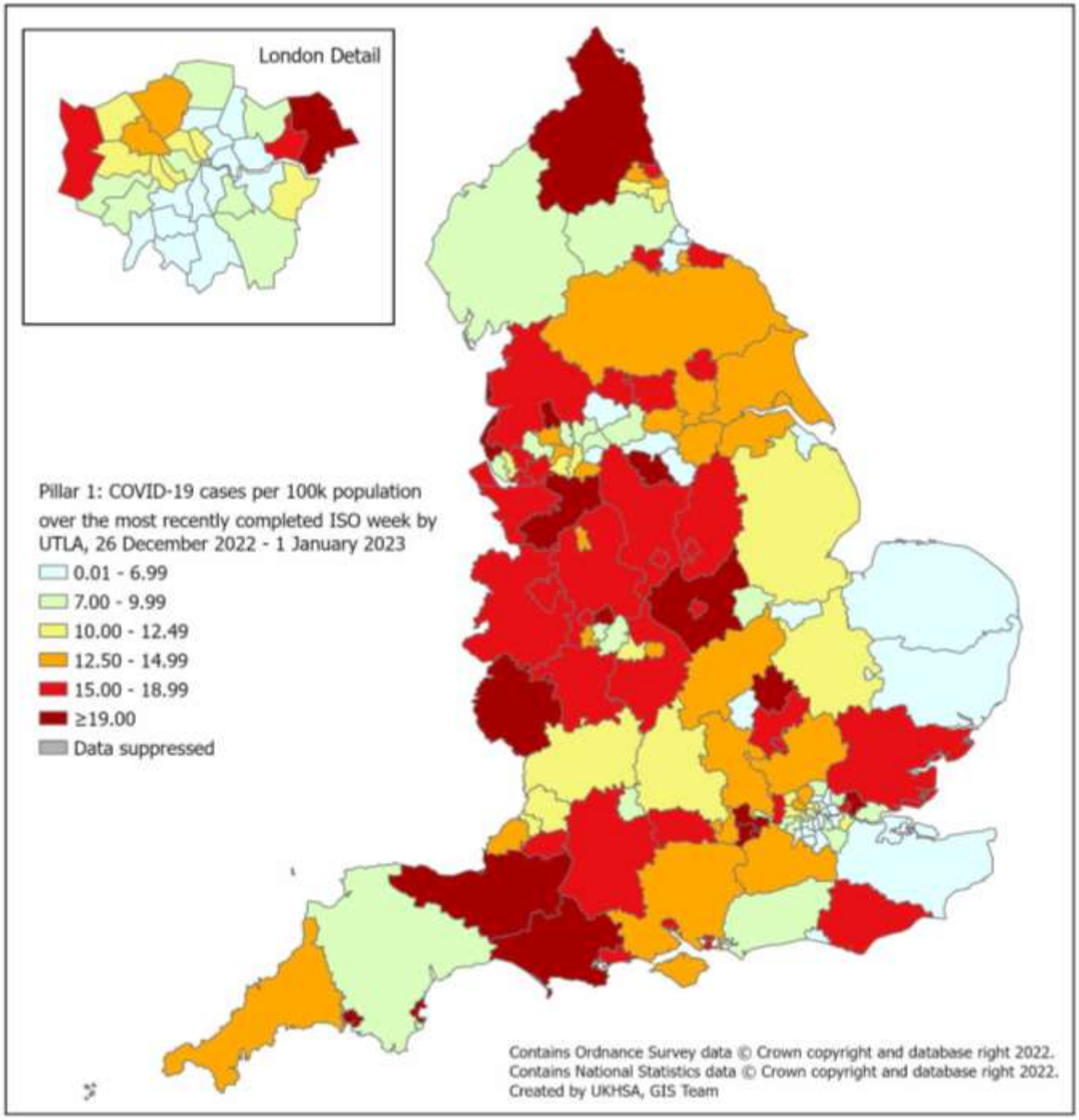
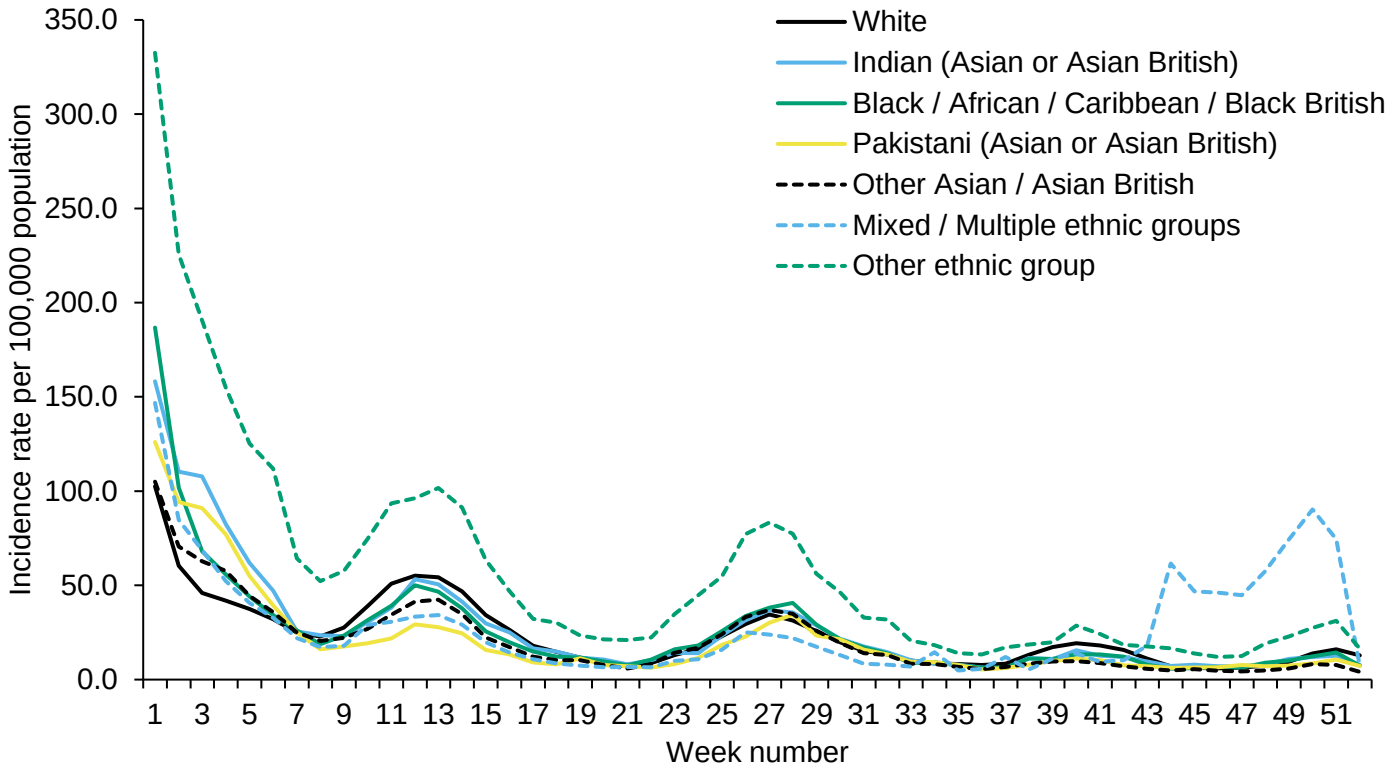


Figure 8: Weekly rate of COVID-19 episodes per 100,000 population (Pillar 1), by upper-tier local authority (UTLA), England (box shows enlarged map of London area)



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 52 of 2022, out of the 16,465 respiratory specimens reported through the Respiratory DataMart System (based on data received from 14 out of 16 laboratories), 1,502 samples were positive for SARS-CoV-2 with an overall positivity of 9.1% which slightly decreased from 9.7% the previous week. The highest positivity was seen in the 65 years and over group at 12.2%.

Influenza positivity decreased from 29.4% in week 51 to 23.6% in week 52, with highest positivity seen in the 15 to 44 years age group at 31.0%. 2,026 samples tested positive for influenza (387 flu A(H3), 23 flu A(H1N1)pdm09, 1,536 flu A(not subtyped) and 80 flu B) in week 52 (Figure 12).

The overall positivity for RSV continued to decrease to 5.9% with the highest positivity of 13.5% in the under 5 years group.

Adenovirus positivity remained low at 2.8%, with the highest positivity in the under 5 years group at 8.9%.

Rhinovirus positivity decreased to 6.7% overall, with the highest positivity in the under 5 years group at 11.0%.

Parainfluenza positivity remained stable at 1.3%.

Human metapneumovirus (hMPV) positivity remained stable to 5.8% from 5.8% the previous week.

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

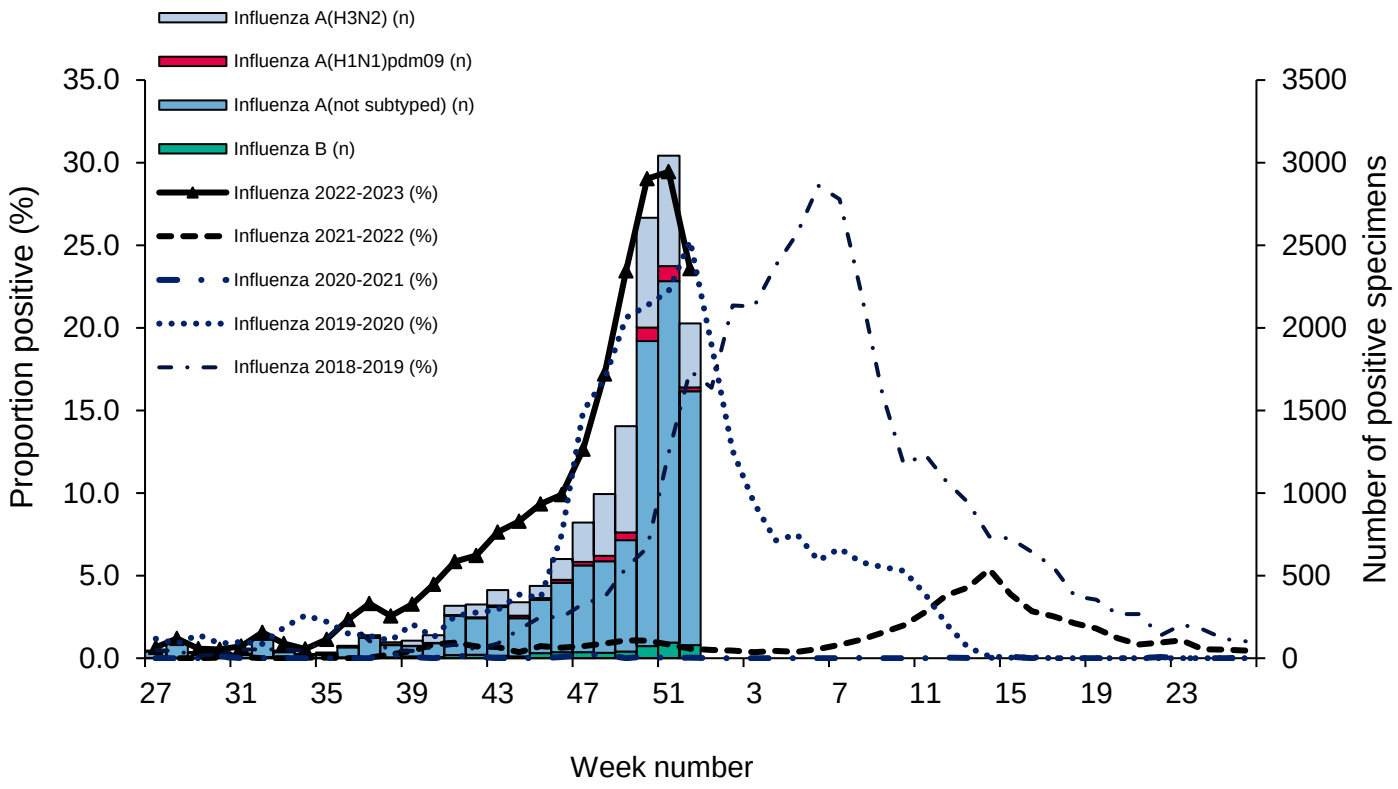


Figure 11: Respiratory DataMart weekly positivity (%) for SARS-CoV-2, England

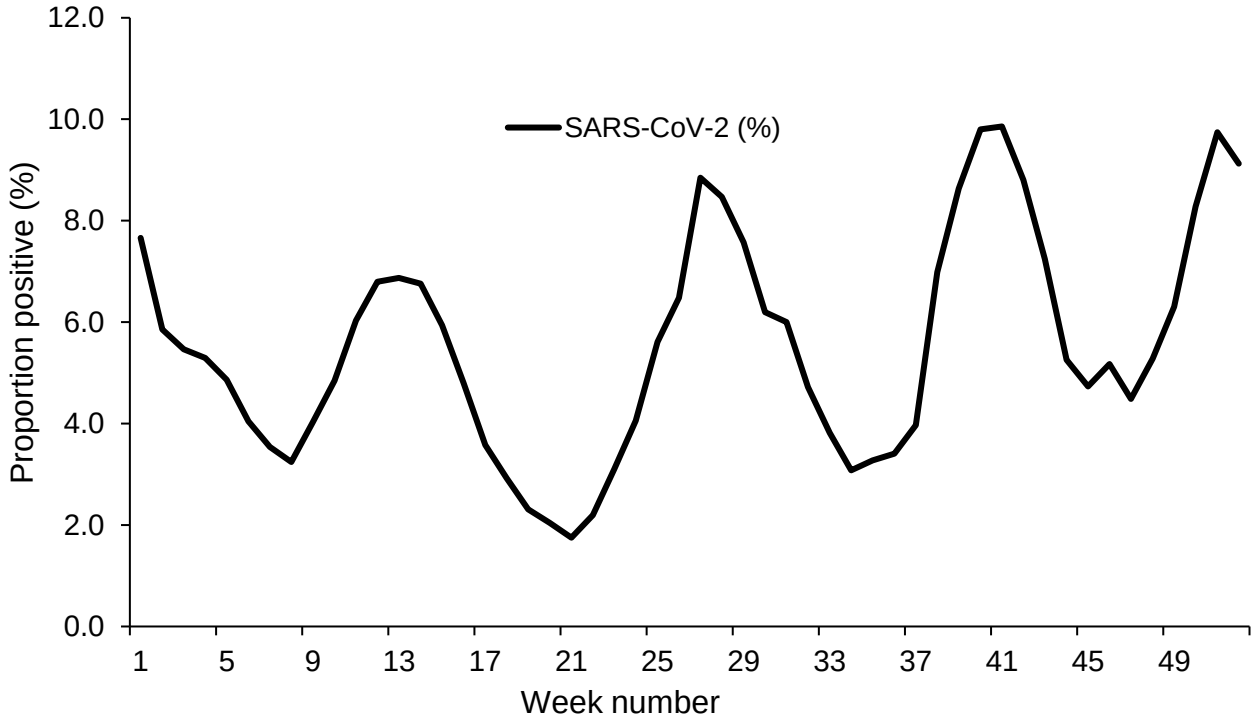


Figure 12: Respiratory DataMart weekly positivity (%) for other respiratory viruses, England

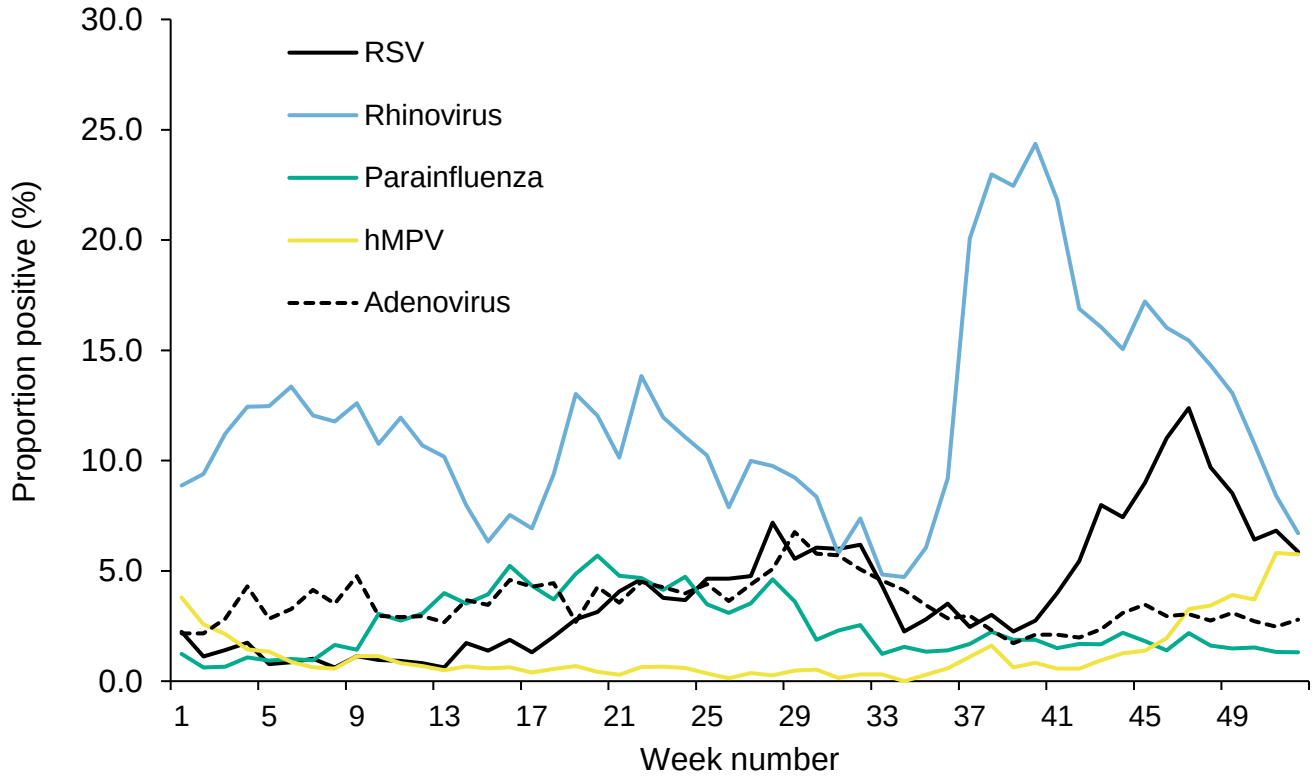


Figure 13: Respiratory DataMart weekly positivity (%) for influenza by age, England

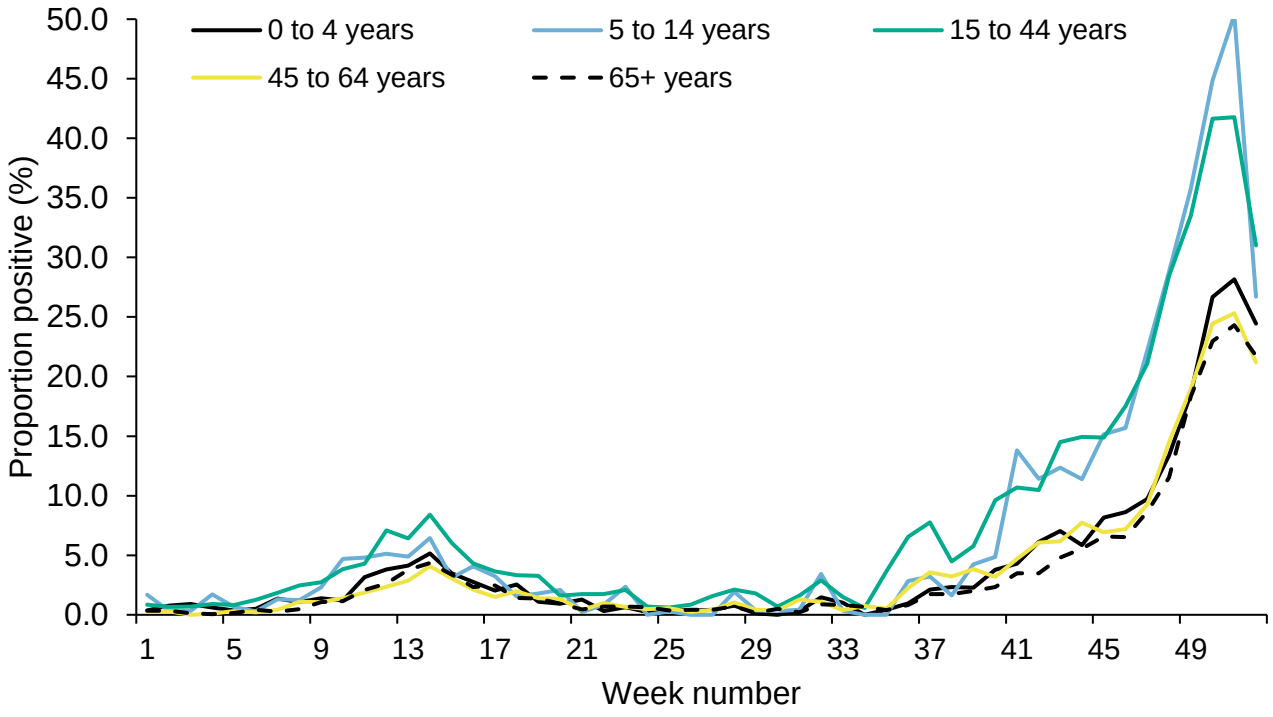


Figure 14: Respiratory DataMart weekly positivity (%) for adenovirus by age, England

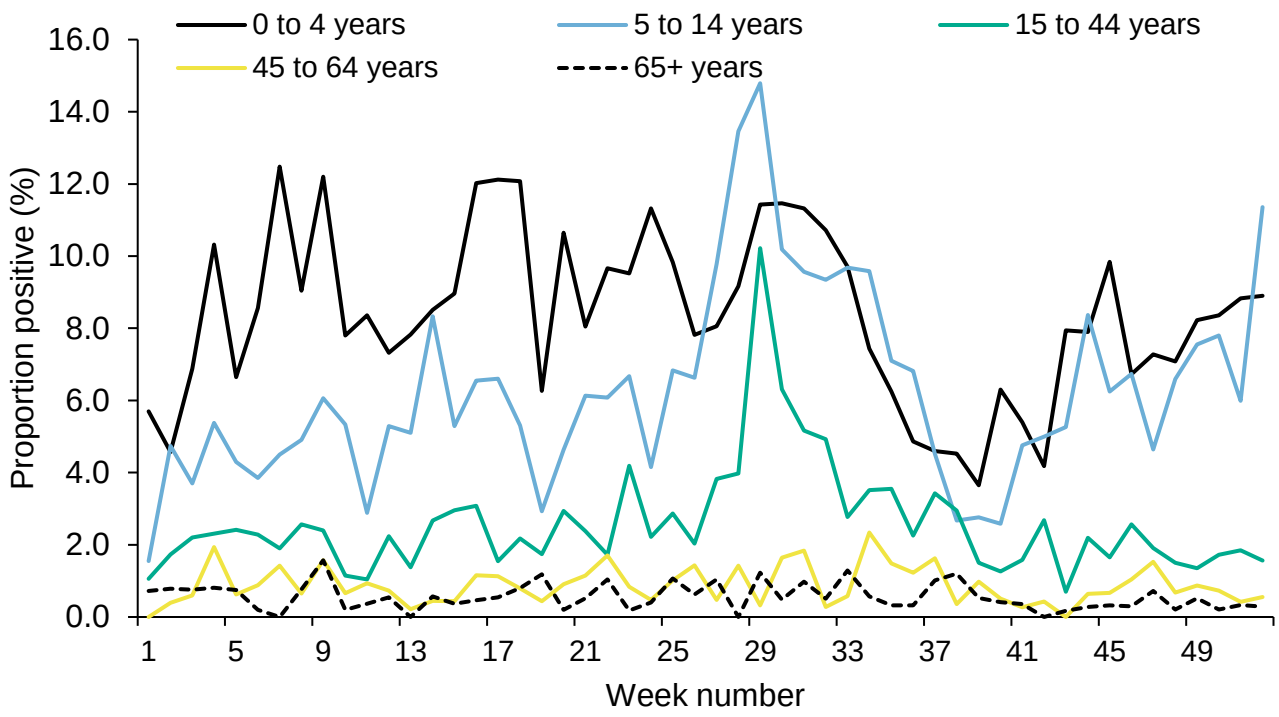


Figure 15: Respiratory DataMart weekly positivity (%) for rhinovirus by age, England

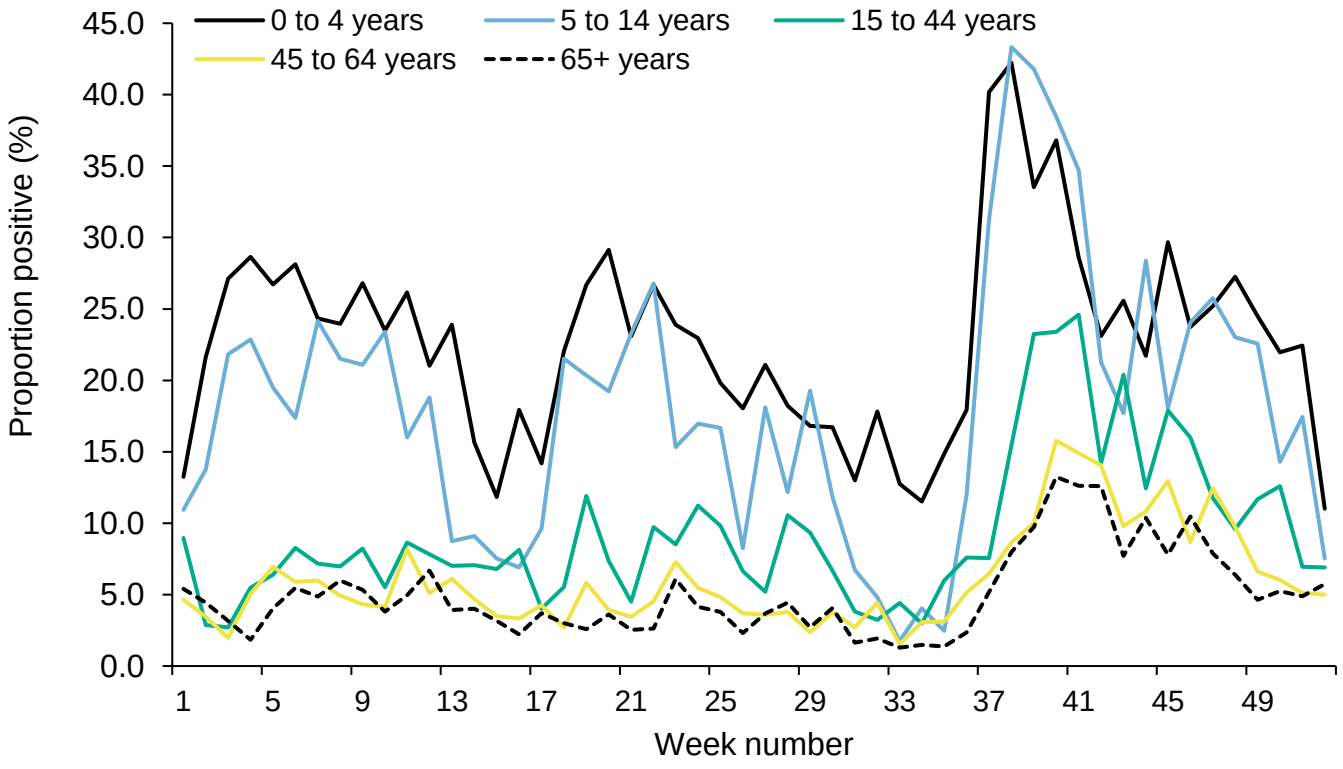


Figure 16: Respiratory DataMart weekly positivity (%) for RSV by age, England

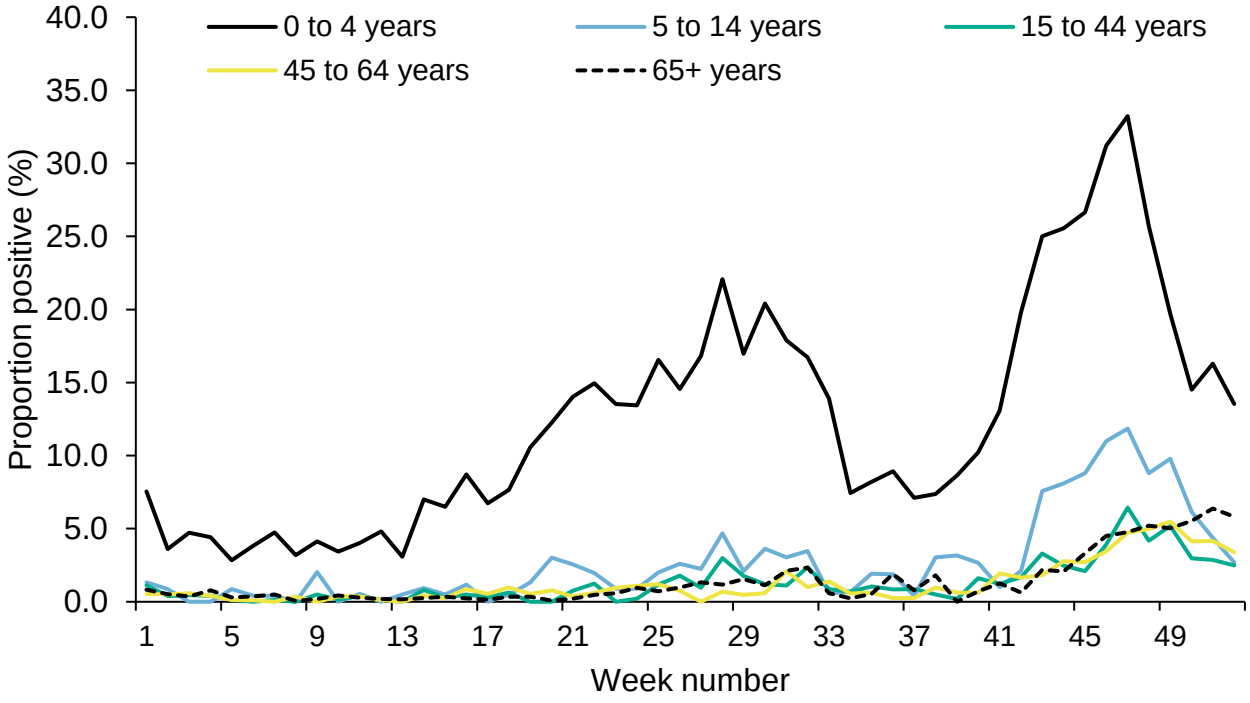
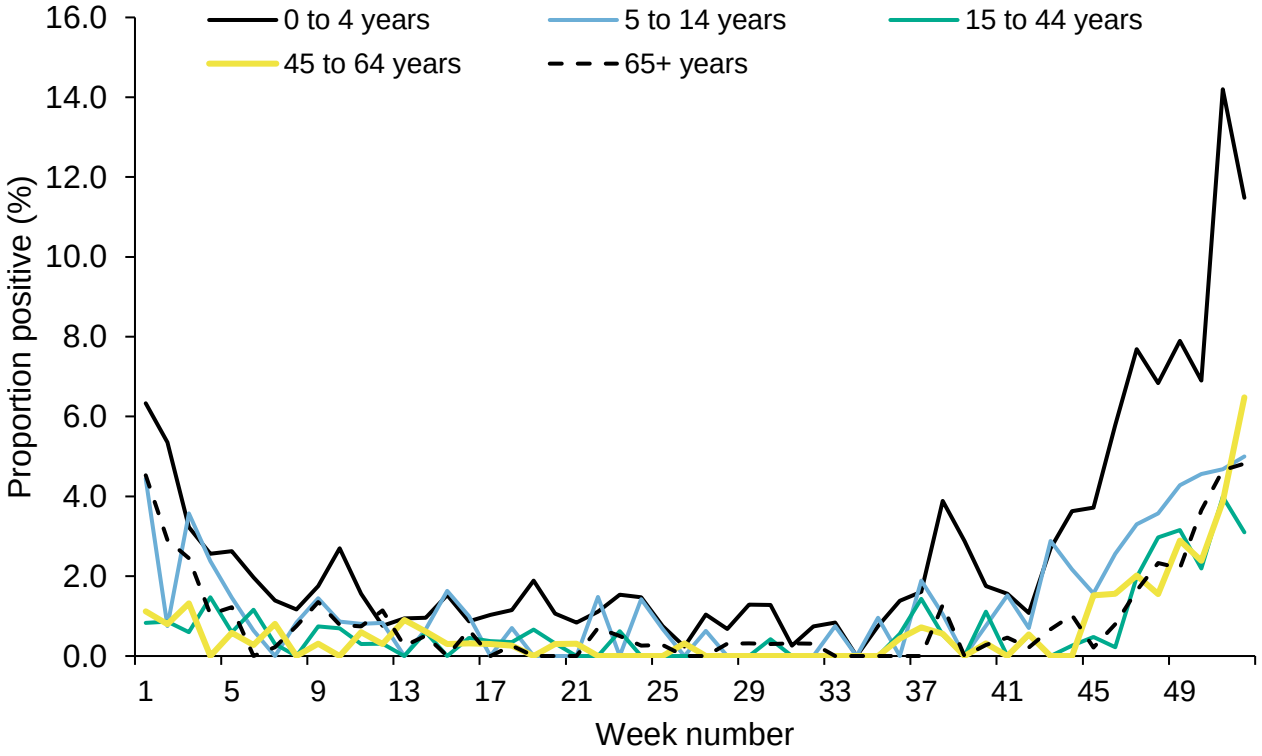


Figure 17: Respiratory DataMart weekly positivity (%) for hMPV by age, England



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.

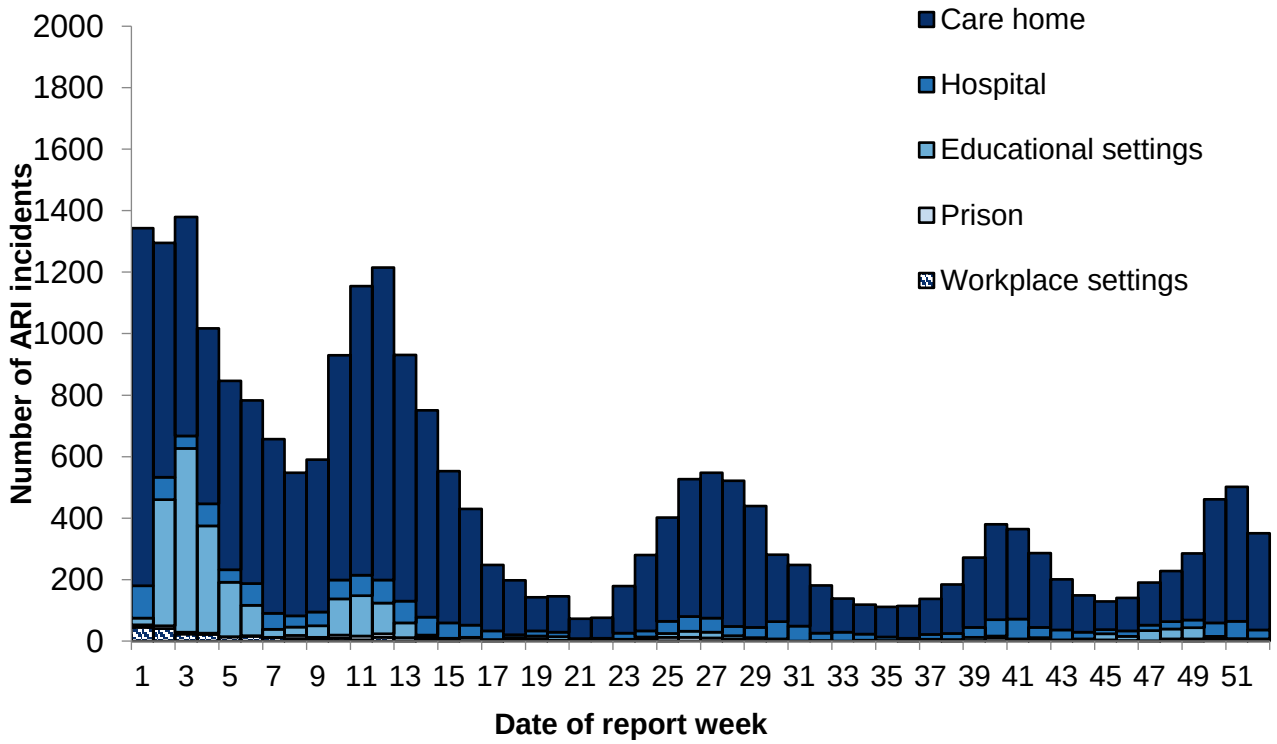
Data caveats:

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.

458 new ARI incidents have been reported in week 52 in the UK (Figure 18):

- 315 incidents were from care homes where 85 had at least one linked case that tested positive for SARS-CoV-2, 95 for influenza A(not subtyped), 3 for RSV and 1 for hMPV
- 29 incidents were from hospitals, where 18 had at least one linked case that tested positive for SARS-CoV-2, 2 for influenza A(not subtyped) and 1 influenza(not typed)
- 7 incidents were from a prison, where 3 for influenza A(not subtyped)
- 107 incidents were from other settings where 29 had at least one linked case that tested positive for SARS-CoV-2, 16 for influenza A(not subtyped) and 1 influenza(not typed)

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



*Excludes data from Wales

Figure 19: Number of acute respiratory infection (ARI) incidents by setting, England

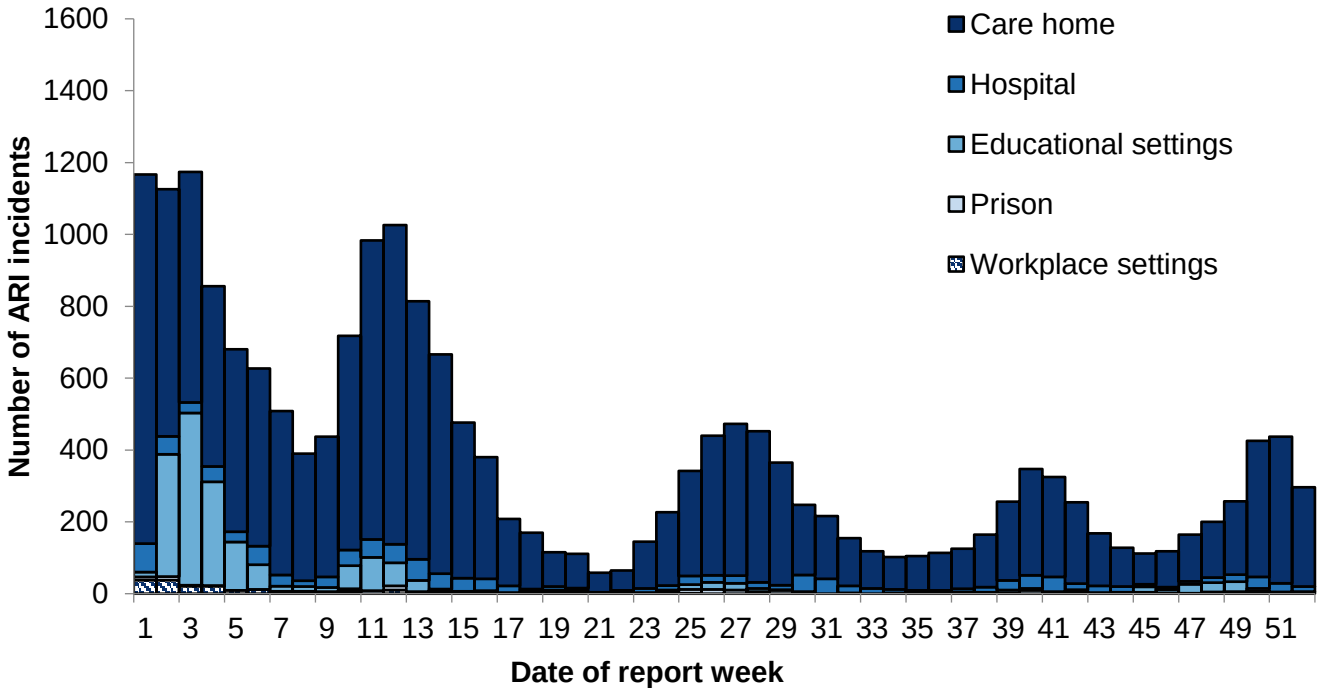


Figure 20: Number of acute respiratory infection (ARI) incidents in care homes by virus type, England

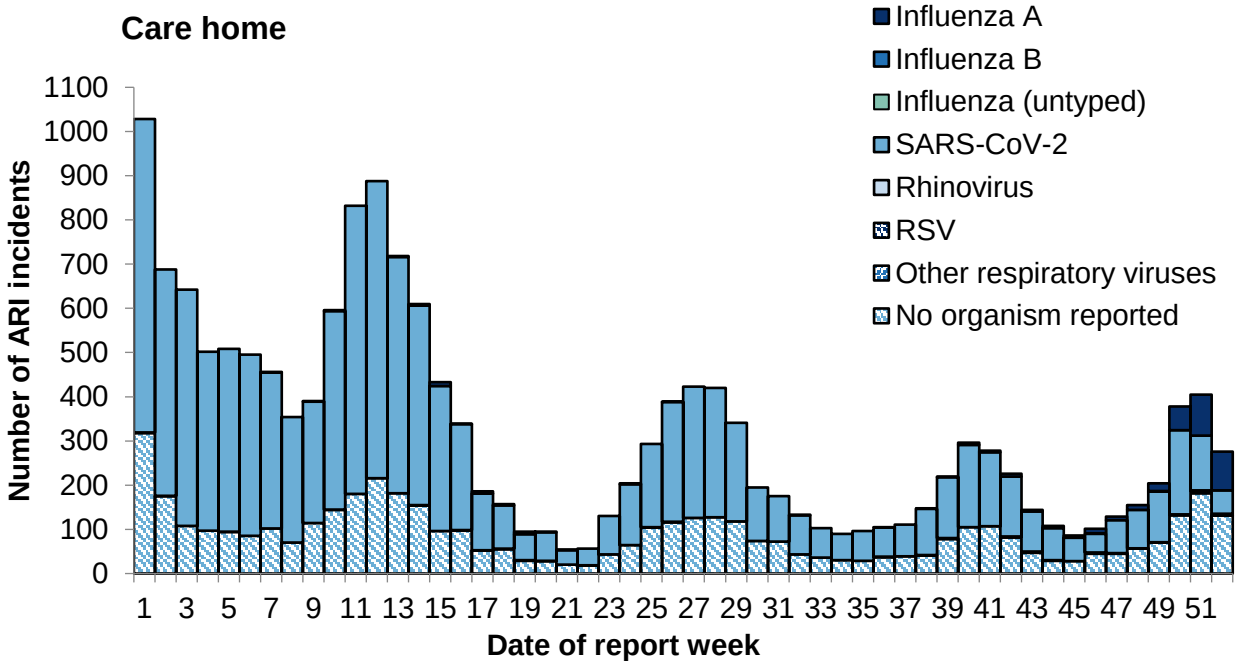


Figure 21: Number of acute respiratory infection (ARI) incidents in hospitals by virus type, England

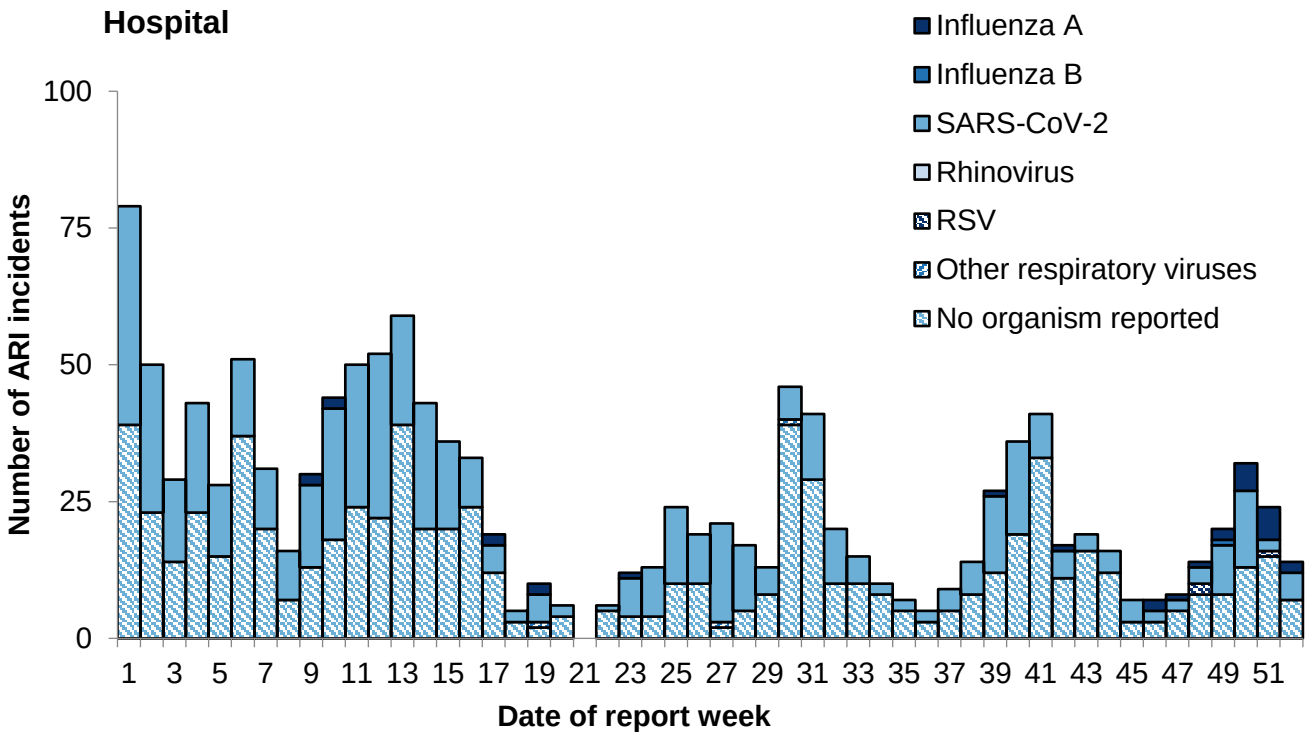
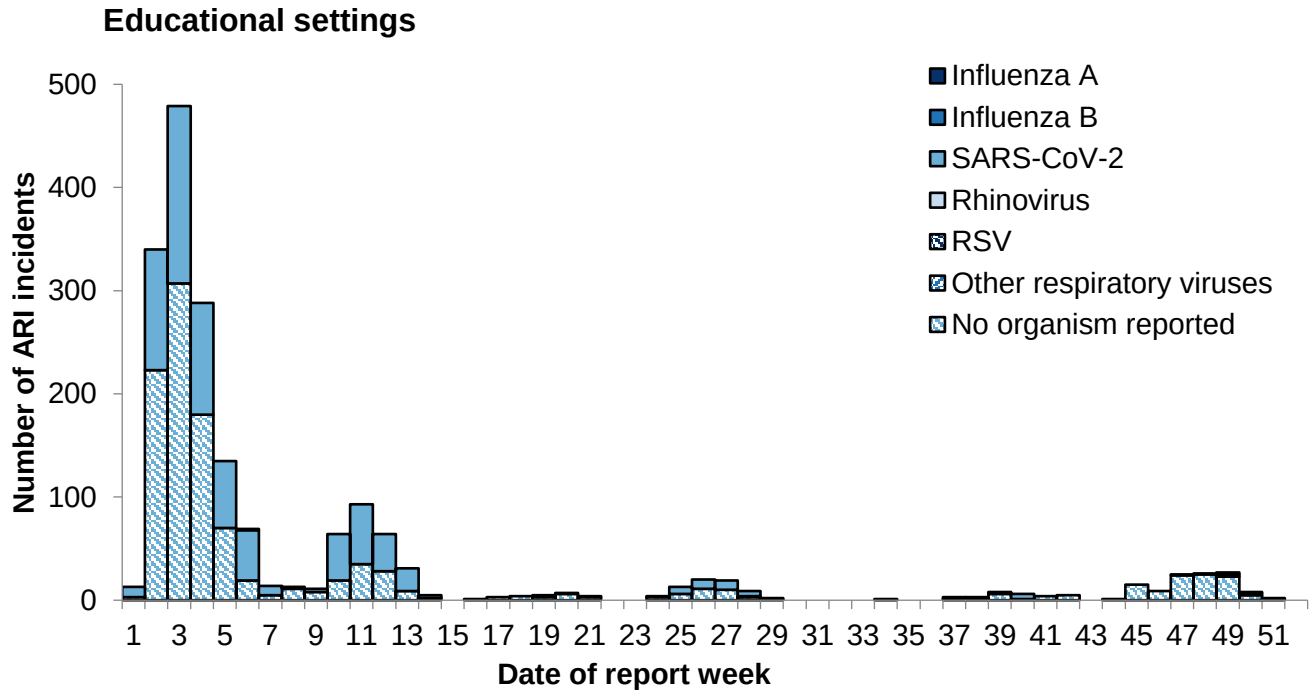


Figure 22: Number of acute respiratory infection (ARI) incidents in educational settings by virus type, England (a) for the weeks 47 2021 to 46 2022 and (b) for the 2022 to 23 academic year

(a)



(b)

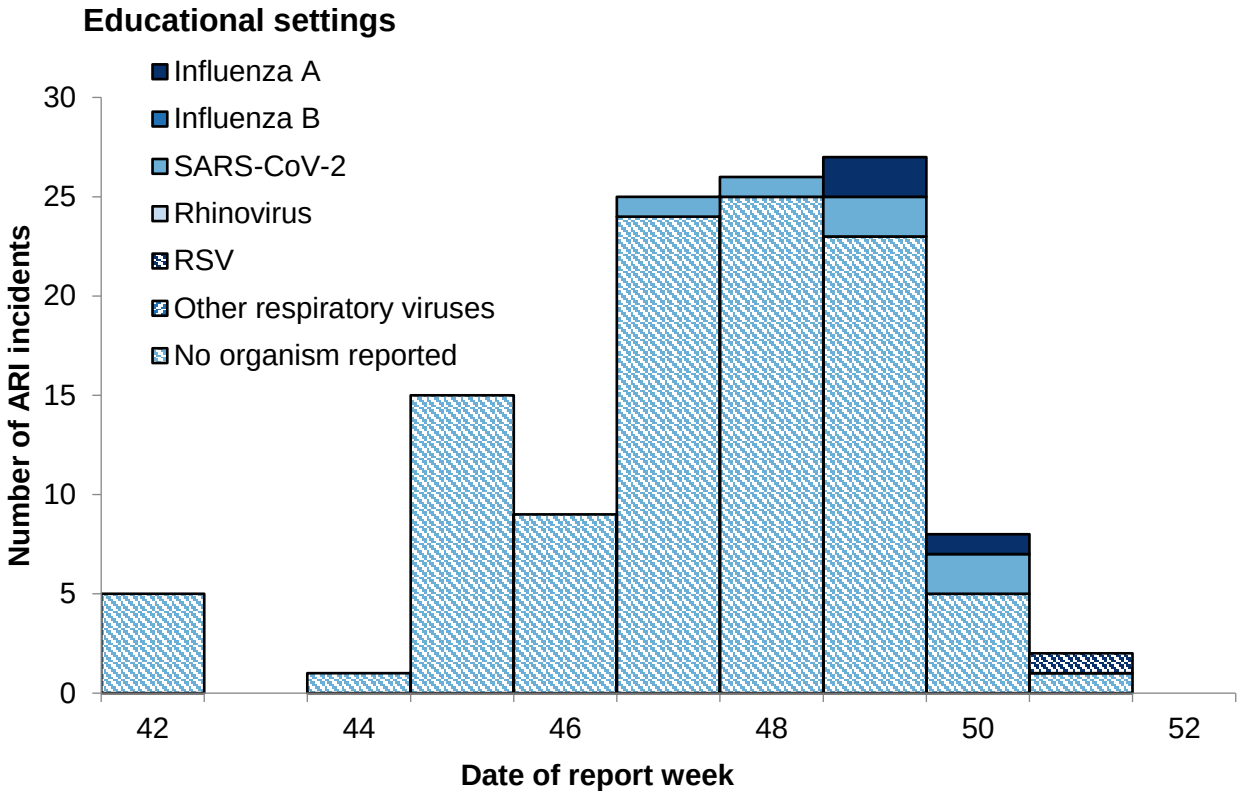


Figure 23: Number of acute respiratory infection (ARI) incidents in prisons by virus type, England

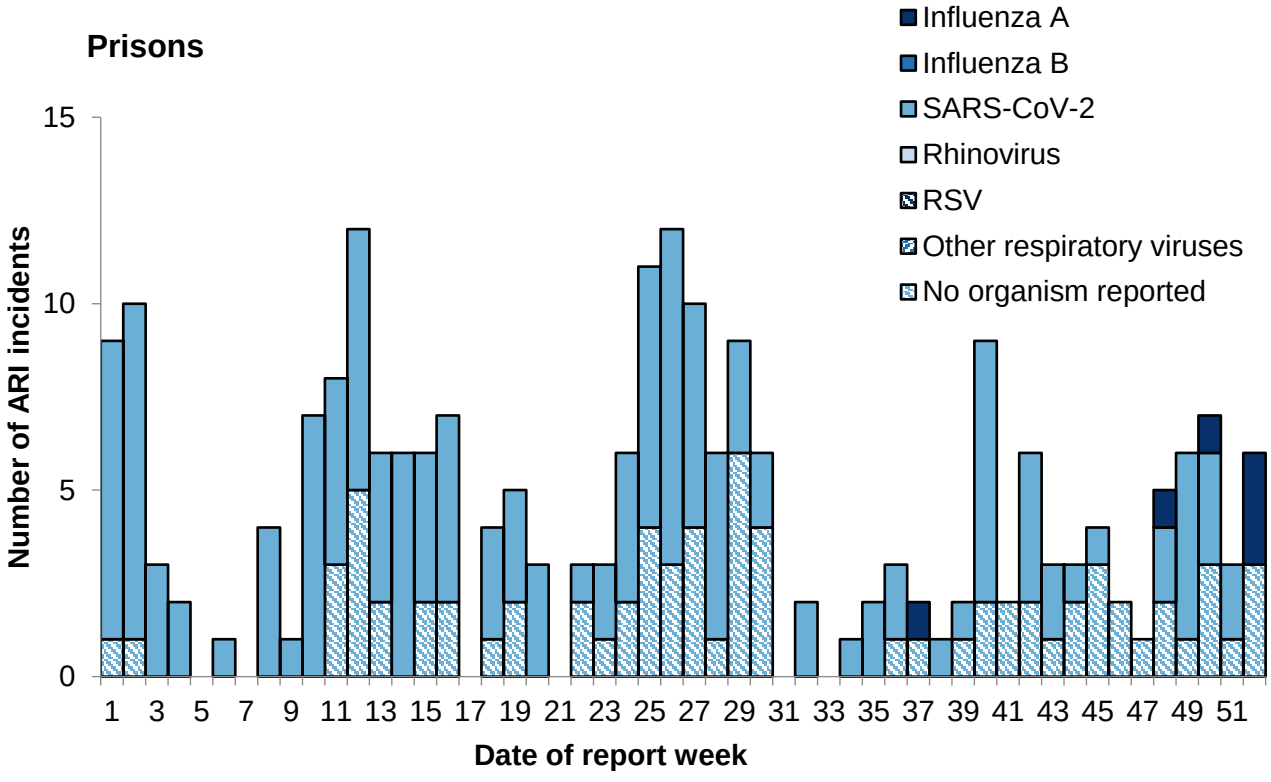


Figure 24: Number of acute respiratory infection (ARI) incidents in other settings by virus type from, England

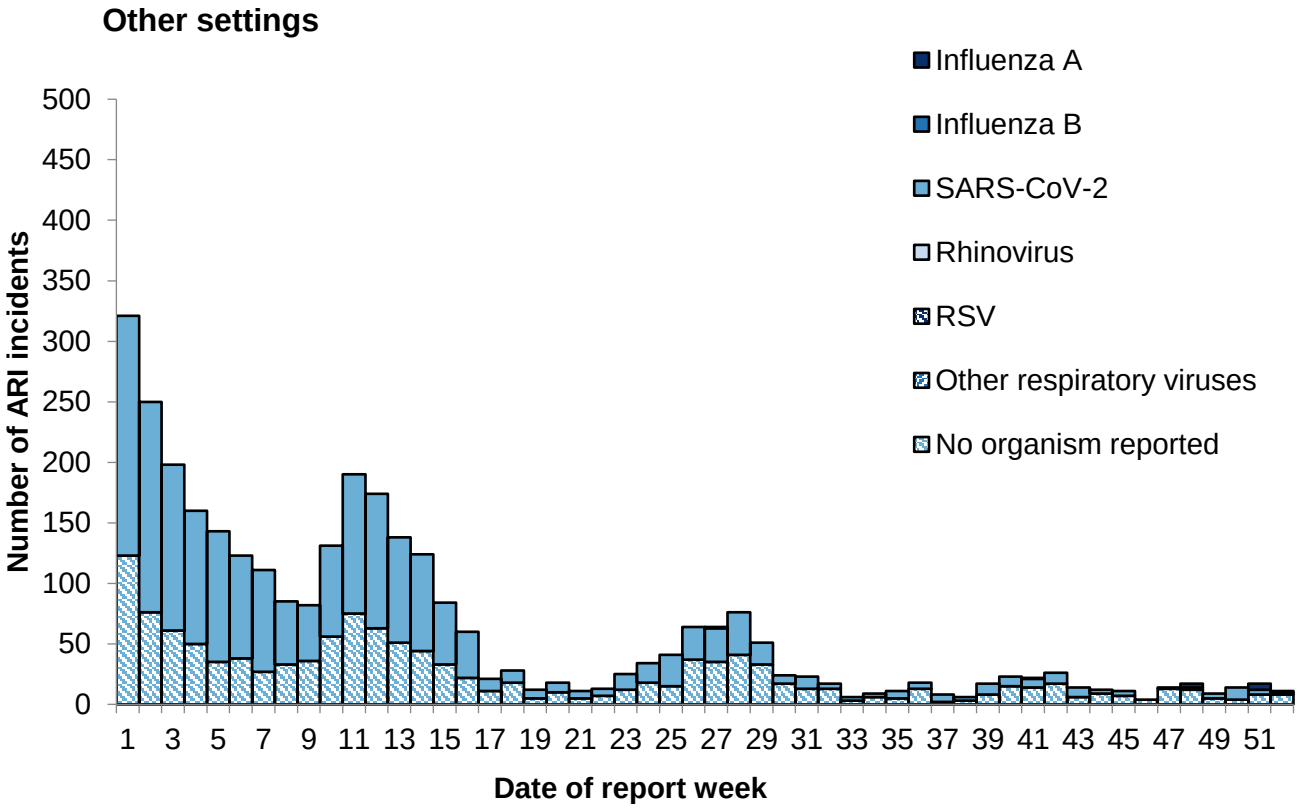


Table 1: Total number of situations and incidents by institution and UKHSA centres over the past 4 weeks with the total number in the last week in brackets

UKHSA Centres	Care home	Hospital	Educational settings	Prisons	Other settings	Total
East of England	129(28)	1(1)	0(0)	2(2)	1(0)	133(31)
East Midlands	49(15)	2(0)	0(0)	1(0)	1(1)	53(16)
London	137(32)	66(9)	13(0)	1(1)	18(6)	235(48)
North East	94(27)	0(0)	1(0)	1(0)	1(0)	97(27)
North West	188(65)	3(0)	3(0)	1(0)	9(2)	204(67)
South East	54(16)	0(0)	0(0)	6(1)	3(0)	63(17)
South West	404(33)	1(0)	2(0)	2(0)	6(1)	415(34)
West Midlands	92(23)	14(4)	10(0)	5(1)	4(0)	125(28)
Yorkshire and Humber	119(37)	3(0)	8(0)	3(1)	8(1)	141(39)
Grand Total	1266(276)	90(14)	37(0)	22(6)	51(11)	1466(307)

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 52, there were 1,333 participants completing the weekly symptoms questionnaire of which 257 (19.3%) reported fever or cough and 60 (4.5%) reported influenza like illness (ILI). There has been marked increases in both COVID-19 related symptoms and influenza like illness (ILI) amongst participants completing the weekly symptoms survey since week 48. 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 25).

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 26).

Figure 25: FluSurvey participants self-reporting fever or cough and ILI symptoms, and trends in healthcare seeking behaviour among these participants, England

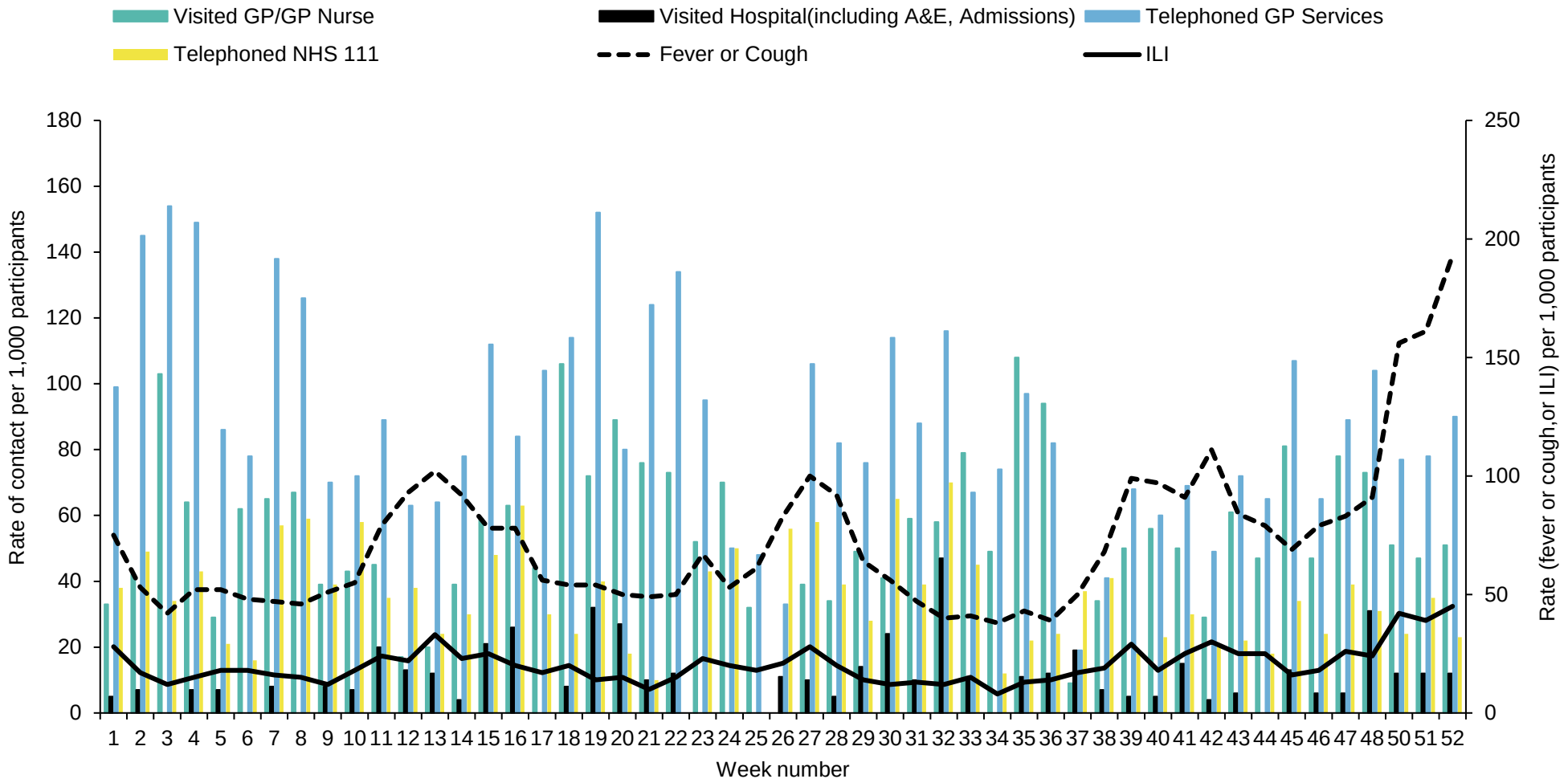
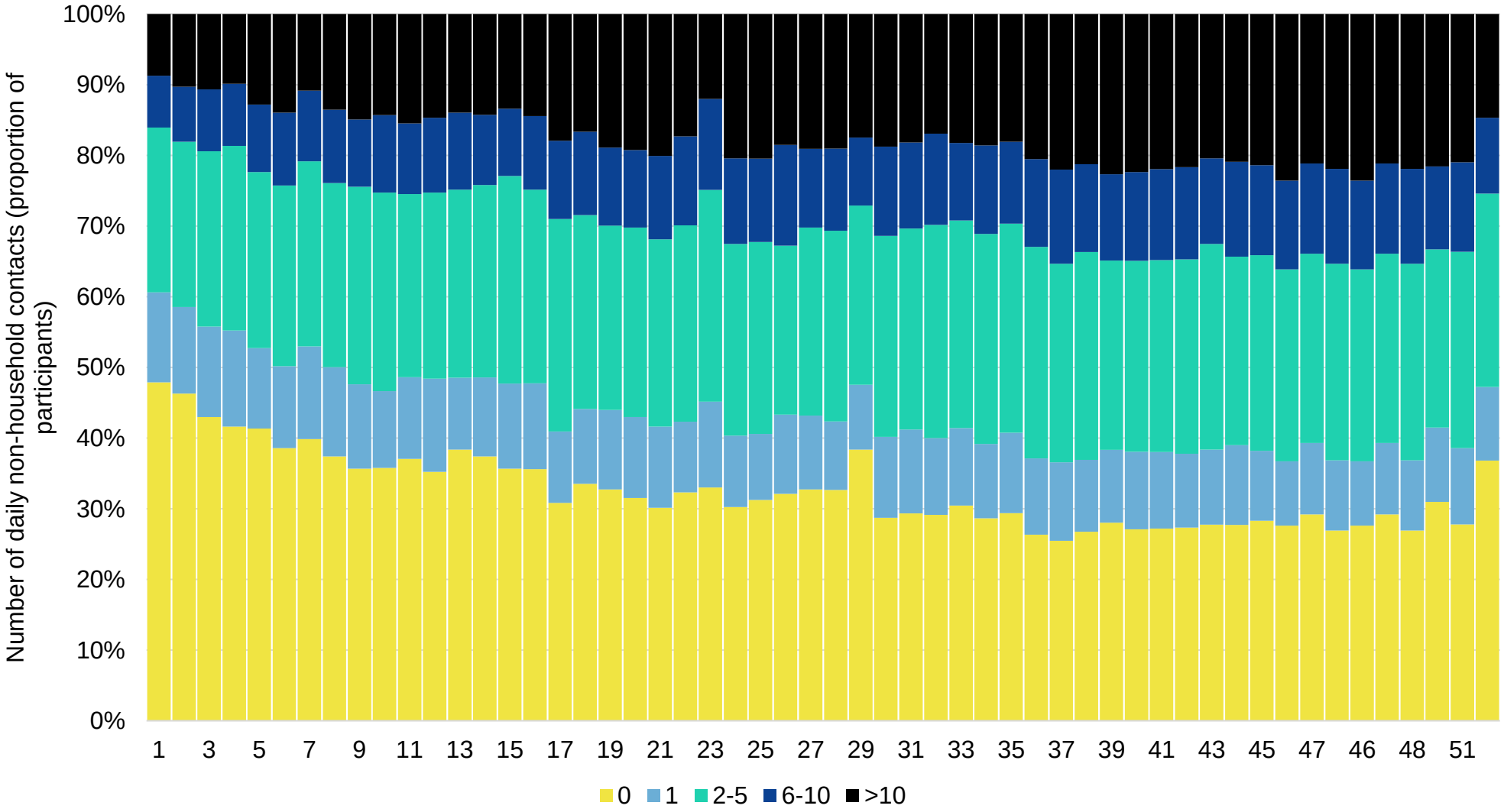


Figure 26: FluSurvey participants' self-reported number of social contacts outside the household

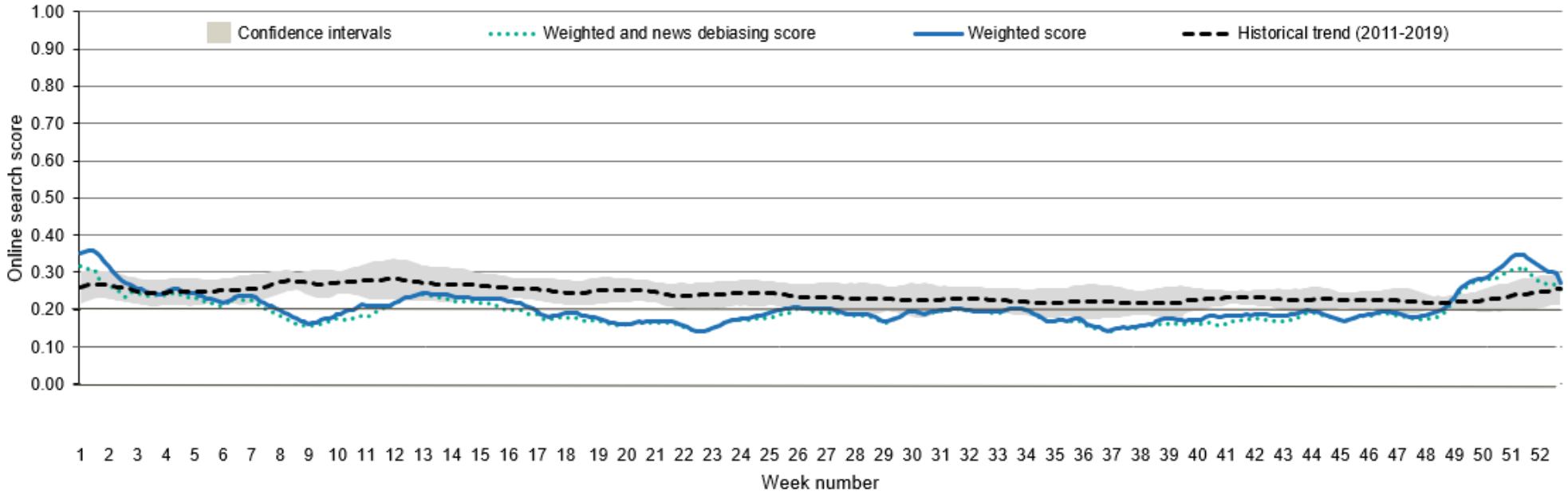


Google search queries

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 52, the overall and media-debiasing weighted Google search scores decreased compared to week 51 and 50 (Figure 27).

Figure 27: Normalised Google search score for COVID-19 symptoms, with weighted score for media-debiasing and historical trend, England



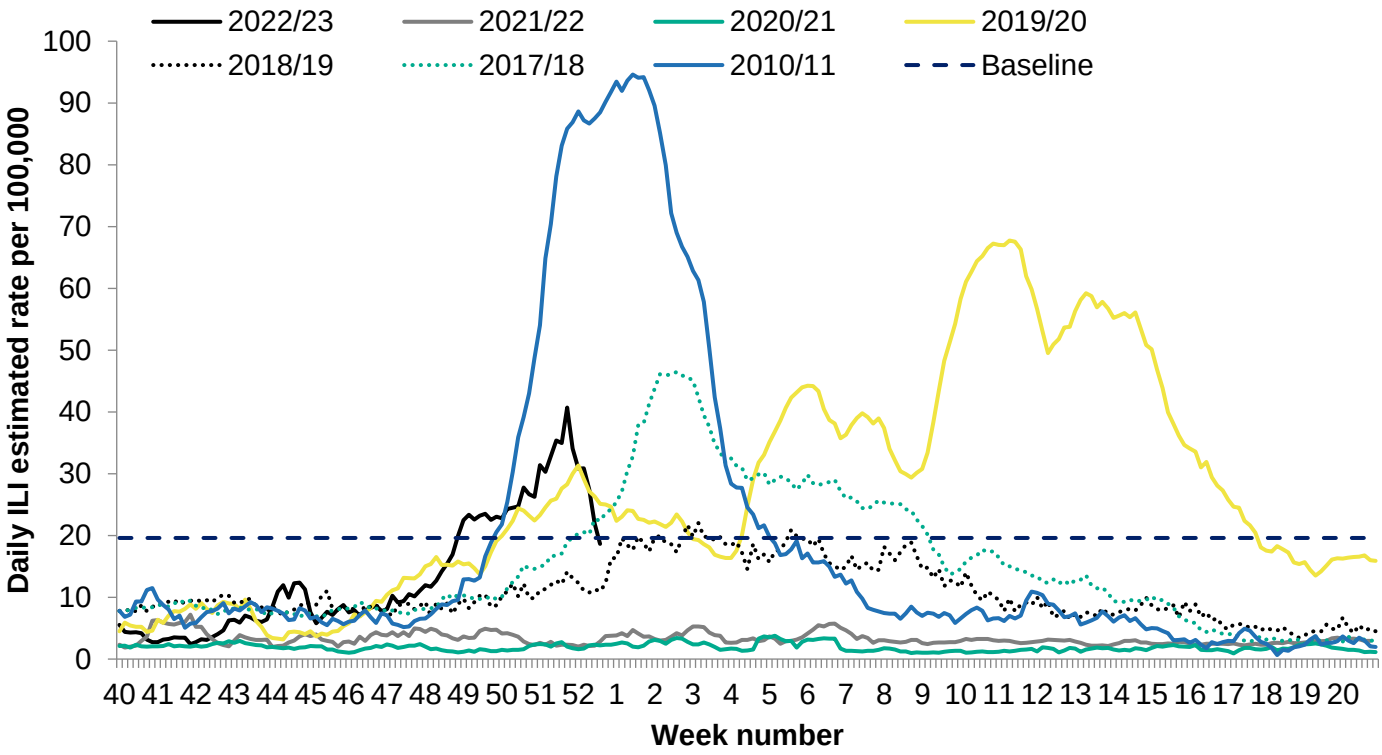
Flu Detector

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 52, the daily ILI rate decreased compared to week 51 and returned below the baseline threshold of 19.6 per 100,000 for the 2022 to 2023 season (Figure 28).

Figure 28: Daily estimated ILI Google search query rates per 100,000 population, 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 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.

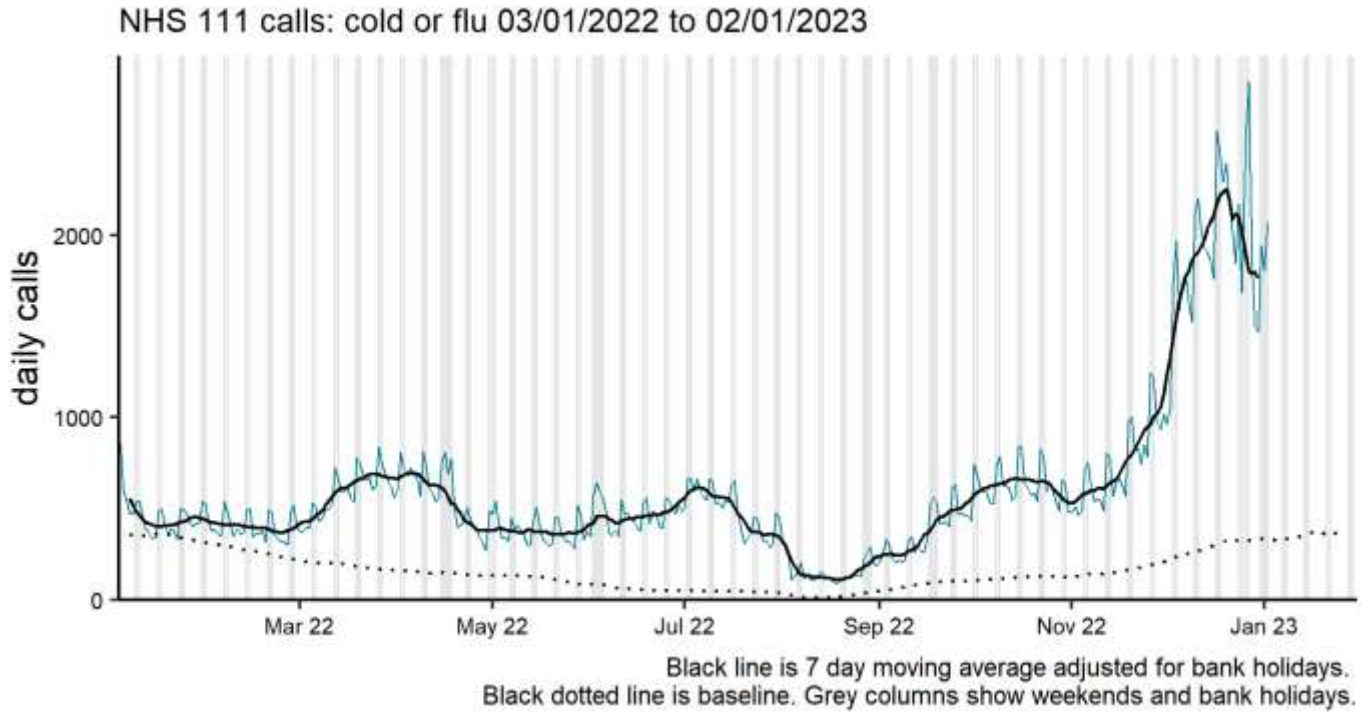
During week 52, NHS 111 calls for cold or flu and cough are decreasing nationally but continue to increase in adults 45 years and over. (Figure 29 and 30).

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 29: 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)

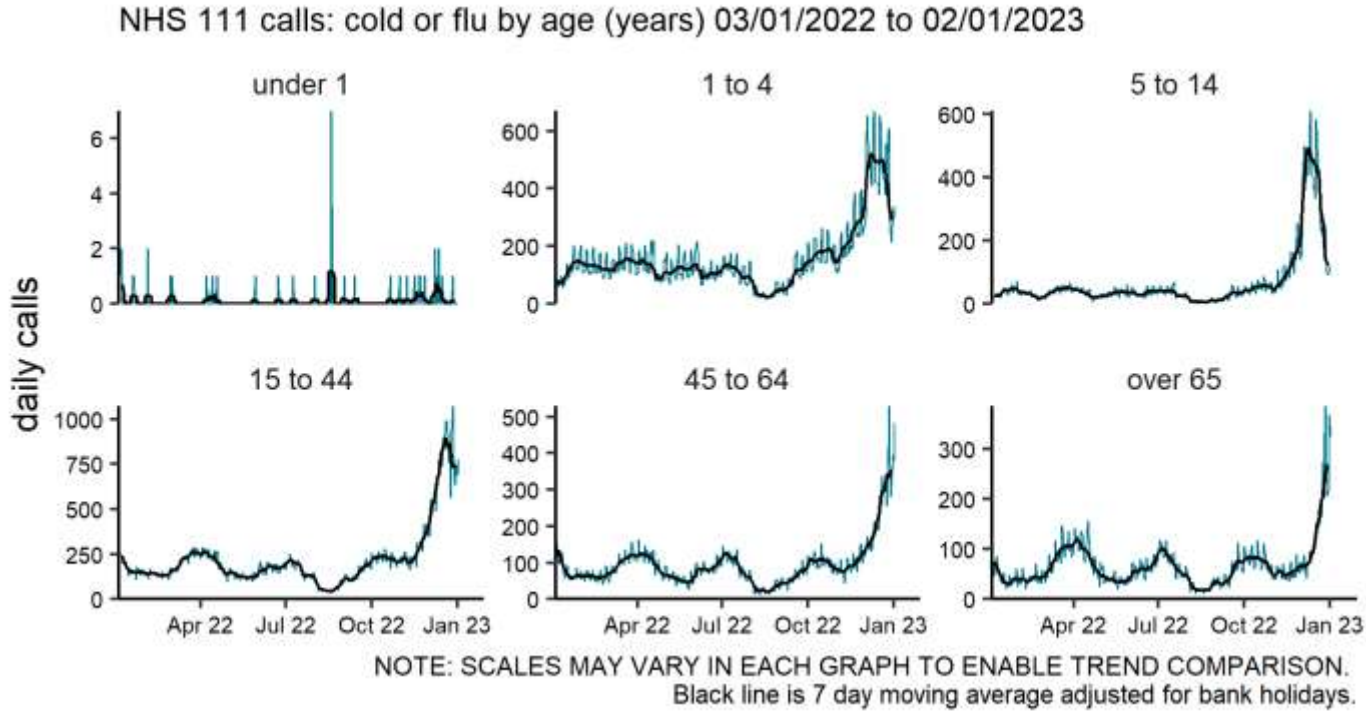
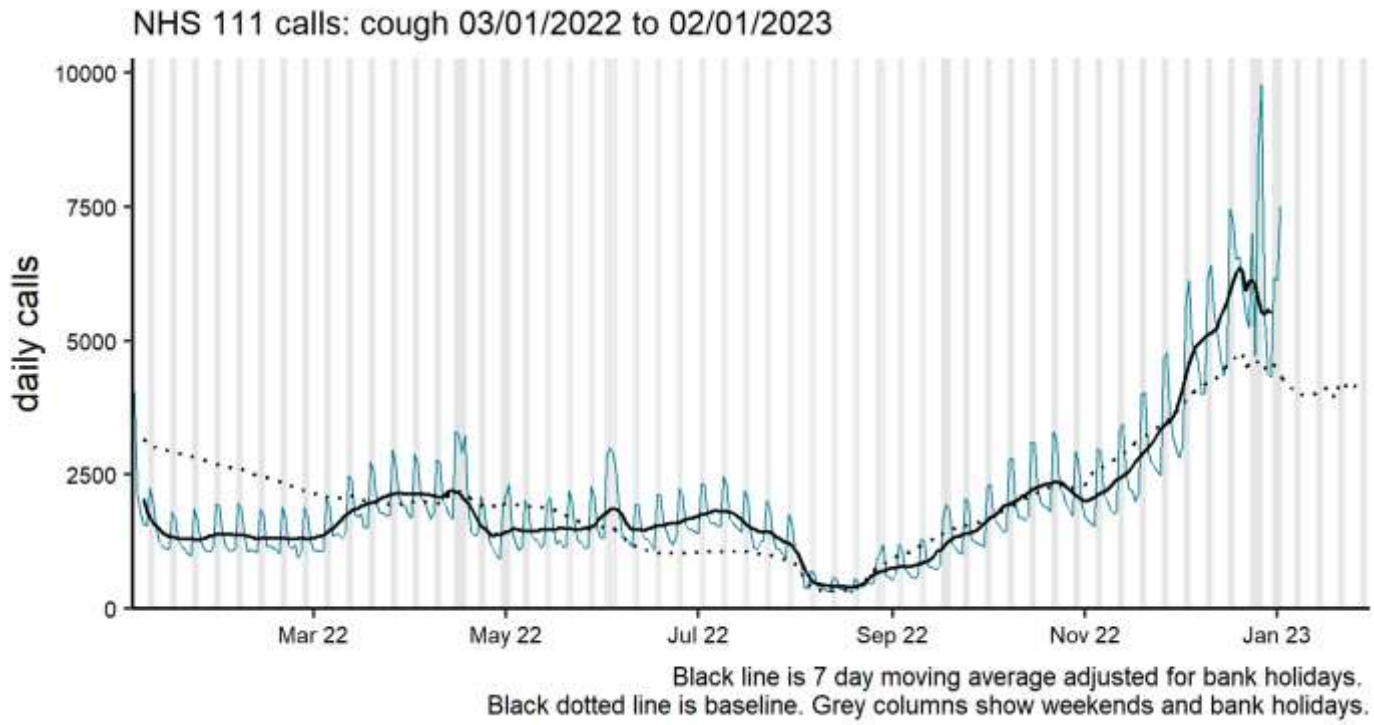
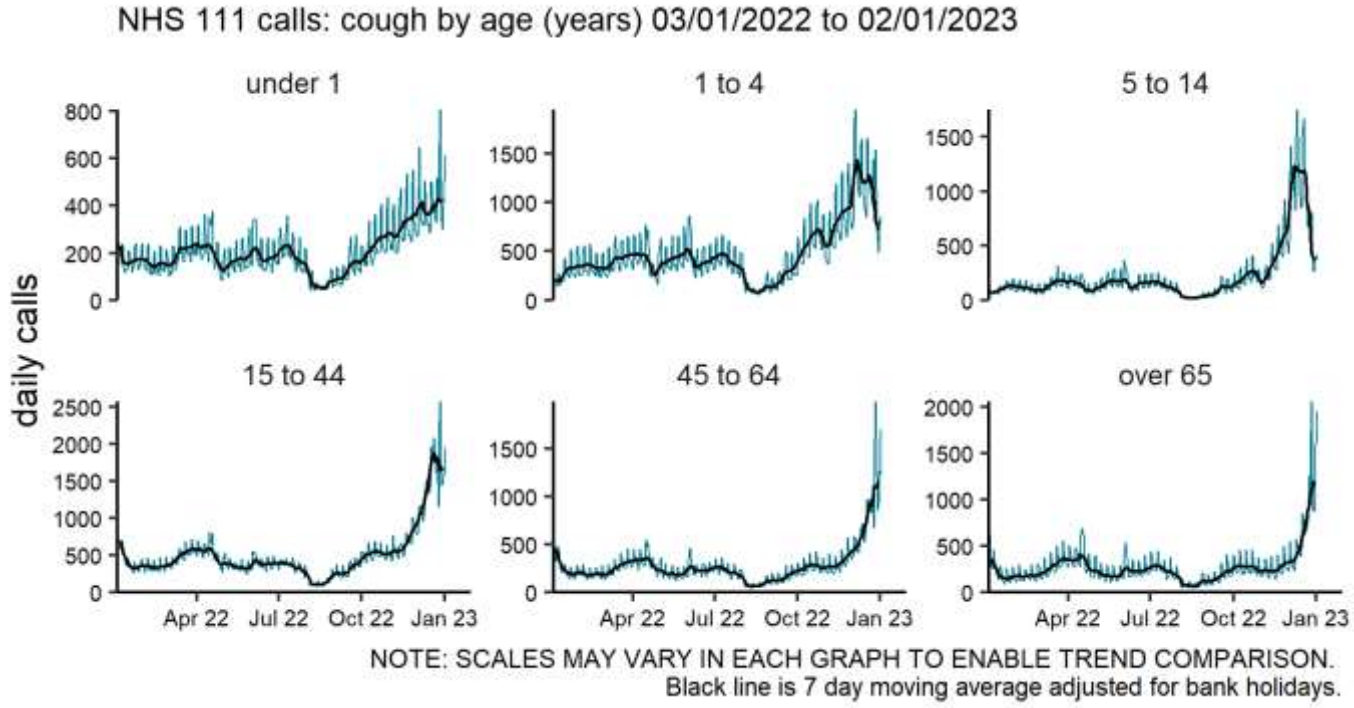


Figure 30: NHS 111 telephony indicators (and 7-day moving average) for number of daily cough calls, England (a) nationally and (b) by age group

(a)



(b)



Primary care surveillance

RCGP (England)

The weekly ILI consultation rate through the RCGP surveillance was 20.9 per 100,000 registered population in participating GP practices in week 52 compared to 31.3 per 100,000 in the previous week. This remains at medium activity level (between 15.06 and 46.46 per 100,000) (Figure 31). By age group, the highest rates were seen in the 75 and over years olds (38.4 per 100,000), followed by the under 1 year olds (37.6 per 100,000). The lower respiratory tract infections (LRTI) consultation rate was at 120.5 per 100,000 in week 52, compared to the rate of 172.2 per 100,000 in the previous week. The COVID-19 indicator rate was at 40.6 per 100,000 in week 52 compared to a rate of 51.1 per 100,000 in the previous week (Figure 32).

Figure 31: RCGP influenza-like illness (ILI) consultation rates, all ages, England

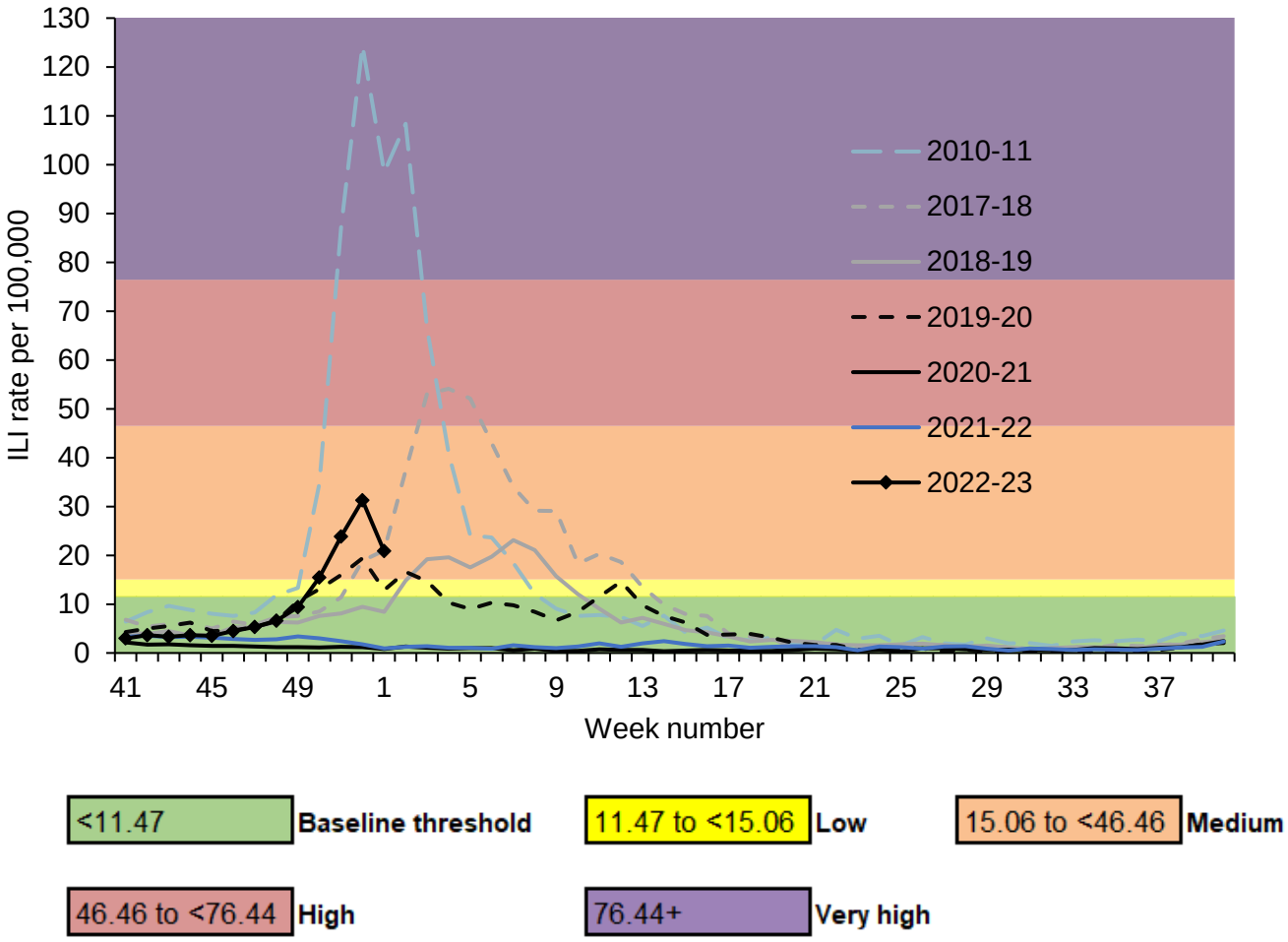
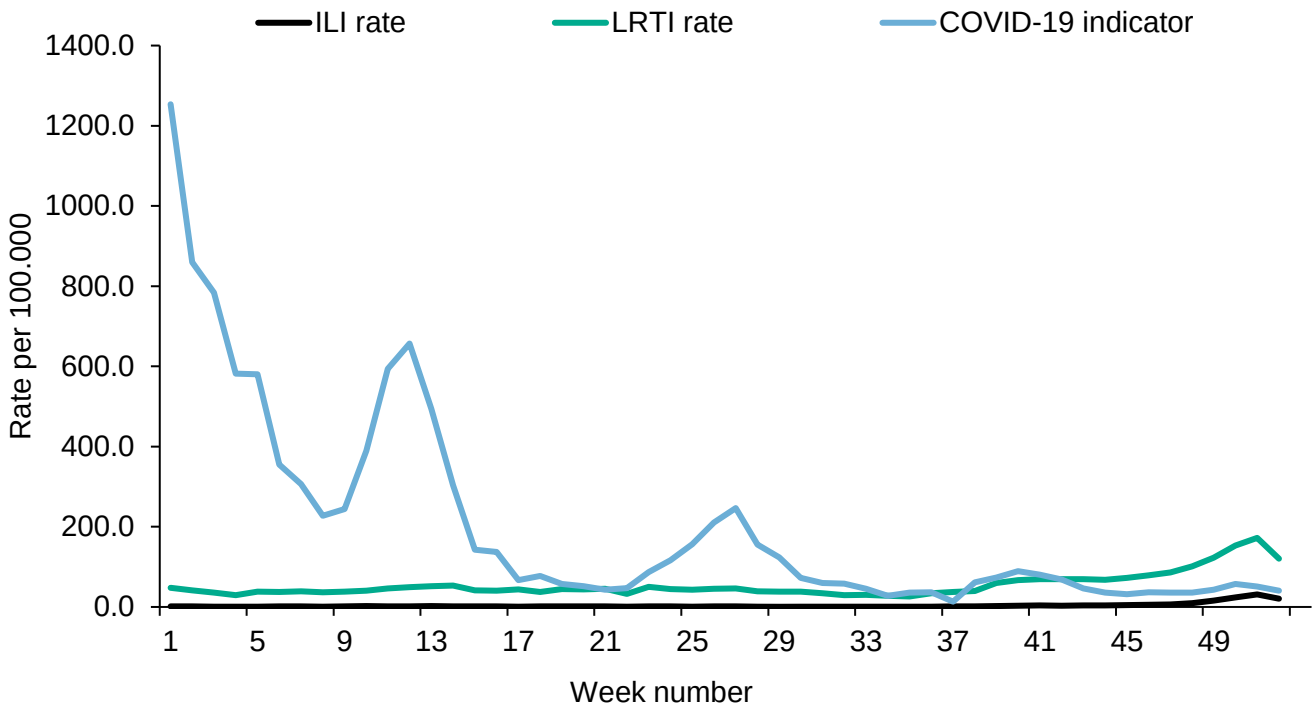


Figure 32: RCGP ILI, LRTI and COVID-19 indicator rates, England



UK

Overall, weekly ILI consultations rates decreased and remained at medium activity level in England and Wales. Northern Ireland activity decreased (Table 2).

By age group, the highest incidence was in the 75 year olds and over in England (38.4 per 100,000) and in the 45 to 64 year olds in Northern Ireland (19.7 per 100,000). There is no data for Scotland this week.

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	23.9	31.3	20.9
Wales	3.5	2.8	3.9	4.8	6.3	7.0	3.5	4.3	7.8	14.1	24.2	34.1	27.5
Scotland	2.1	1.8	4.0	3.8	3.5	4.8	4.6	3.0	5.9	7.2	11.3		
Northern Ireland	1.3	2.2	1.8	3.5	3.0	3.7	3.5	4.9	5.0	6.0	9.4	17.8	14.0

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.

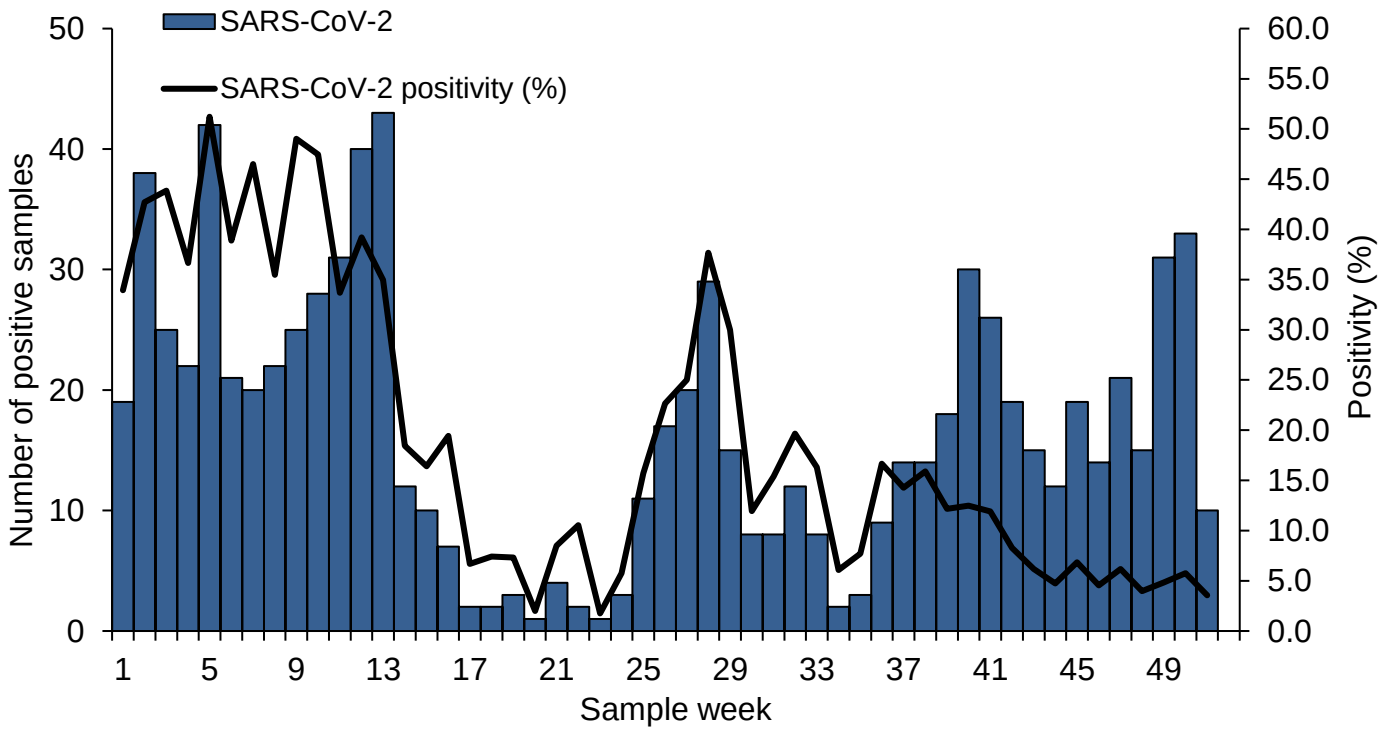
Sentinel swabbing scheme in England

In week 51 2022, 281 samples were tested for SARS-CoV-2 through the GP sentinel swabbing scheme in England, of which 10 samples tested positive. 282 samples were tested for RSV, of which 12 samples tested positive. 241 samples were tested for influenza, of which 96 samples tested positive. In week 52 2022, less than 10 samples were tested therefore we were unable to estimate positivity (Figure 33).

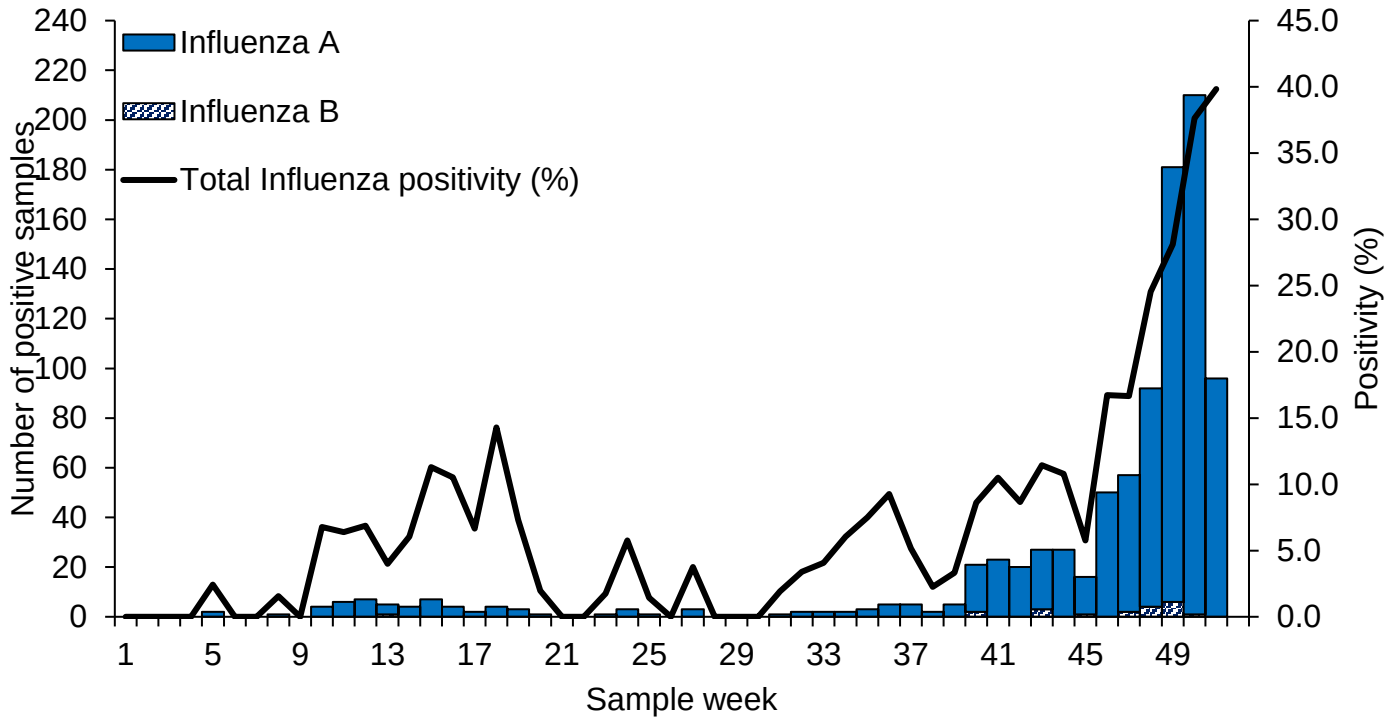
* Please note that due to lower sample numbers, data from week 14 of 2022 onwards should be interpreted with caution.

Figure 33: Number of positive samples and weekly positivity (%) for (a) COVID-19 and (b) Influenza and (c) RSV, GP sentinel swabbing scheme

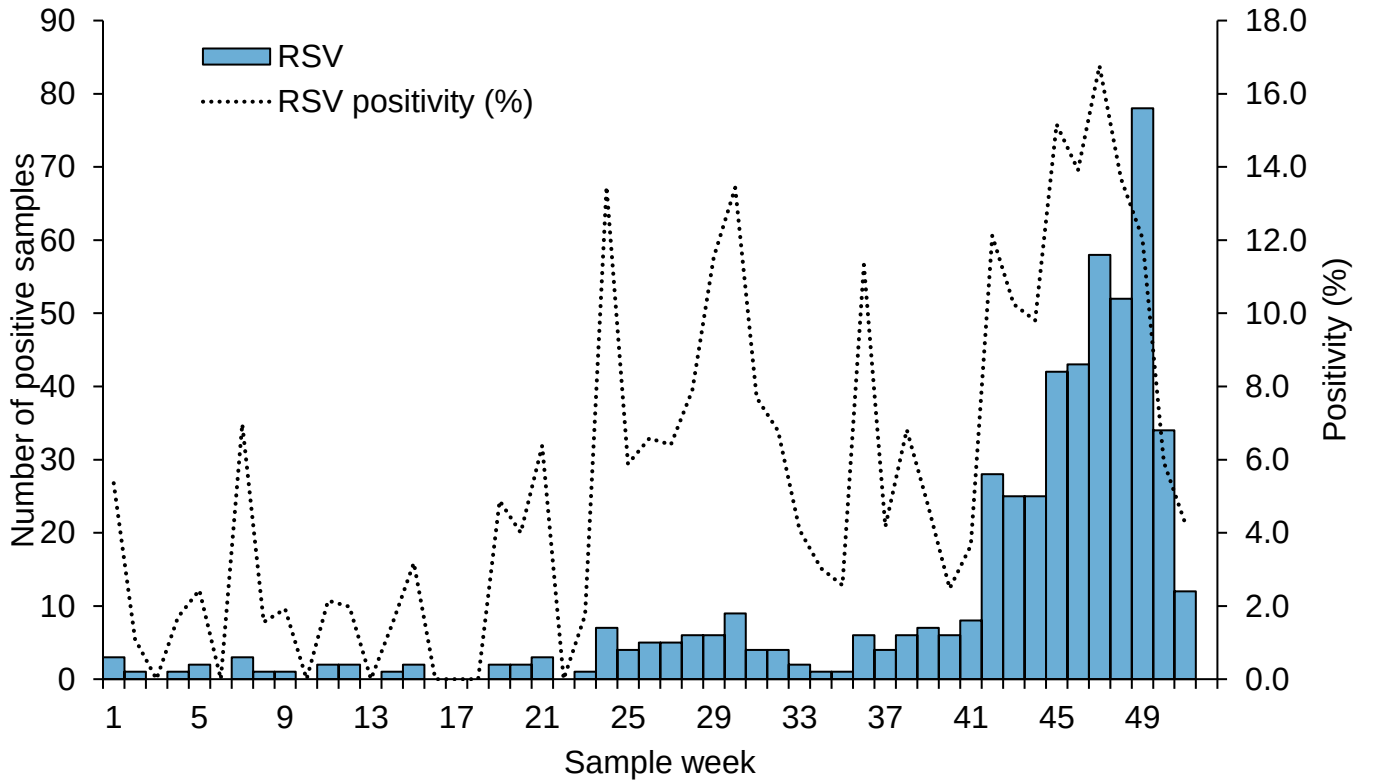
(a)



(b)



(c)



*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

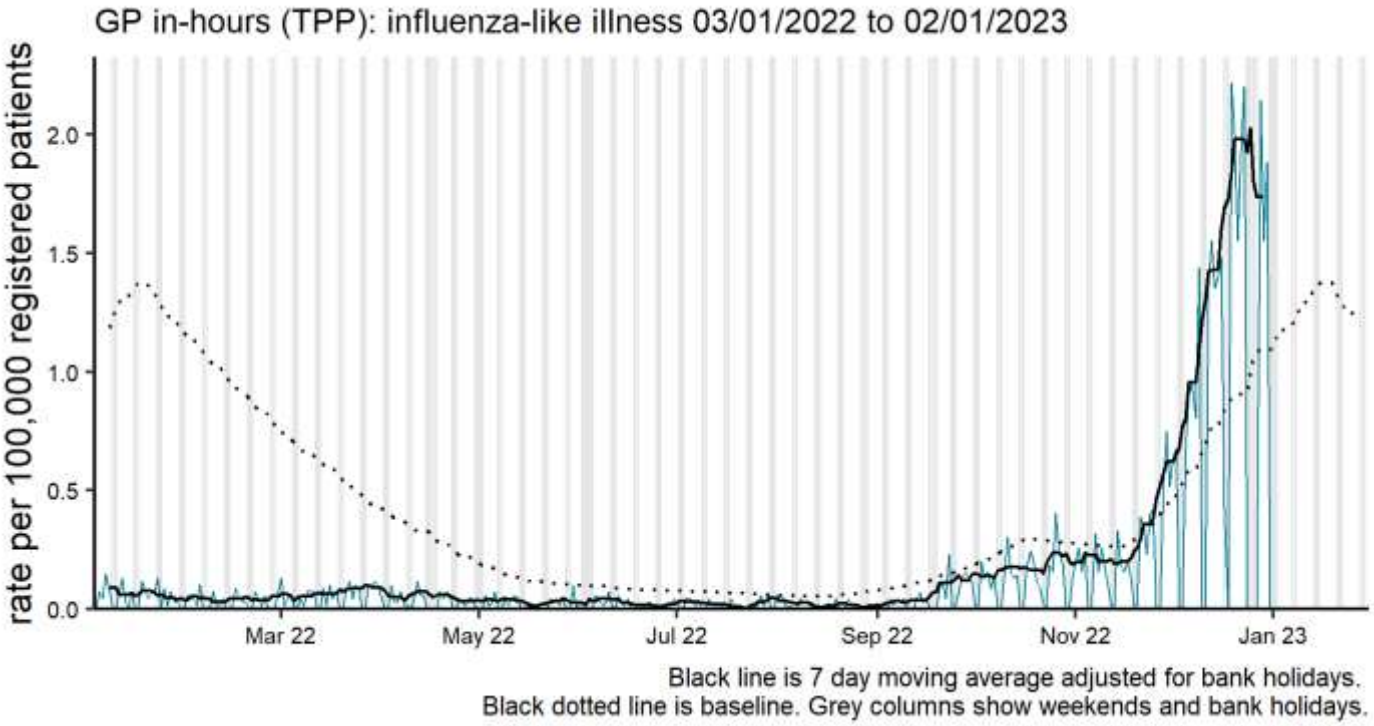
The GP In Hours (GPIH) syndromic surveillance system monitors the number of GP visits during regular hours of known clinical indicators.

During week 52, GP in-hours consultation rates for influenza-like illness increased in those aged 65 years and older (Figure 34).

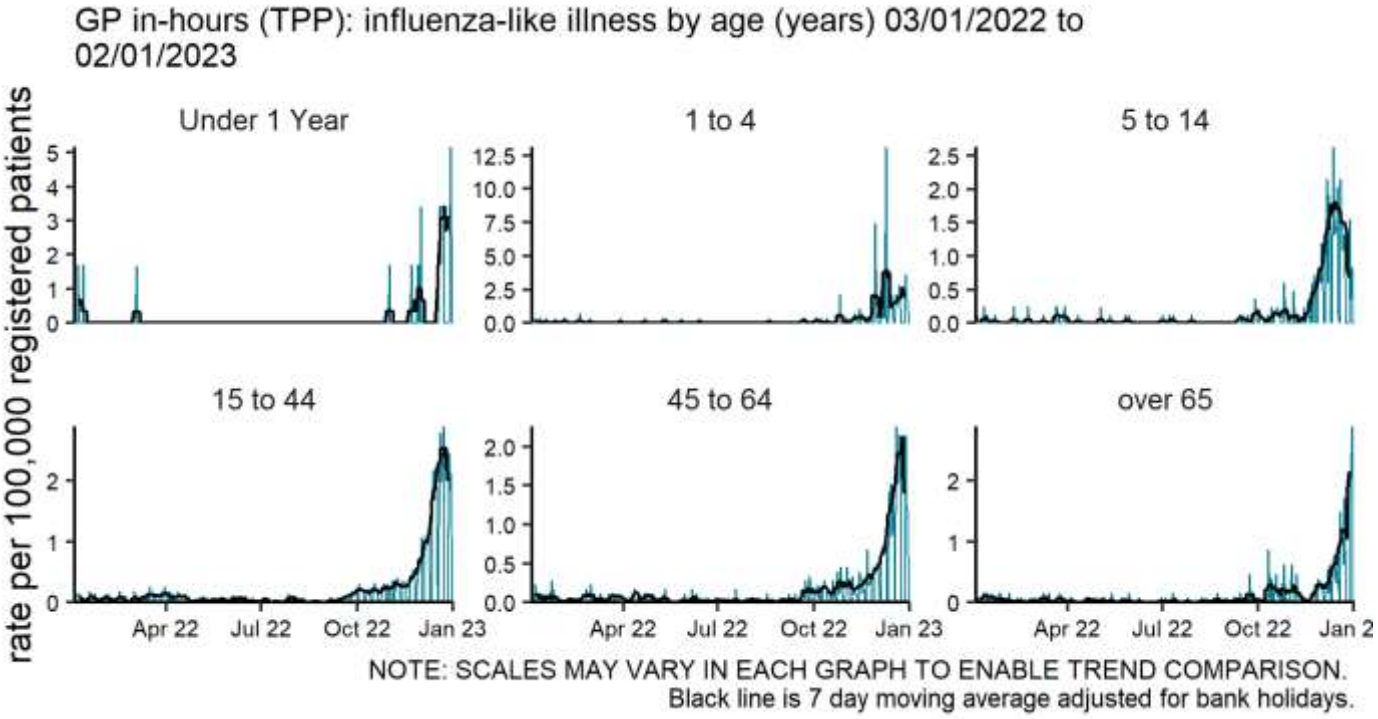
Further indicators and information about caveats are available from the GP In Hours Syndromic Surveillance bulletin.

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

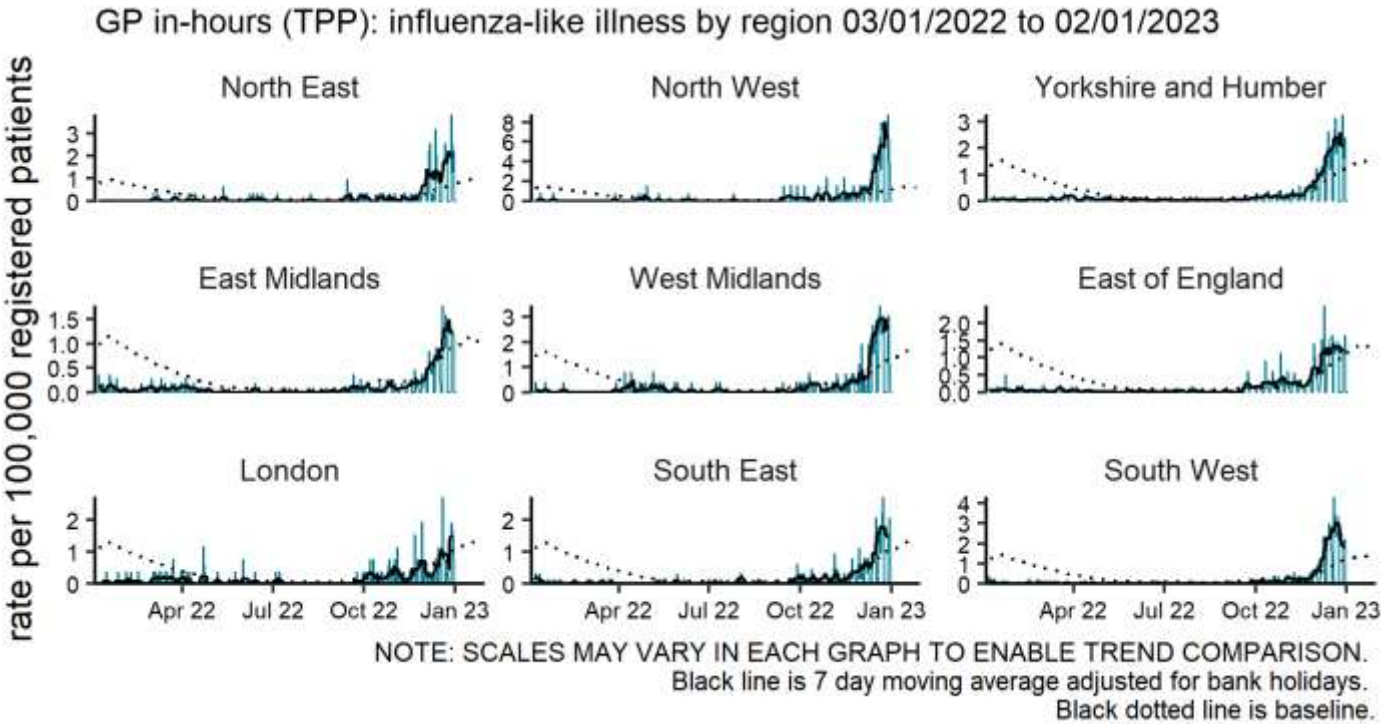
(a)



(b)



(c)



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 for SARS-CoV-2 through NHS settings has been paused from 31 August 2022, therefore SARI-Watch data should be interpreted with this in mind.

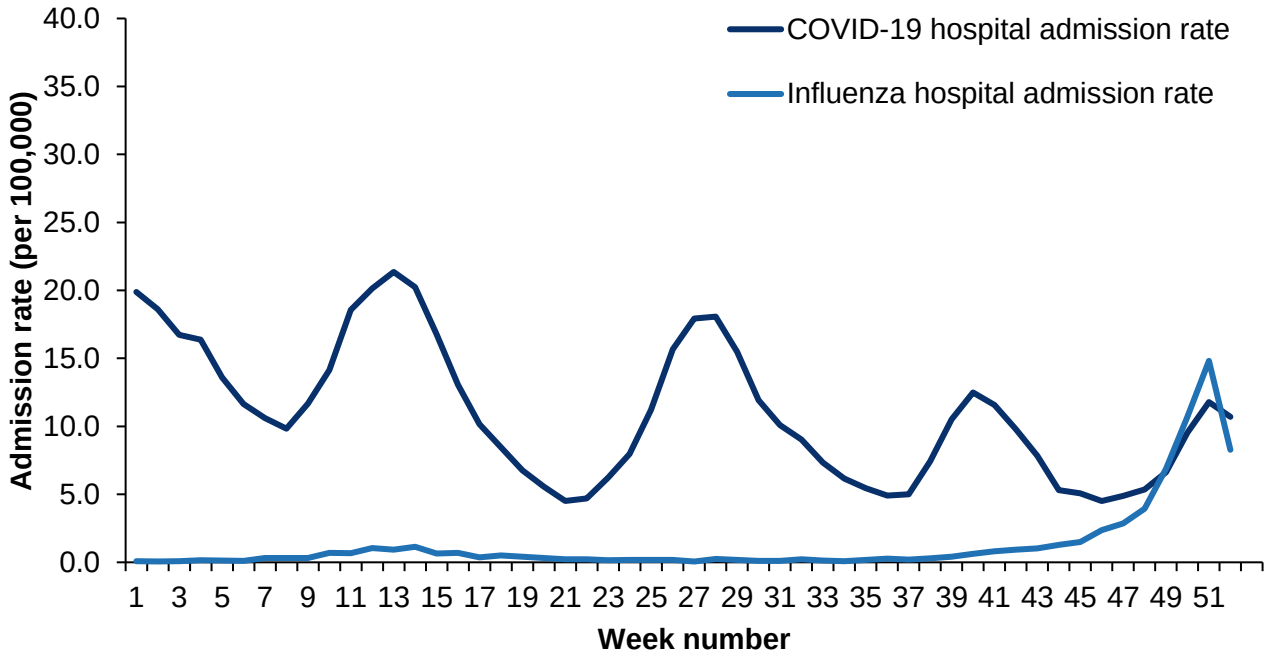
Hospitalisations, SARI Watch

In week 52, the overall weekly hospital admission rate for COVID-19 decreased to 10.71 per 100,000 compared to 11.79 per 100,000 in the previous week. Caution is needed in interpreting the most recent data as this may have been affected by reduced trust returns over the holiday period.

By UKHSA centre, the highest hospital admission rate for COVID-19 was observed in the South East. 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 52.

In week 52, the overall weekly hospital admission rate for influenza decreased to 8.28 per 100,000 compared to 14.82 per 100,000 in the previous week. The rate in week 51 reached the very high impact range. The rate in latest week however should be interpreted with caution due to effect of the holiday period. By UKHSA Centre, the highest hospitalisation rate was observed in the South West. By age group, the highest hospital admission rate for influenza was in the 85 year olds and over. There were 733 new hospital admissions to sentinel Trusts for influenza (52 influenza A(H1N1)pdm09, 58 influenza A(H3N2), 593 influenza A(not subtyped) and 30 influenza B) in week 52.

Figure 35: Weekly overall hospital admission rates of new COVID-19 and influenza positive cases per 100,000 population reported through SARI Watch, England

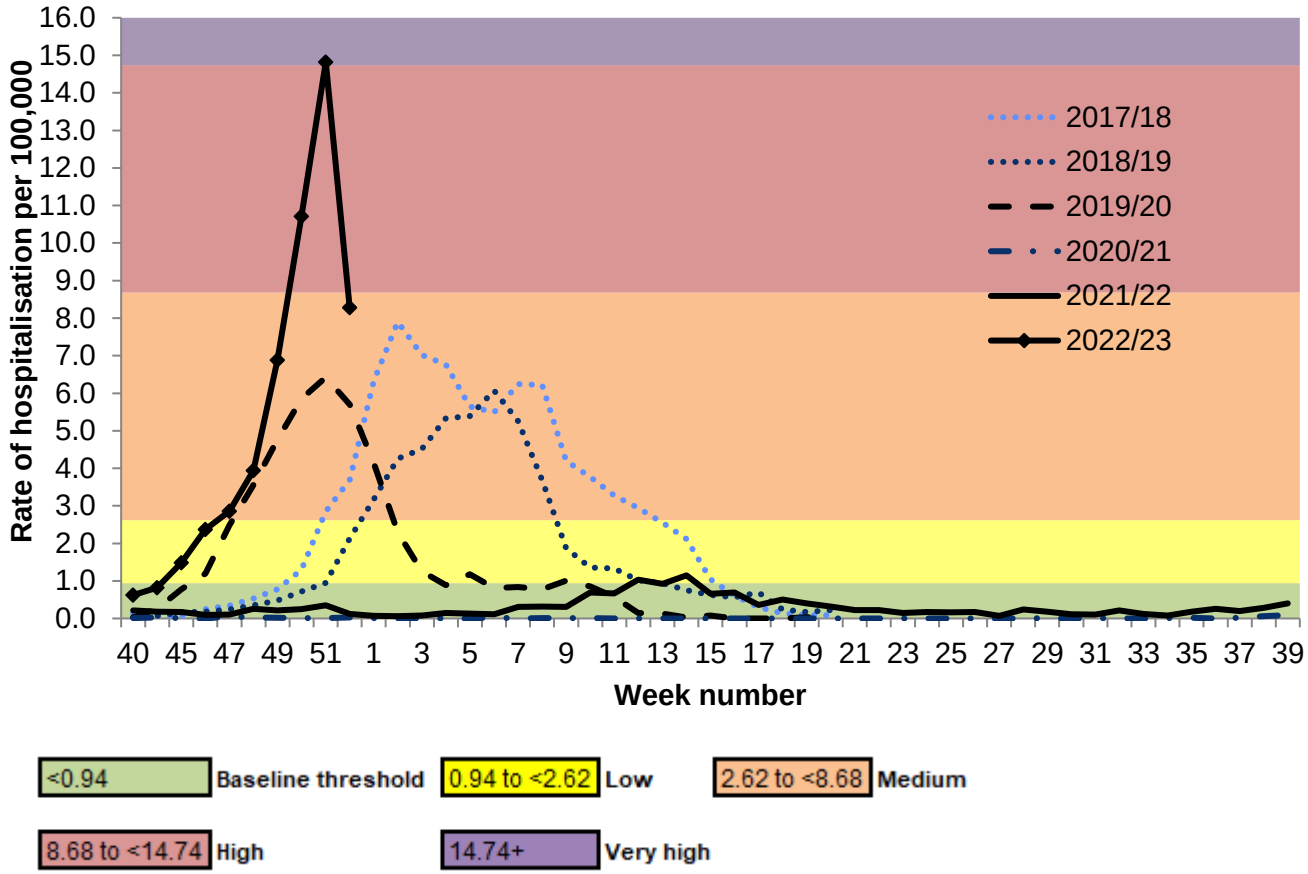


* Influenza hospital admission rate based on 20 sentinel NHS trusts for week 52

* COVID-19 hospital admission rate based on 87 NHS trusts for week 52

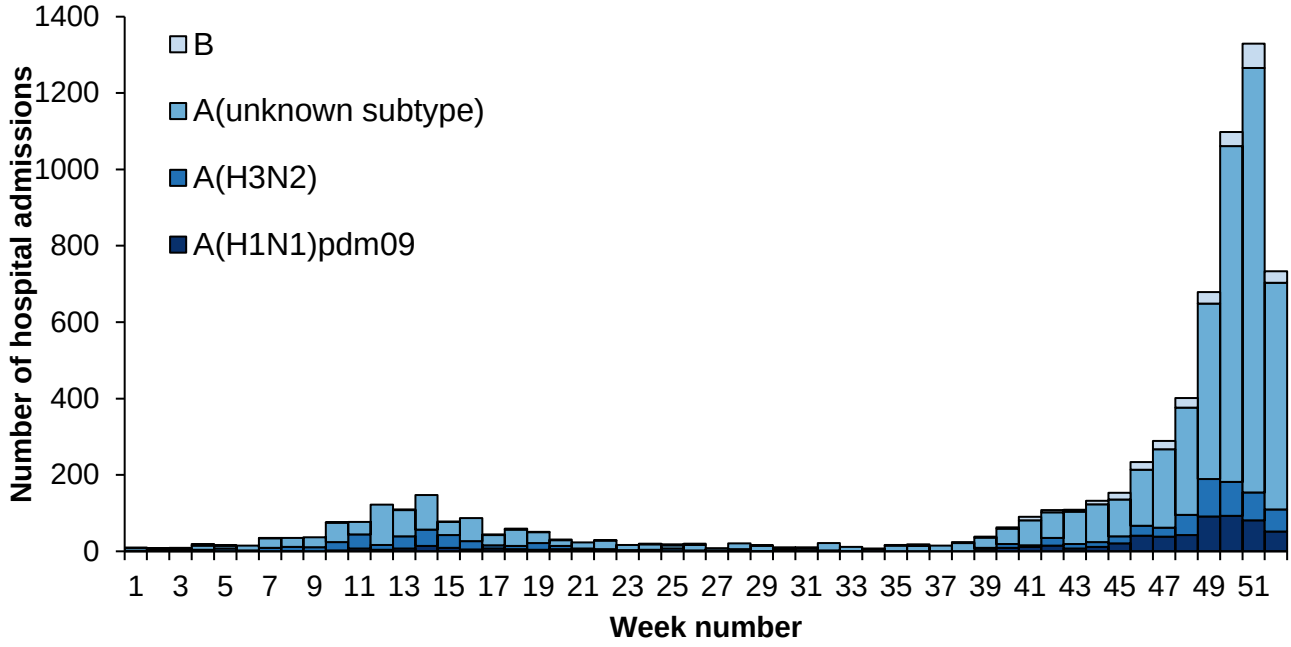
* SARI Watch data is provisional

Figure 36: 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).

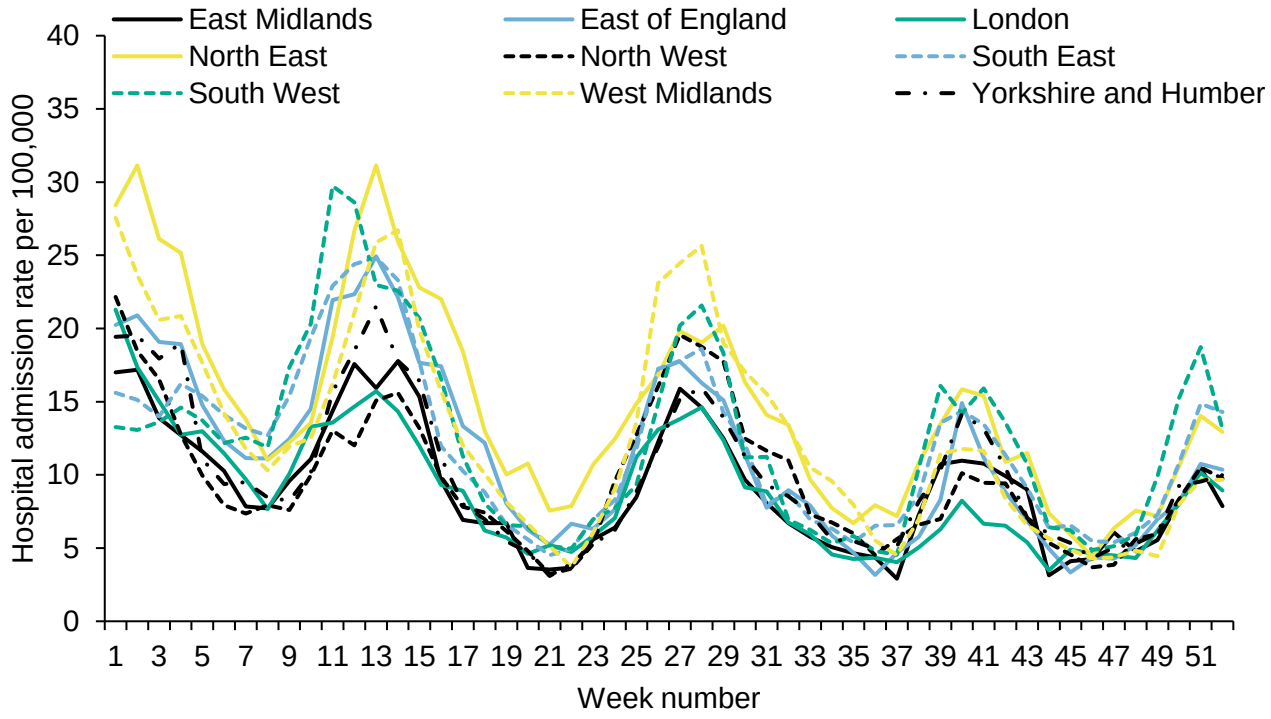
Figure 37: Weekly influenza hospital admissions by influenza type, SARI Watch, England



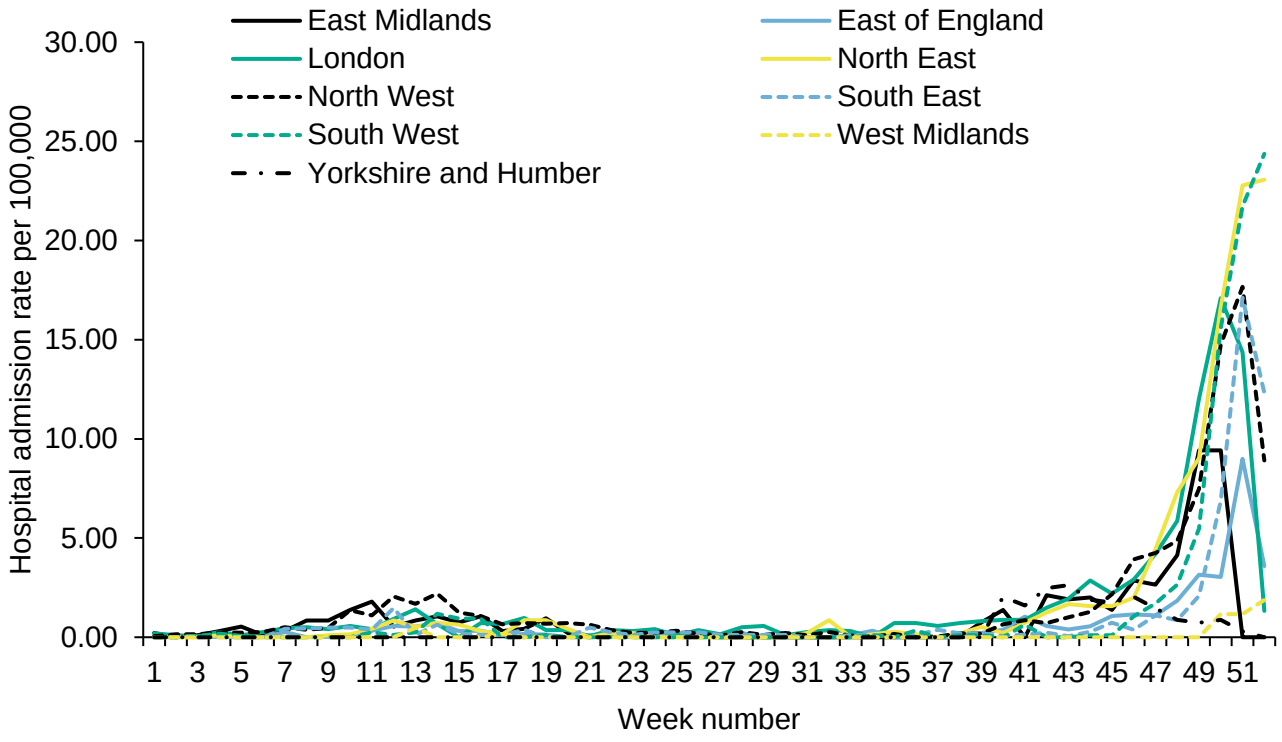
*Number of influenza hospital admissions based on sentinel NHS trusts

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

(a)



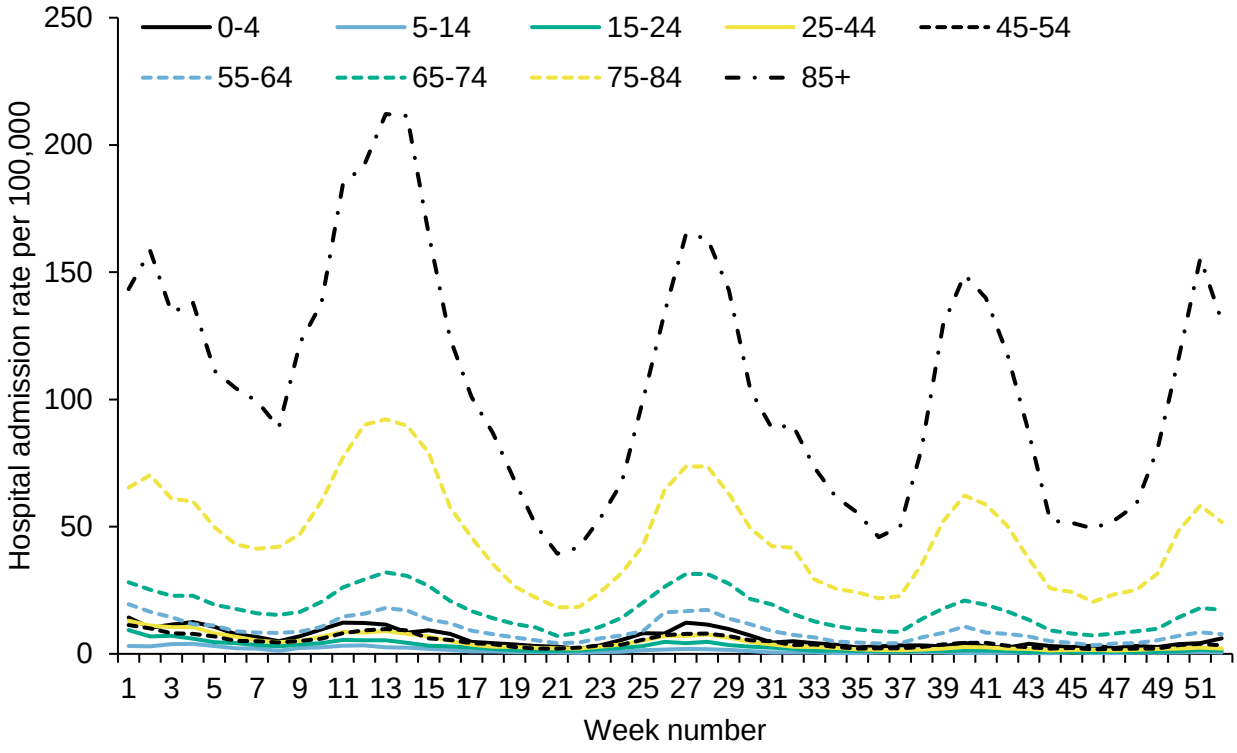
(b)



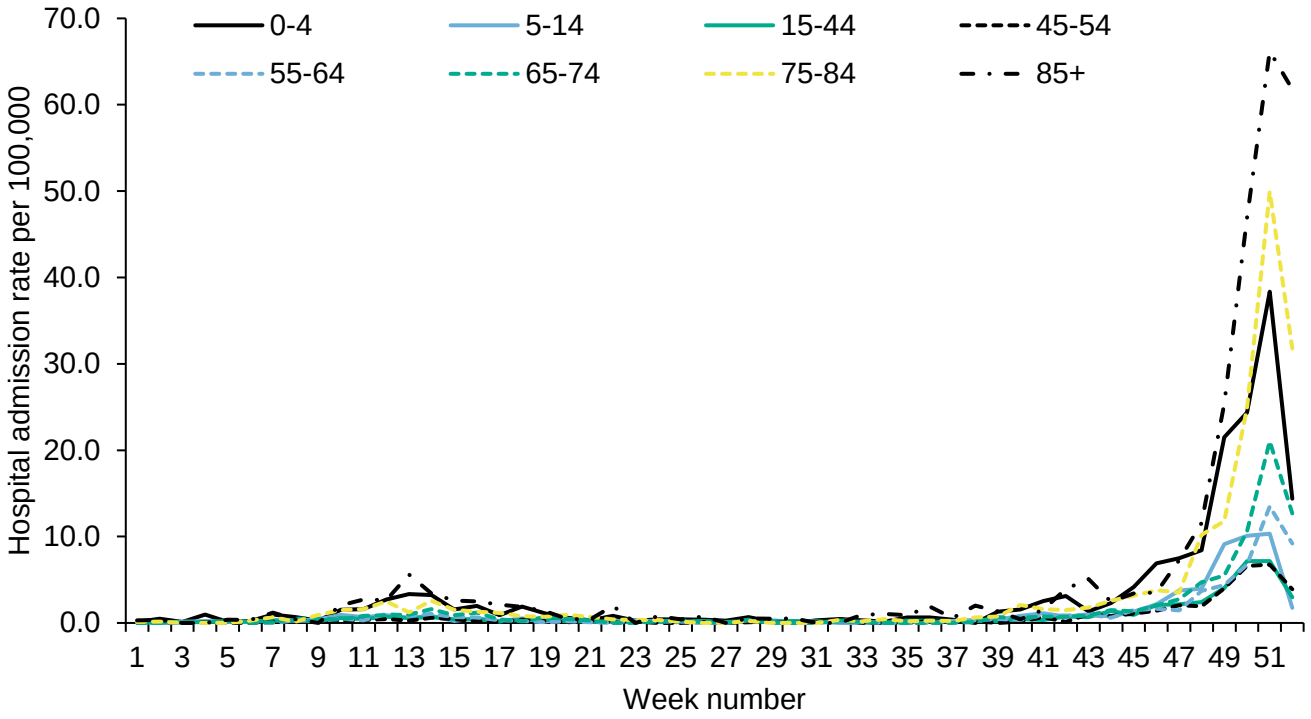
** Rates in some regions may not include all influenza surveillance sentinel sites from week to week*

Figure 39: Weekly hospital admission rate by age group for new (a) COVID-19 positive cases and (b) influenza reported through SARI Watch

(a)



(b)


0-4
5-14
15-44
45-54
55-64
65-74
75-84
85+
Hospital admission rate per 100,000
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
Week number

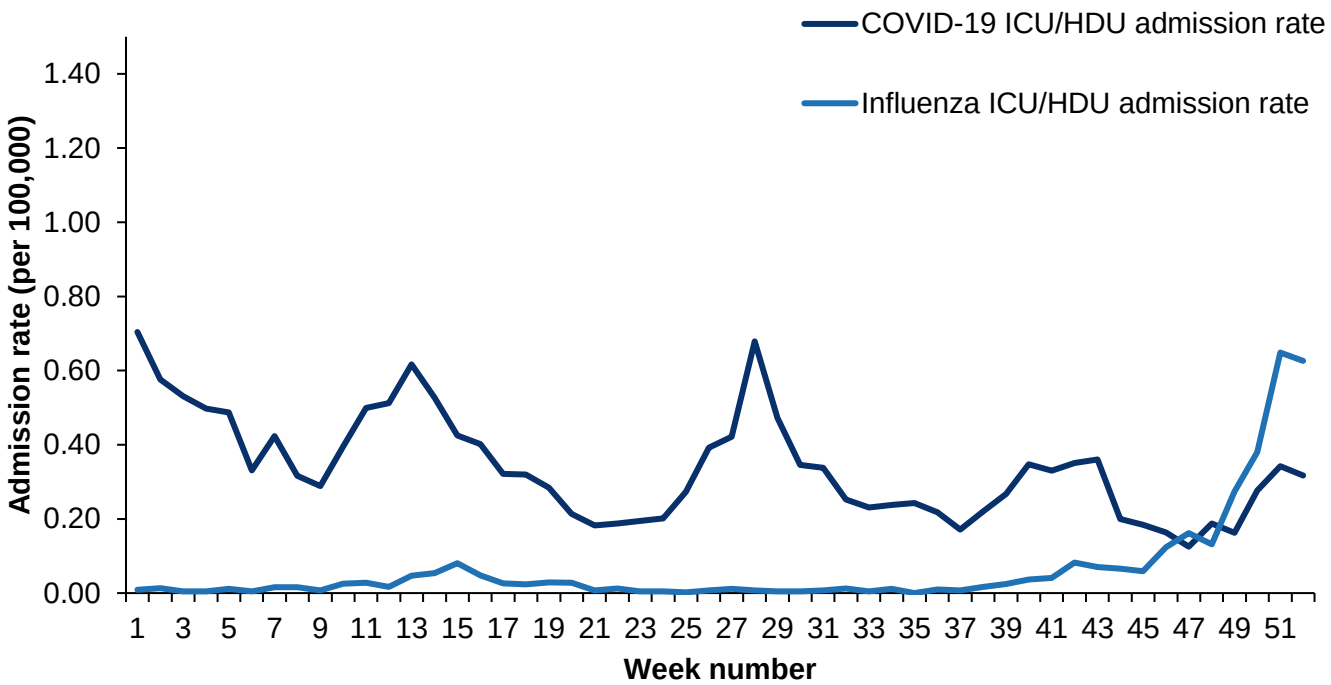
ICU or HDU admissions, SARI Watch

In week 52, the overall weekly ICU or HDU admission rates for COVID-19 decreased slightly to 0.32 per 100,000, compared to 0.34 per 100,00 the previous week. Caution is needed in interpreting the most recent data as this may have been affected by reduced trust returns over the holiday period. 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 London. By age group, the highest ICU or HDU admission rates for COVID-19 was observed in the 75 to 84 year olds and over.

In week 50, the overall ICU or HDU rate for influenza was 0.63 per 100,000 compared to 0.65 per 100,000 in the previous week. There were 256 new case report of an ICU or HDU admission for influenza in week 52 (16 influenza A(H1N1)pdm09, 9 influenza A(H3N2), 219 influenza A(not subtyped) and 12 influenza B).

Figure 40: 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 52

* COVID-19 ICU or HDU admission rate based on 79 NHS trusts for week 52

* SARI Watch data is provisional

Figure 41: Weekly overall influenza ICU or HDU admission rates per 100,000 trust catchment population with MEM thresholds, SARI Watch, England

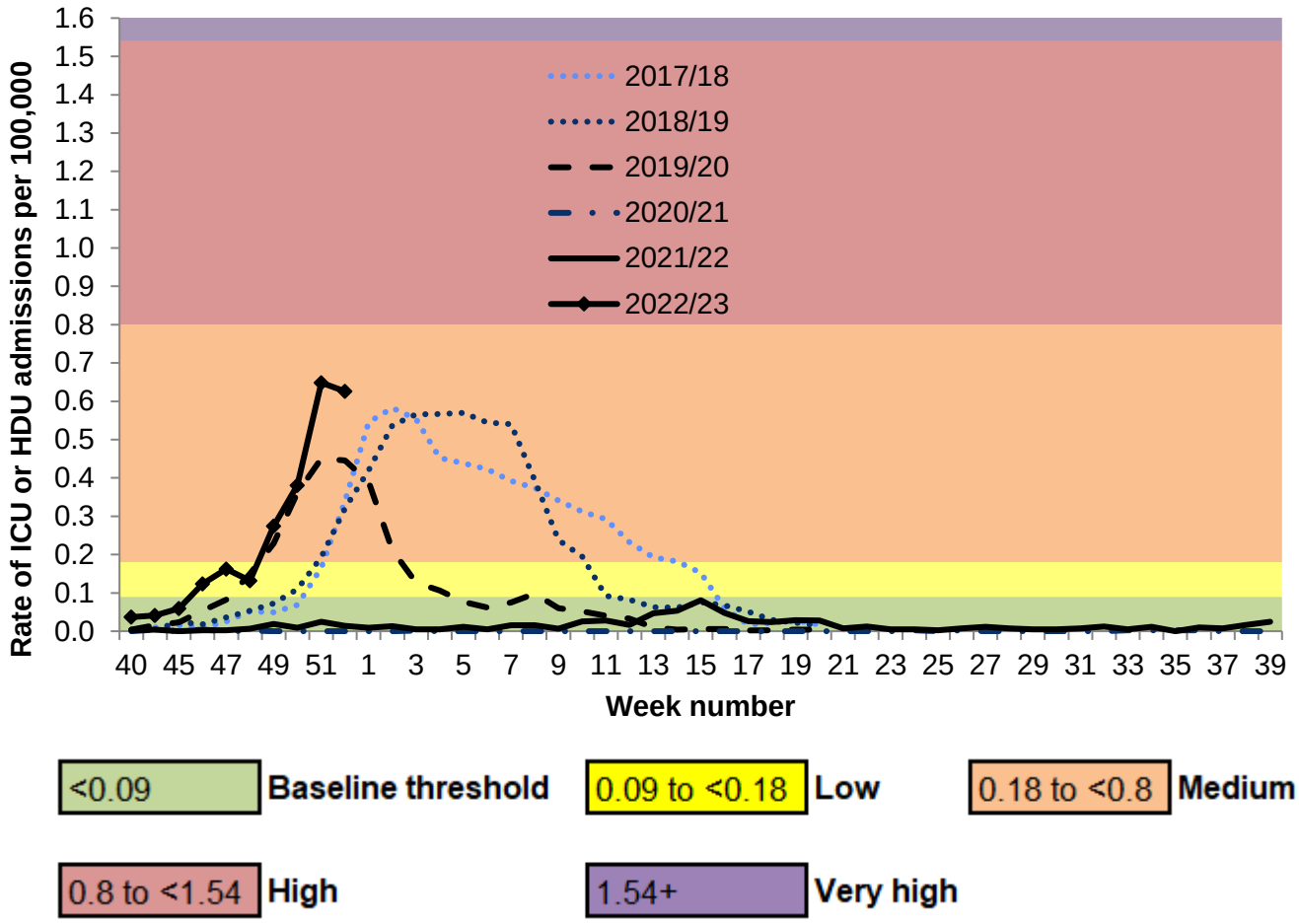


Figure 42: Weekly influenza ICU or HDU admissions by influenza type, SARI Watch, England

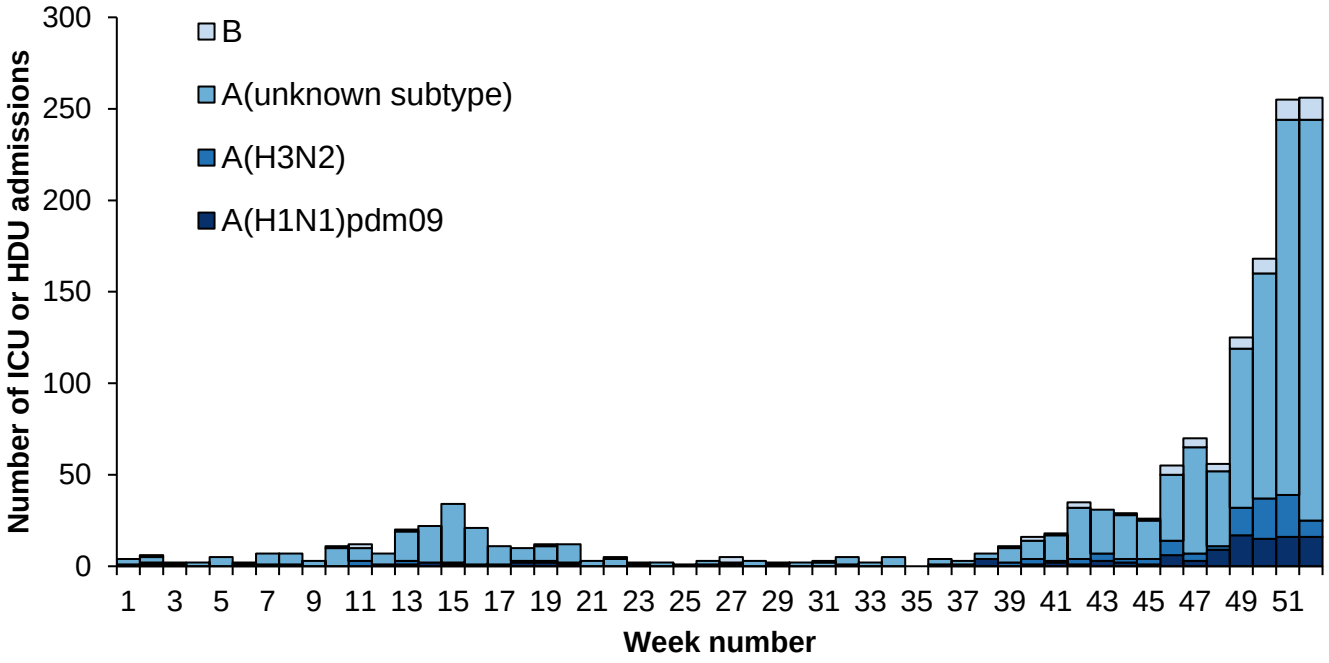
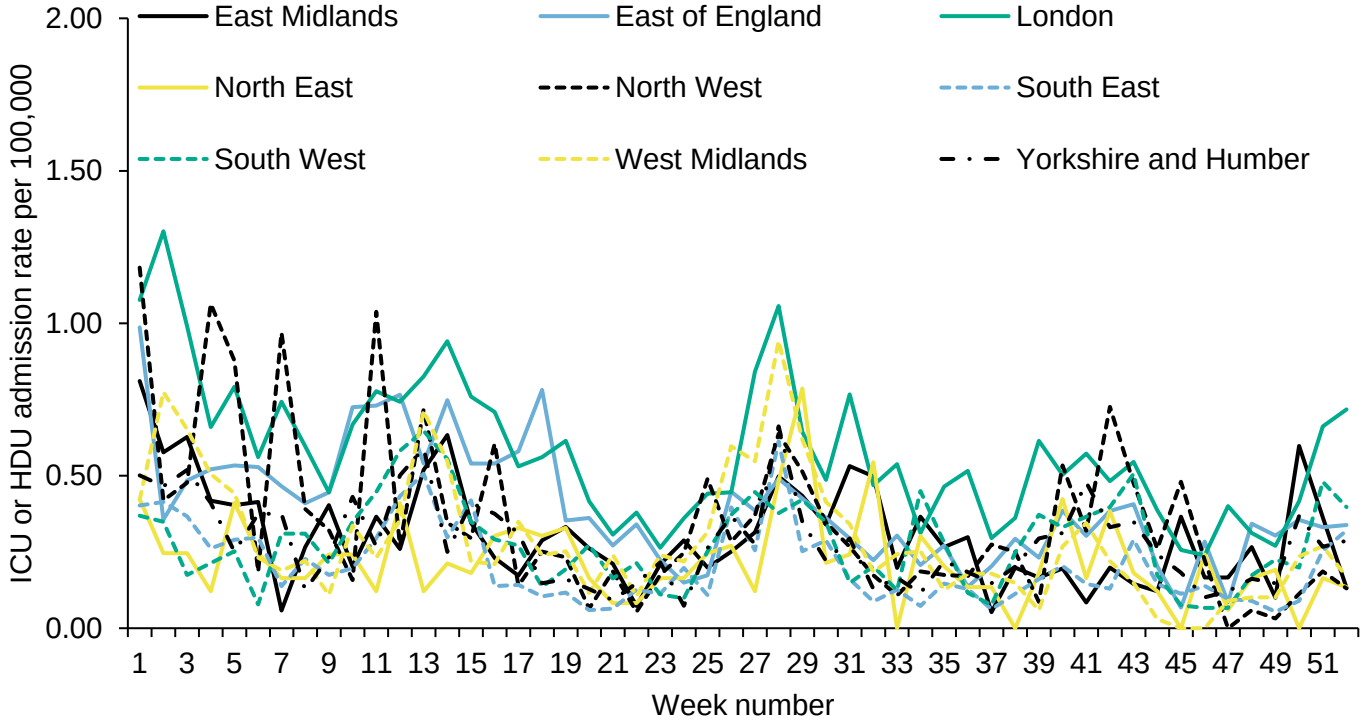


Figure 43: Weekly ICU or HDU admission rate by UKHSA centre for new (a) COVID-19 positive cases and (b) influenza, reported through SARI Watch

(a)



(b)

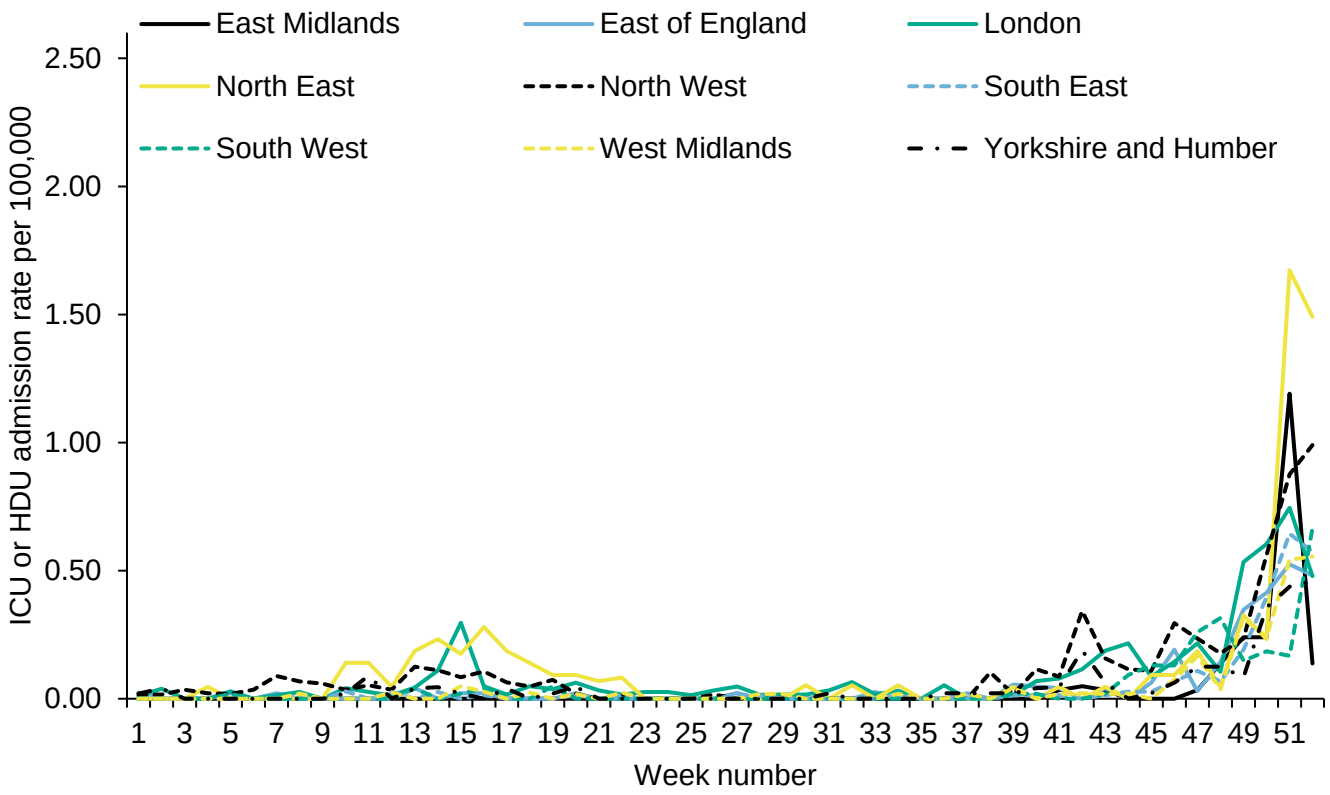
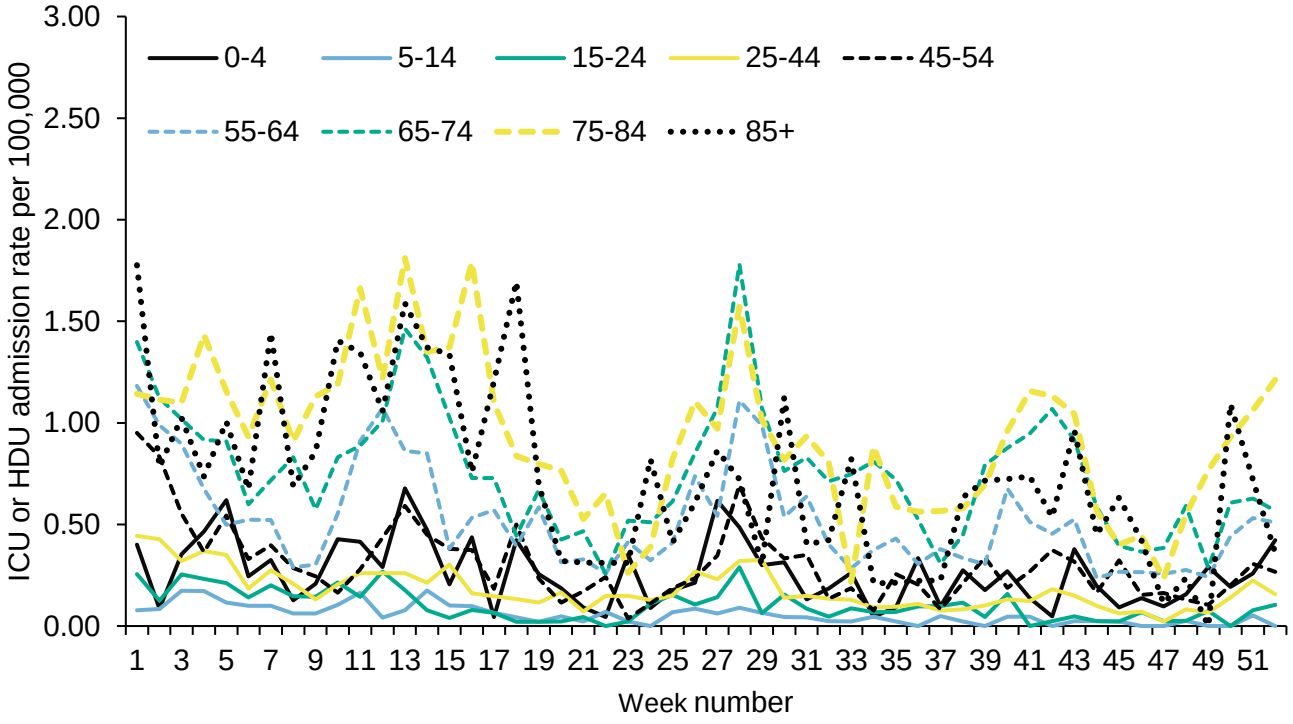
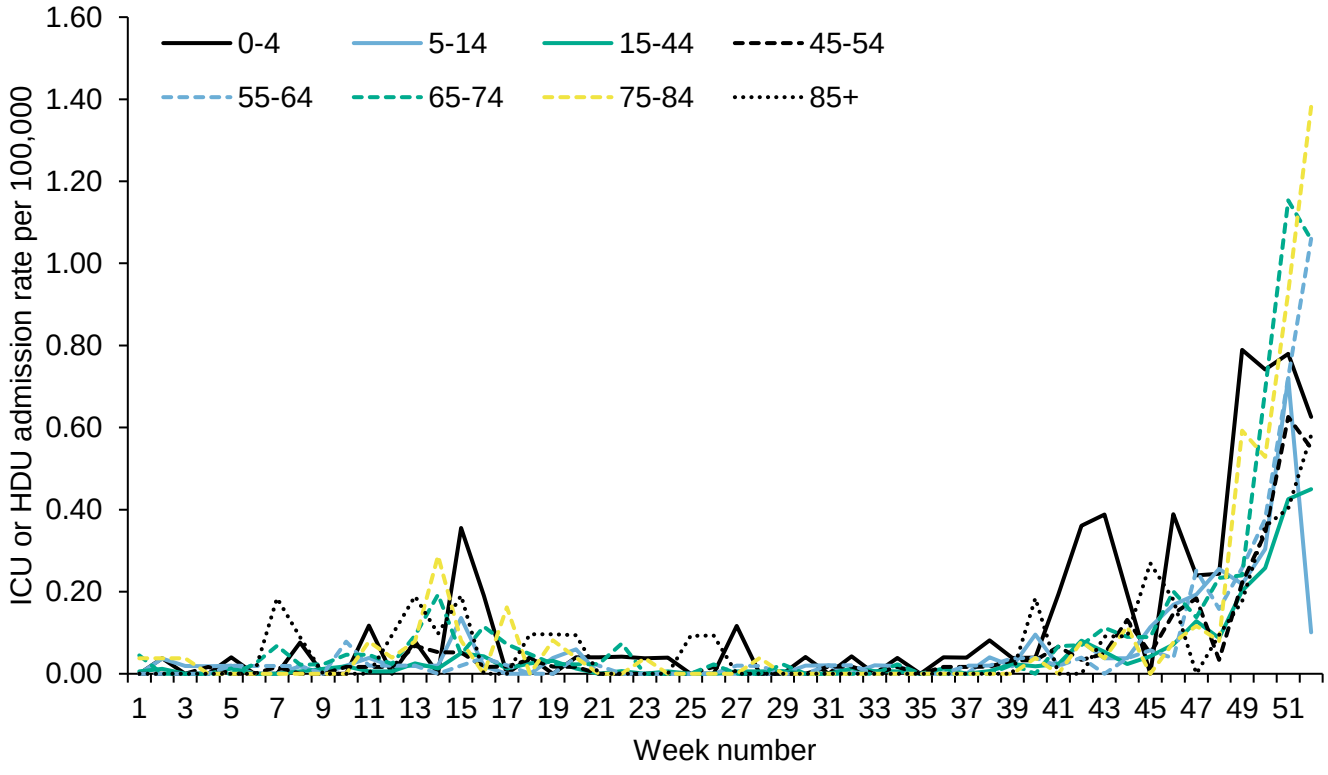

East Midlands
East of England
London
North East
North West
South East
South West
West Midlands
Yorkshire and Humber
ICU or HDU admission rate per 100,000
2.50
2.00
1.50
1.00
0.50
0.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
Week number

Figure 44: 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)

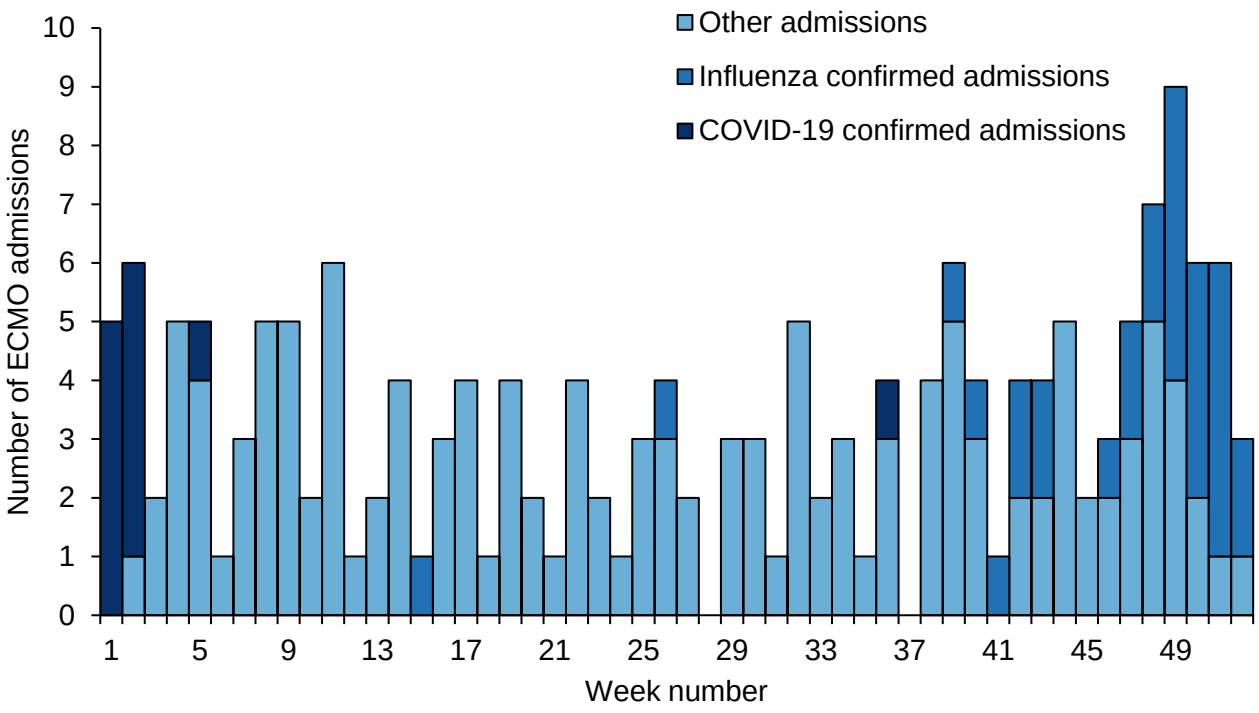


ECMO, SARI Watch

There were 3 new laboratory confirmed ECMO admissions reported in week 52 from the 7 Severe Respiratory Failure (SRF) centres in the UK (Figure 45). 2 were due to influenza and 1 was due to *S. pneumoniae*. No new COVID admissions were reported.

Figure 45: 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

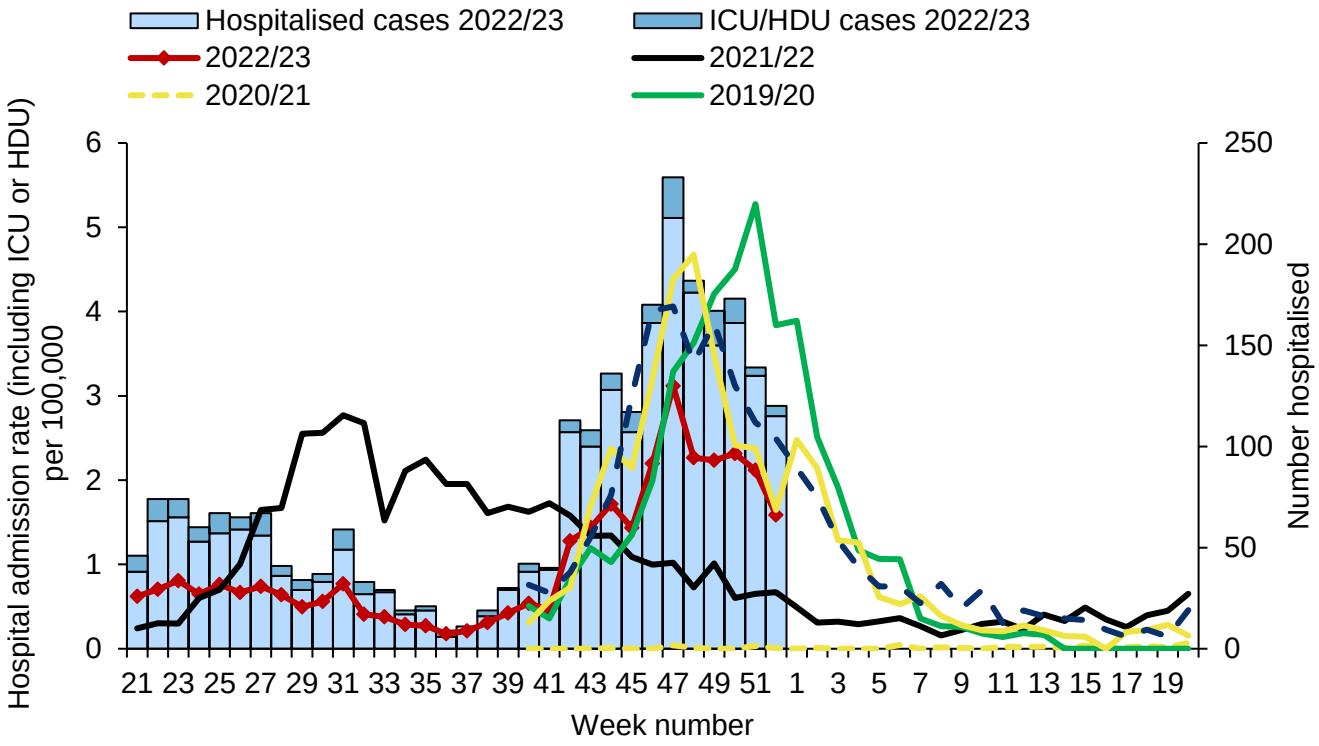


RSV admissions, SARI Watch

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

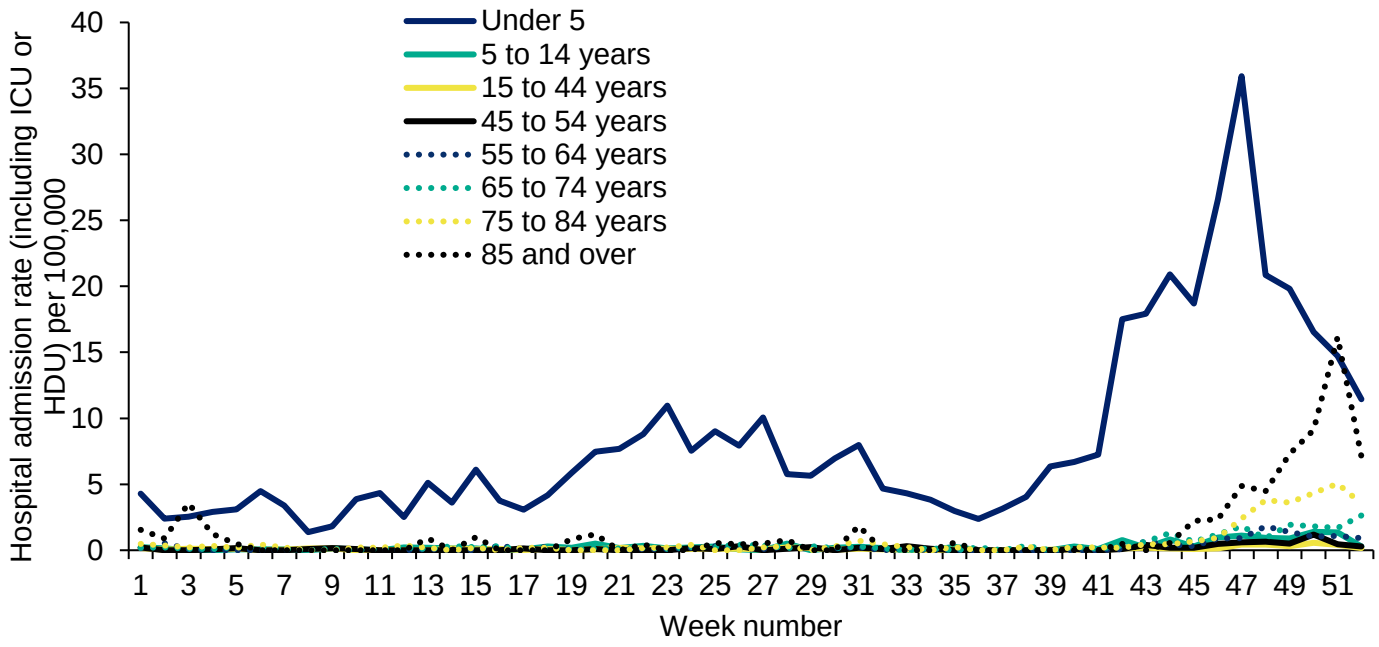
In week 52, the overall hospital admission rate for RSV was 1.59 per 100,000 compared to 2.12 per 100,000 in the previous week. The highest rates are seen in the under 5 year olds (11.44 per 100,000).

Figure 46: 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 47: 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

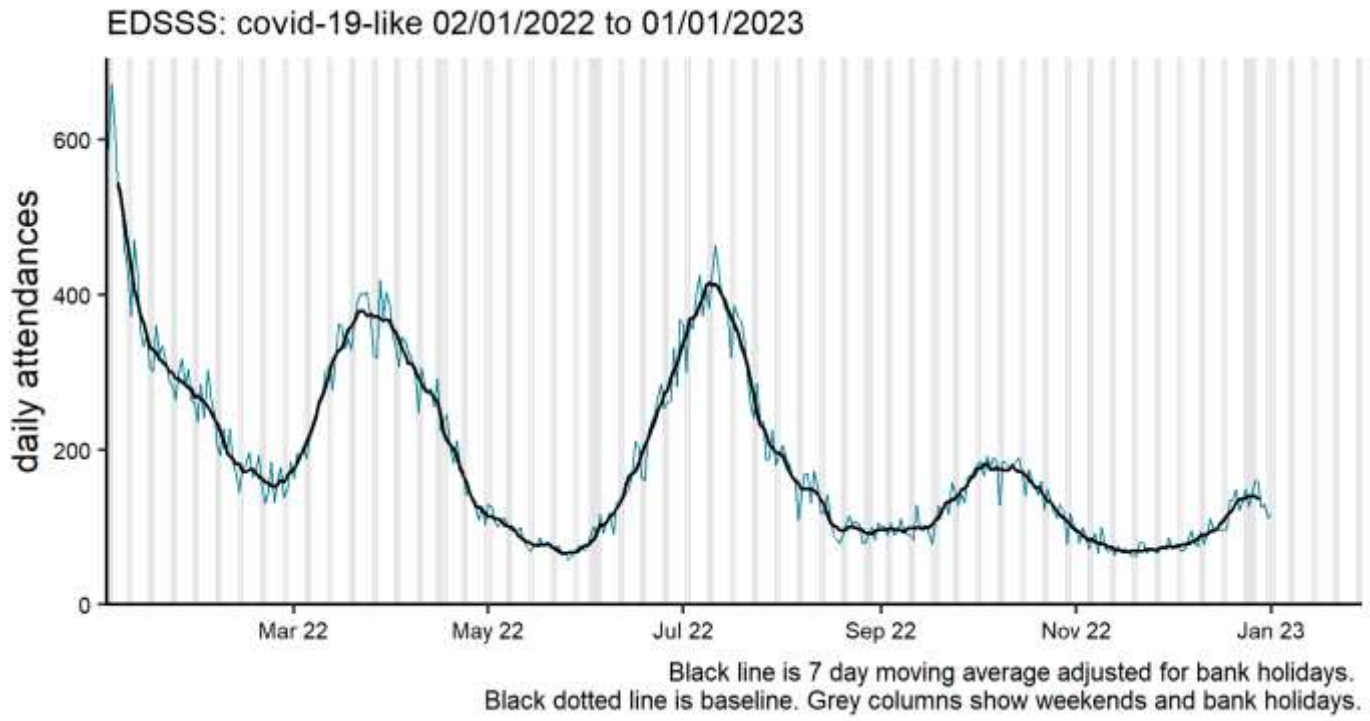
The Emergency Department Syndromic Surveillance System (EDSSS) monitors the daily visits in a network of emergency departments across England.

During week 52, emergency department attendances for acute respiratory infection decreased nationally but increased in those aged over 65 years. Emergency department attendances for acute bronchiolitis increased nationally. Emergency department attendances for influenza-like illness decreased nationally, across all ages and regions. Emergency department attendances for covid-like illness slightly increased. (Figures 48, 49, 50 and 51).

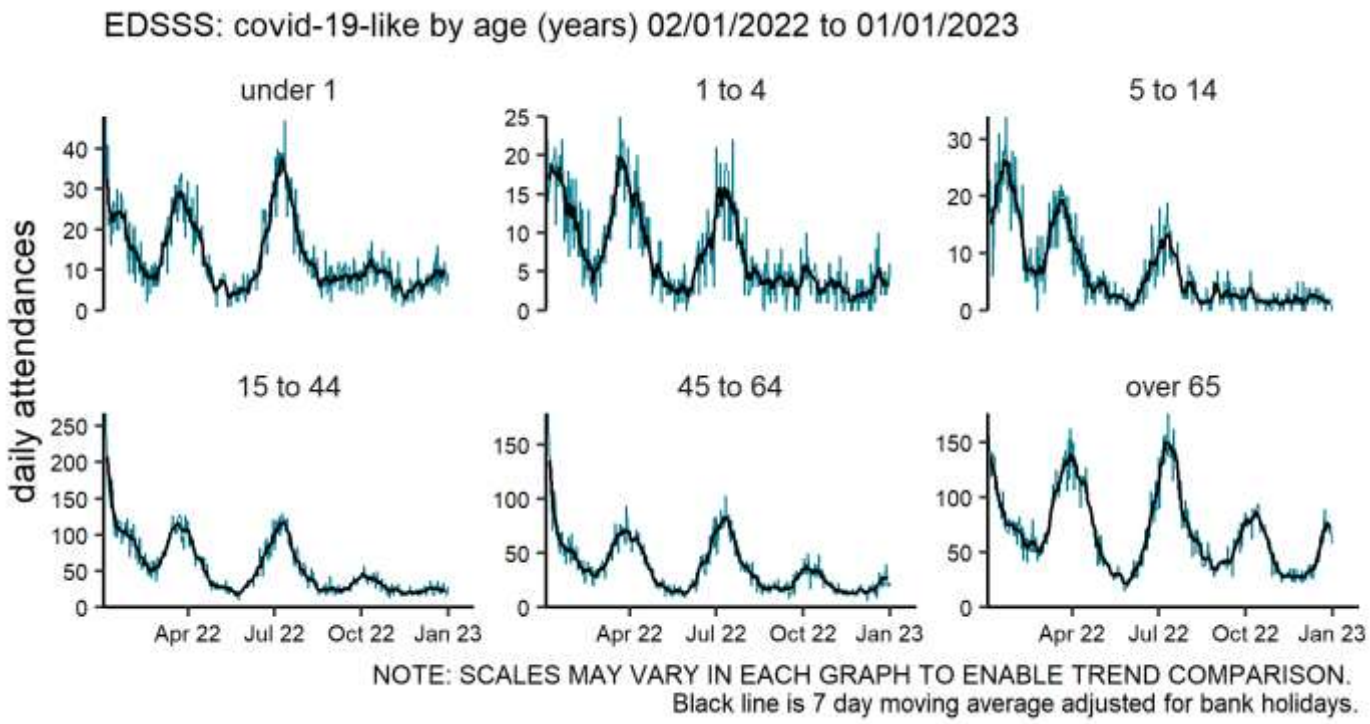
Please note: the COVID-19-like ED indicator is an underestimation of the number of COVID-19 attendances as it only includes attendances with a COVID-19-like diagnosis as their primary diagnosis. The EDSSS COVID-19-like indicator should therefore be used to monitor trends in ED attendances and not to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

Figure 48: 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) 02/01/2022 to 01/01/2023
under 1
1 to 4
5 to 14
15 to 44
45 to 64
over 65
daily attendances
Apr 22
Jul 22
Oct 22
Jan 23
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON.
Black line is 7 day moving average adjusted for bank holidays.

(c)

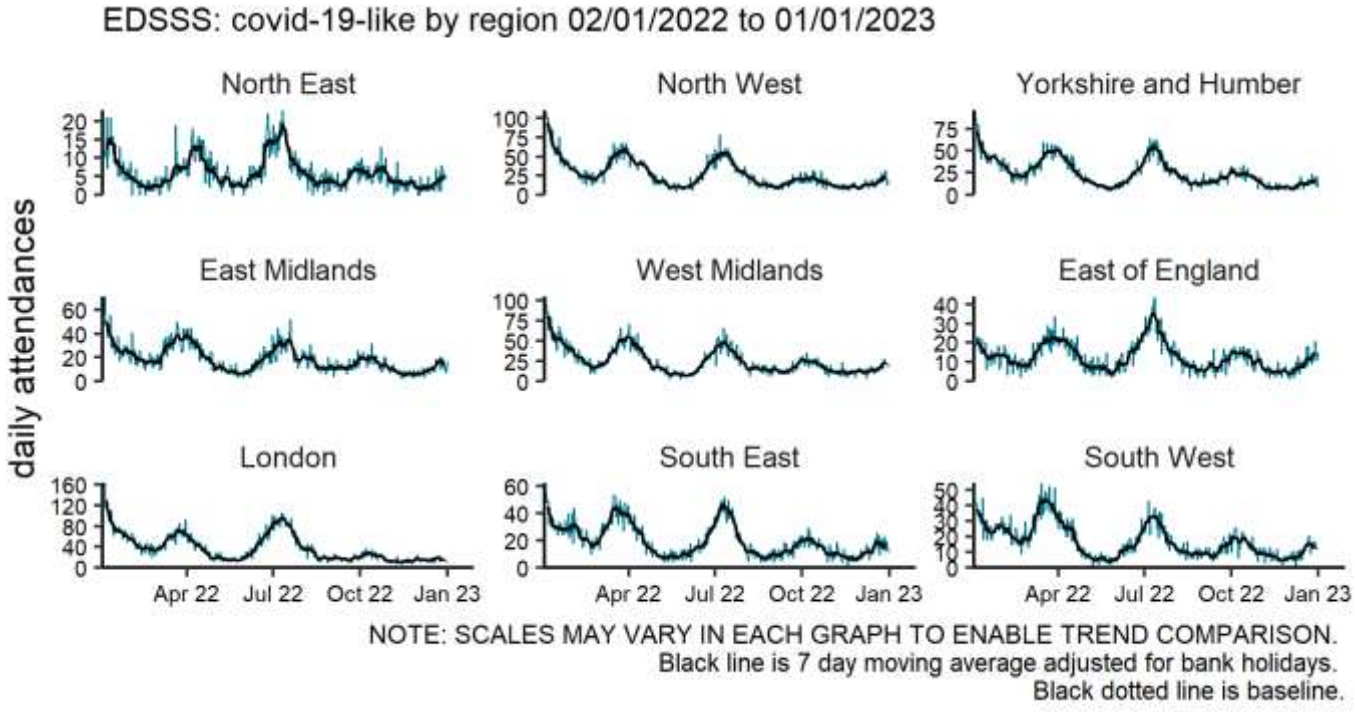
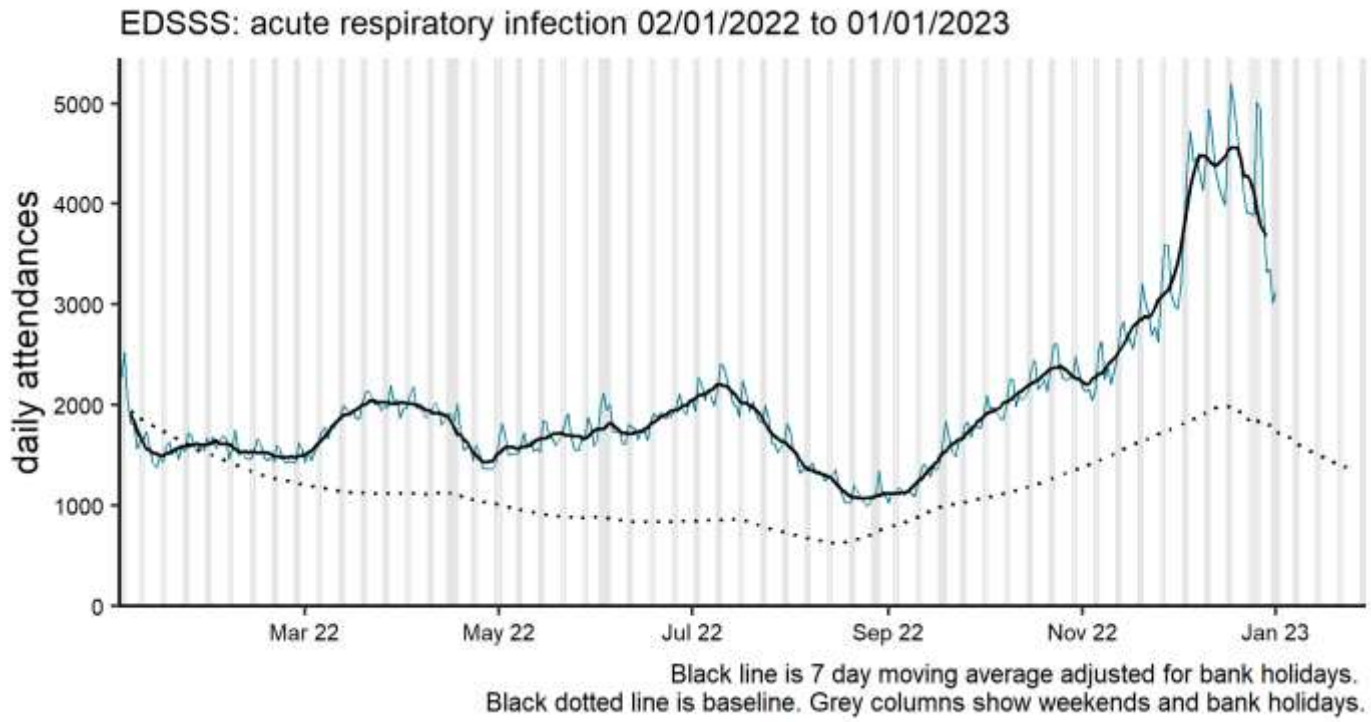
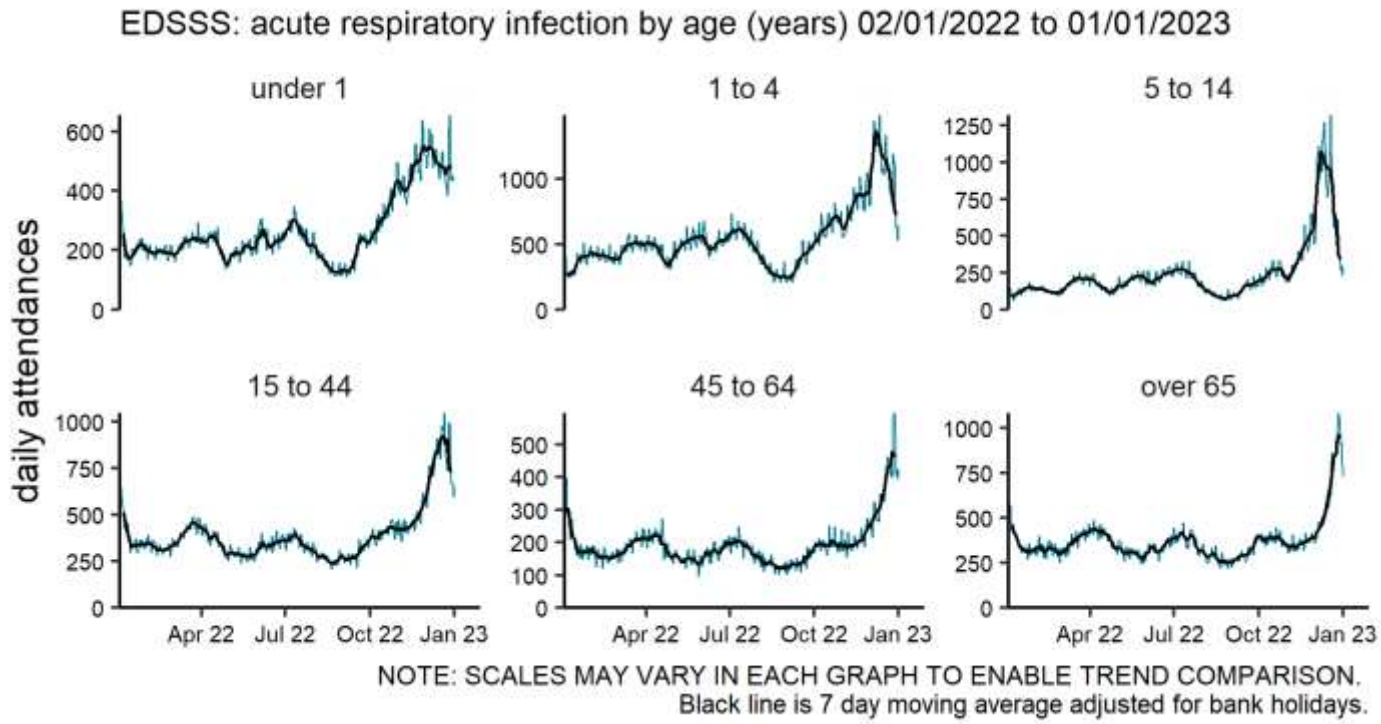

EDSSS: covid-19-like by region 02/01/2022 to 01/01/2023
North East
North West
Yorkshire and Humber
East Midlands
West Midlands
East of England
London
South East
South West
daily attendances
Apr 22
Jul 22
Oct 22
Jan 23
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON.
Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline.

Figure 49: Daily ED attendances for acute respiratory infection, England (a) nationally, (b) by age group and (c) by UKHSA centre

(a)



(b)



(c)

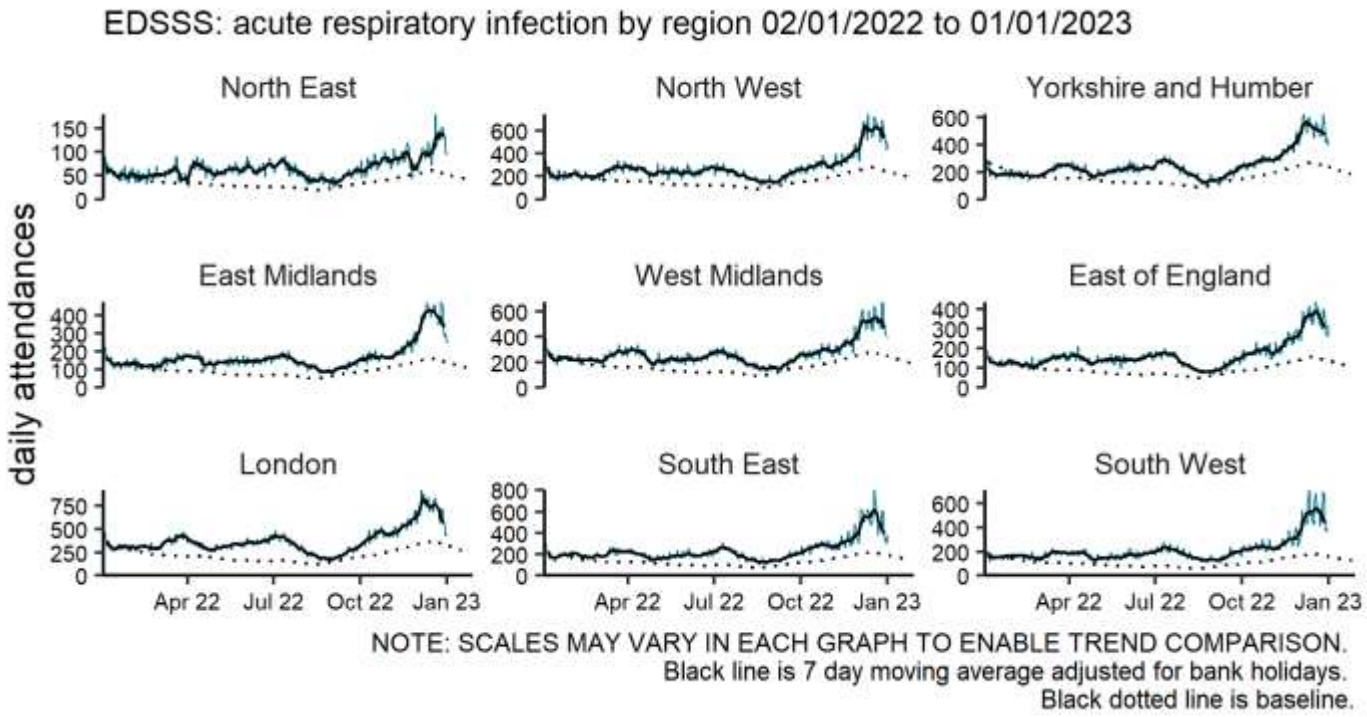
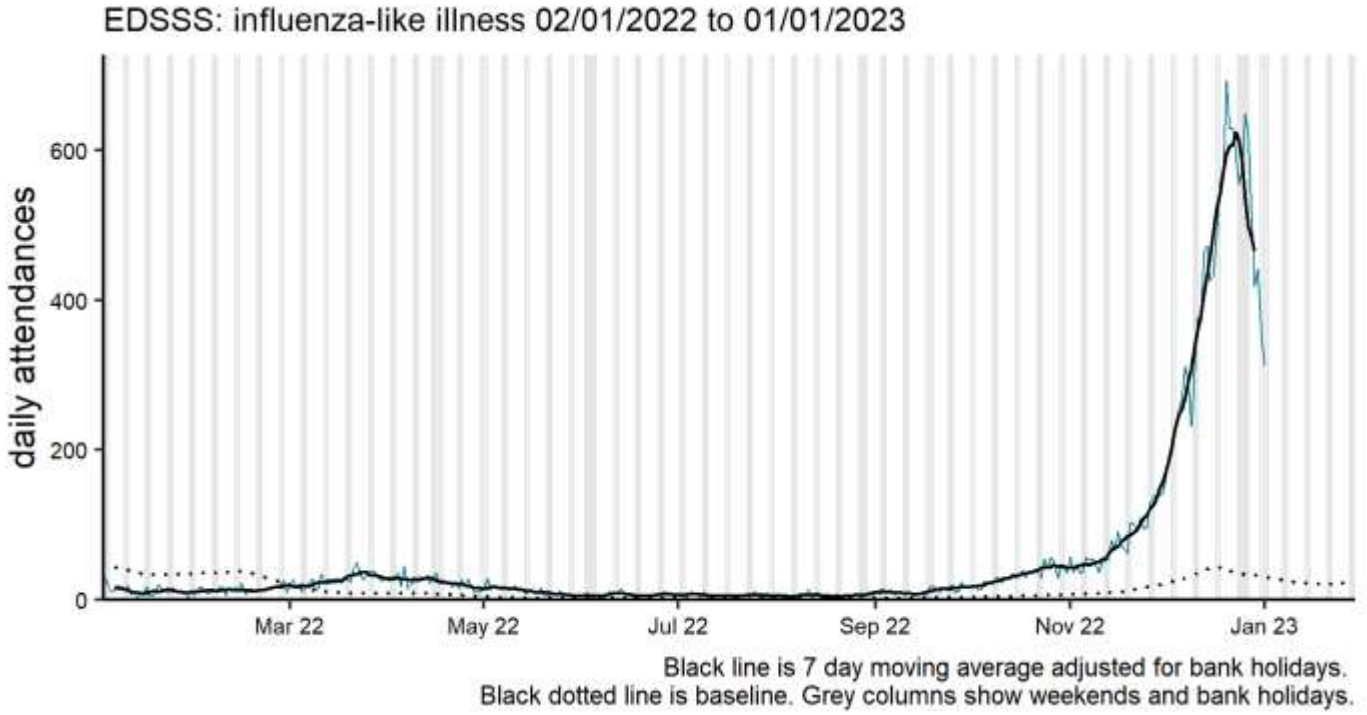
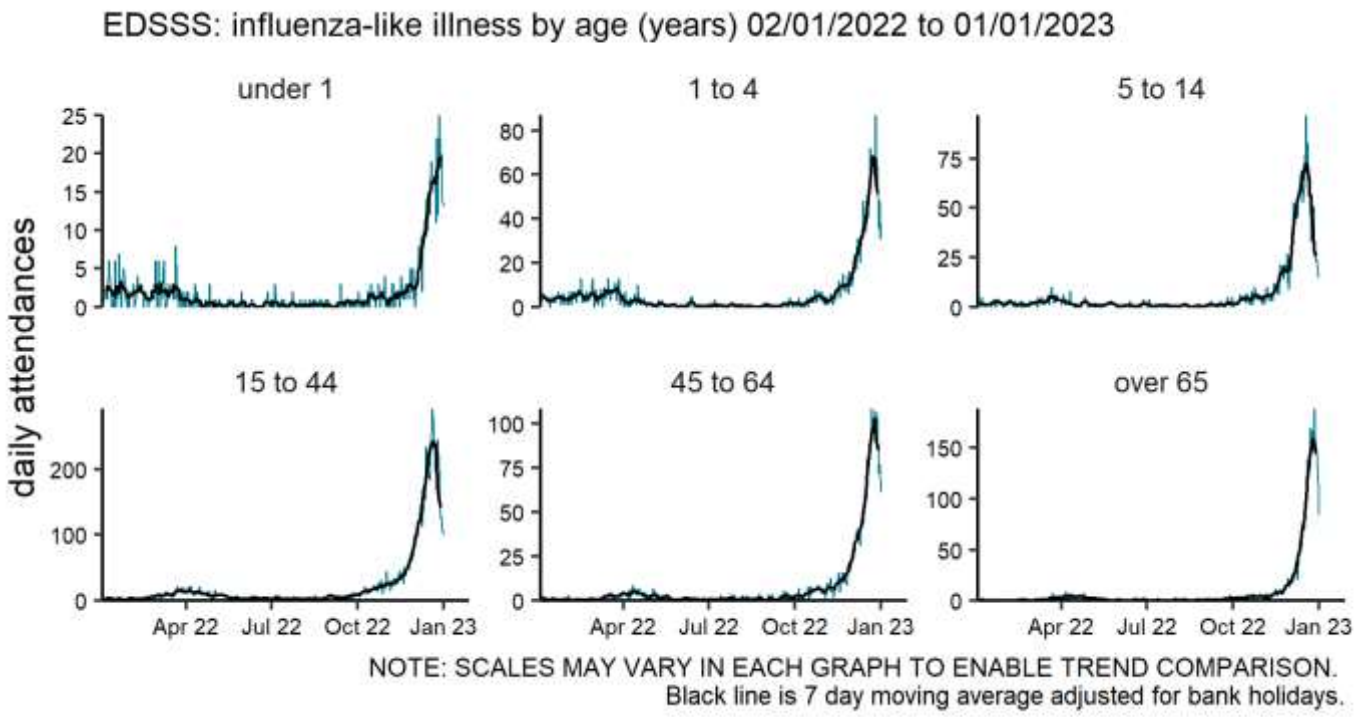


Figure 50: Daily ED attendances for influenza-like illness, England (a) nationally, (b) by age group and (c) by UKHSA centre

(a)



(b)


EDSSS: influenza-like illness by age (years) 02/01/2022 to 01/01/2023
under 1
1 to 4
5 to 14
15 to 44
45 to 64
over 65
daily attendances
Apr 22
Jul 22
Oct 22
Jan 23
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON.
Black line is 7 day moving average adjusted for bank holidays.

(c)

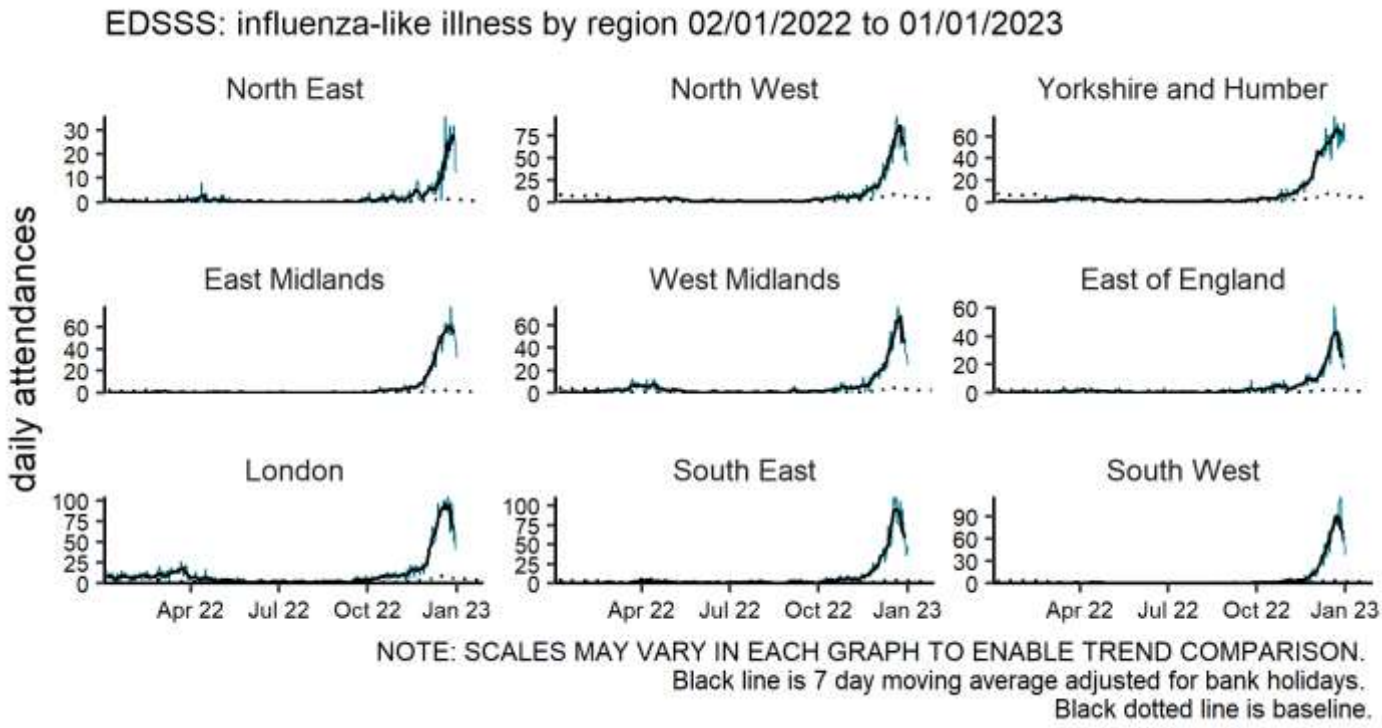
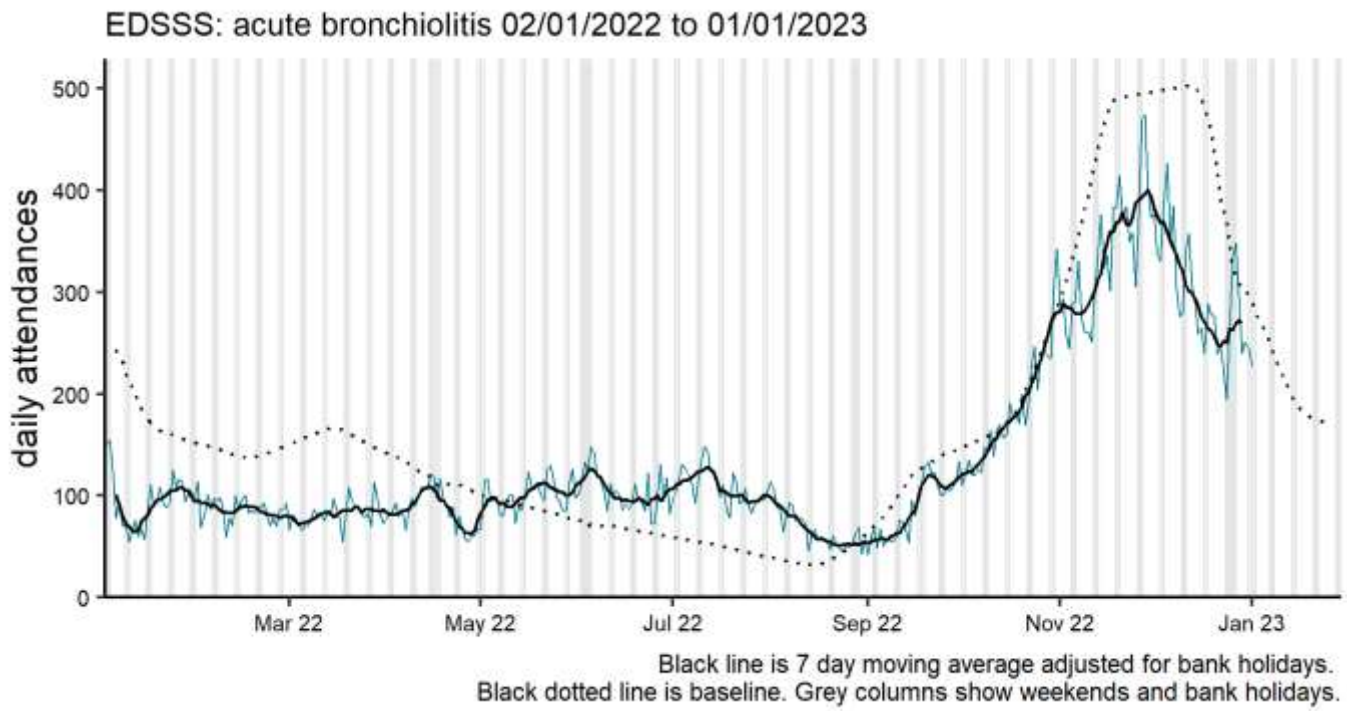
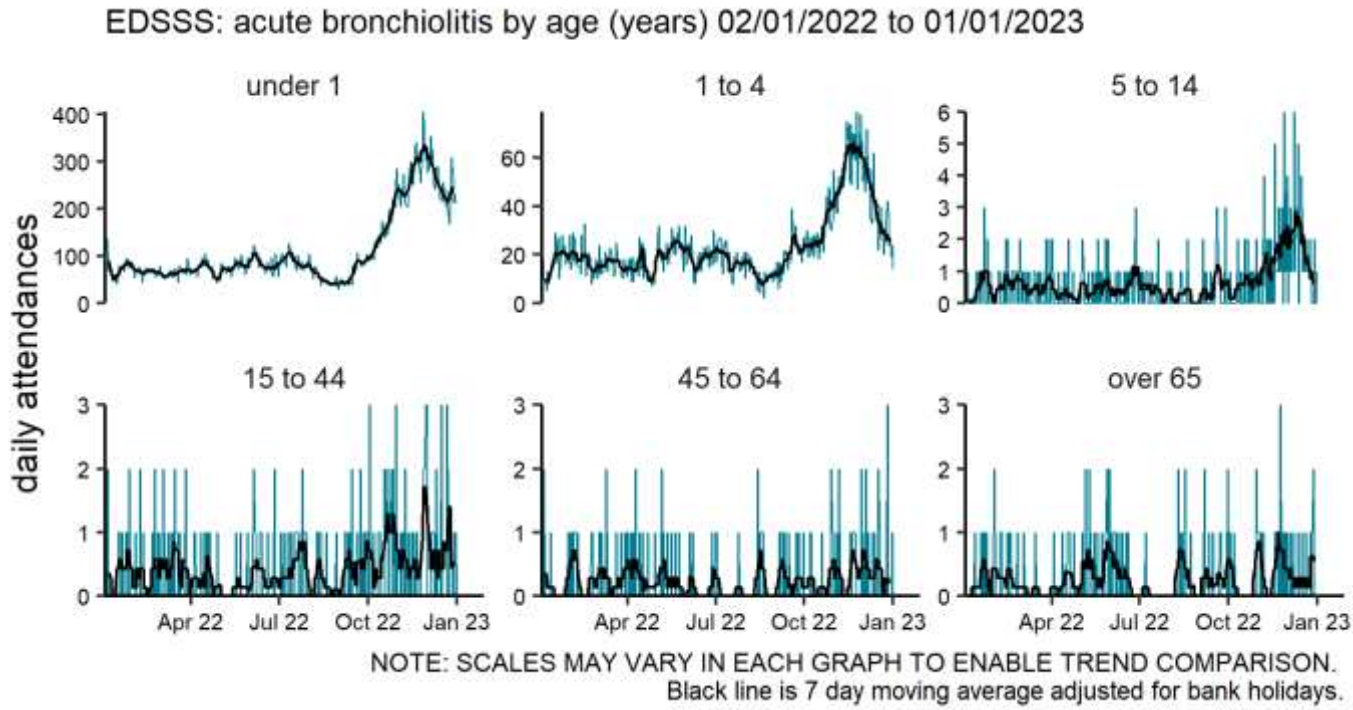

EDSSS: influenza-like illness by region 02/01/2022 to 01/01/2023
North East
North West
Yorkshire and Humber
East Midlands
West Midlands
East of England
London
South East
South West
daily attendances
Apr 22
Jul 22
Oct 22
Jan 23
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON.
Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline.

Figure 51: Daily ED attendances for acute bronchiolitis, England (a) nationally, (b) by age group and (c) by UKHSA centre

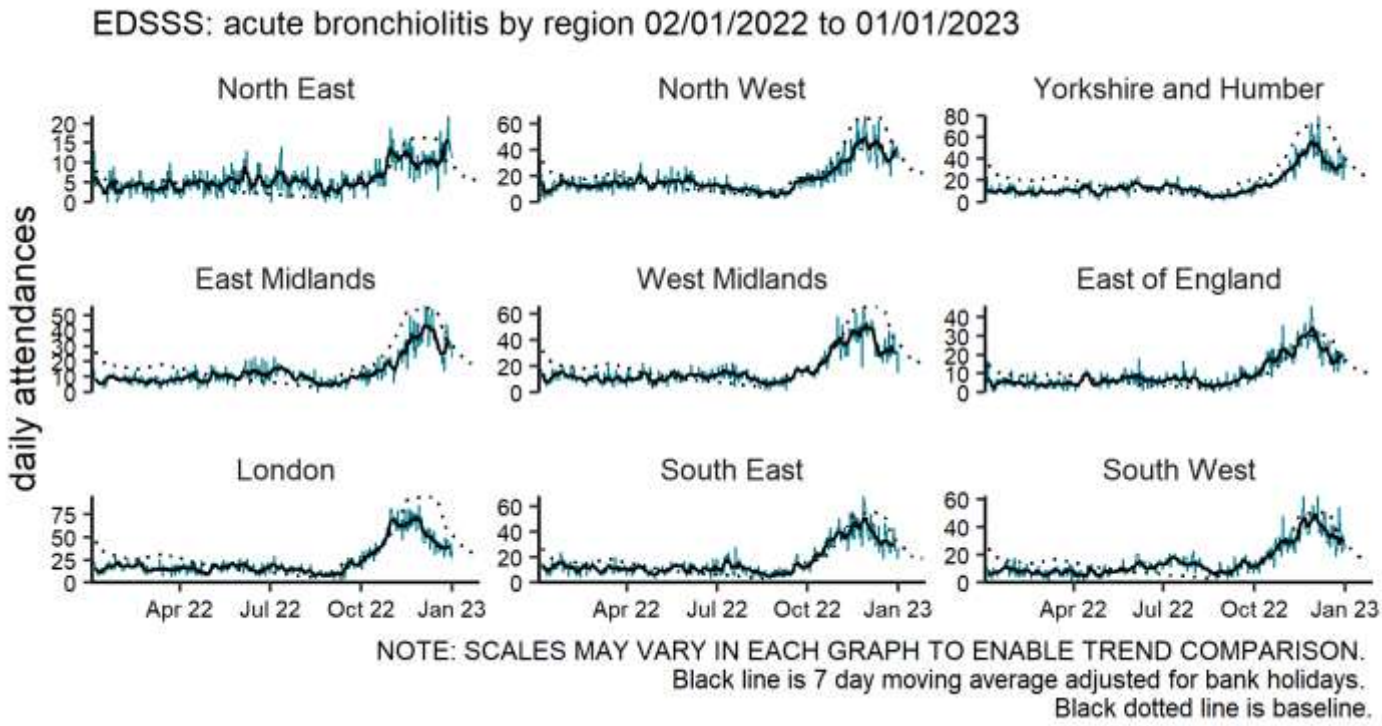
(a)



(b)



(c)

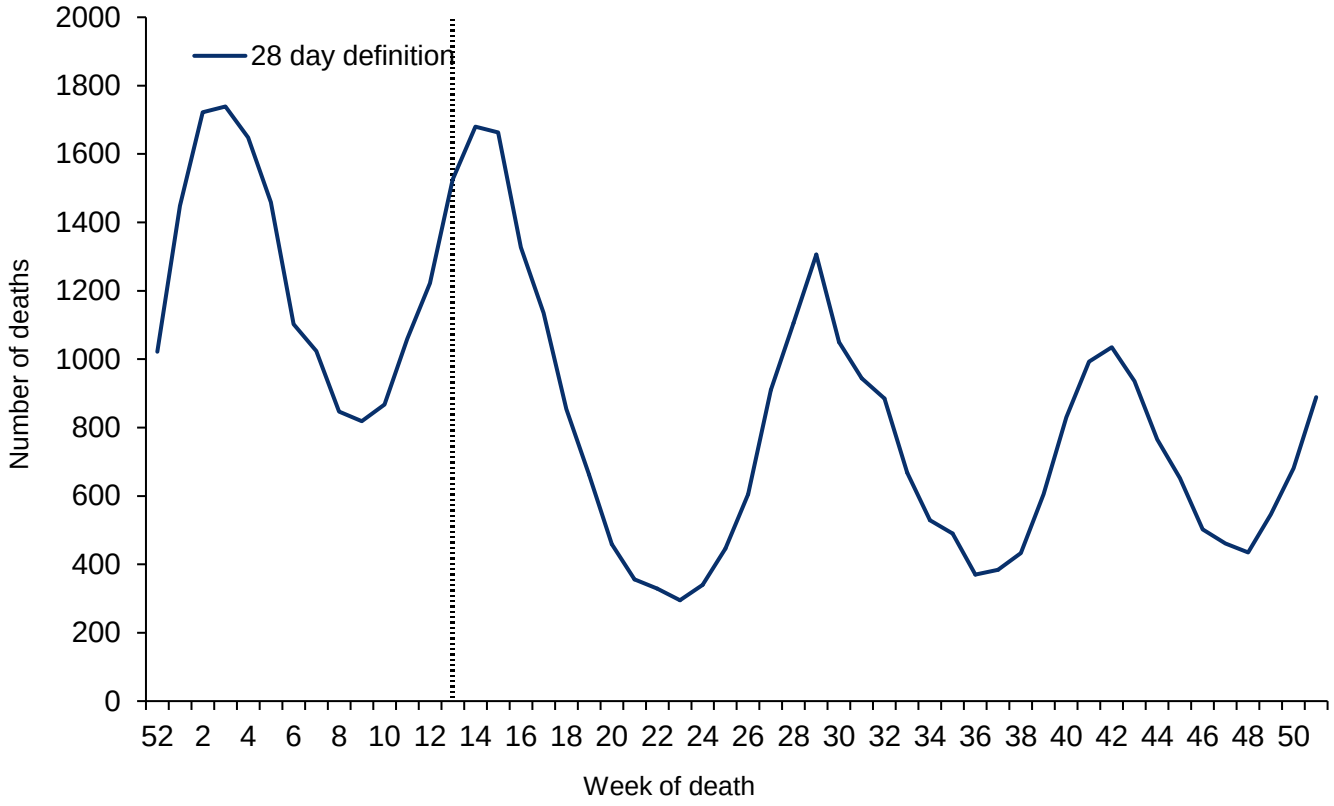

EDSSS: acute bronchiolitis by region 02/01/2022 to 01/01/2023
North East
North West
Yorkshire and Humber
East Midlands
West Midlands
East of England
London
South East
South West
daily attendances
Apr 22
Jul 22
Oct 22
Jan 23
NOTE: SCALES MAY VARY IN EACH GRAPH TO ENABLE TREND COMPARISON.
Black line is 7 day moving average adjusted for bank holidays.
Black dotted line is baseline.

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.

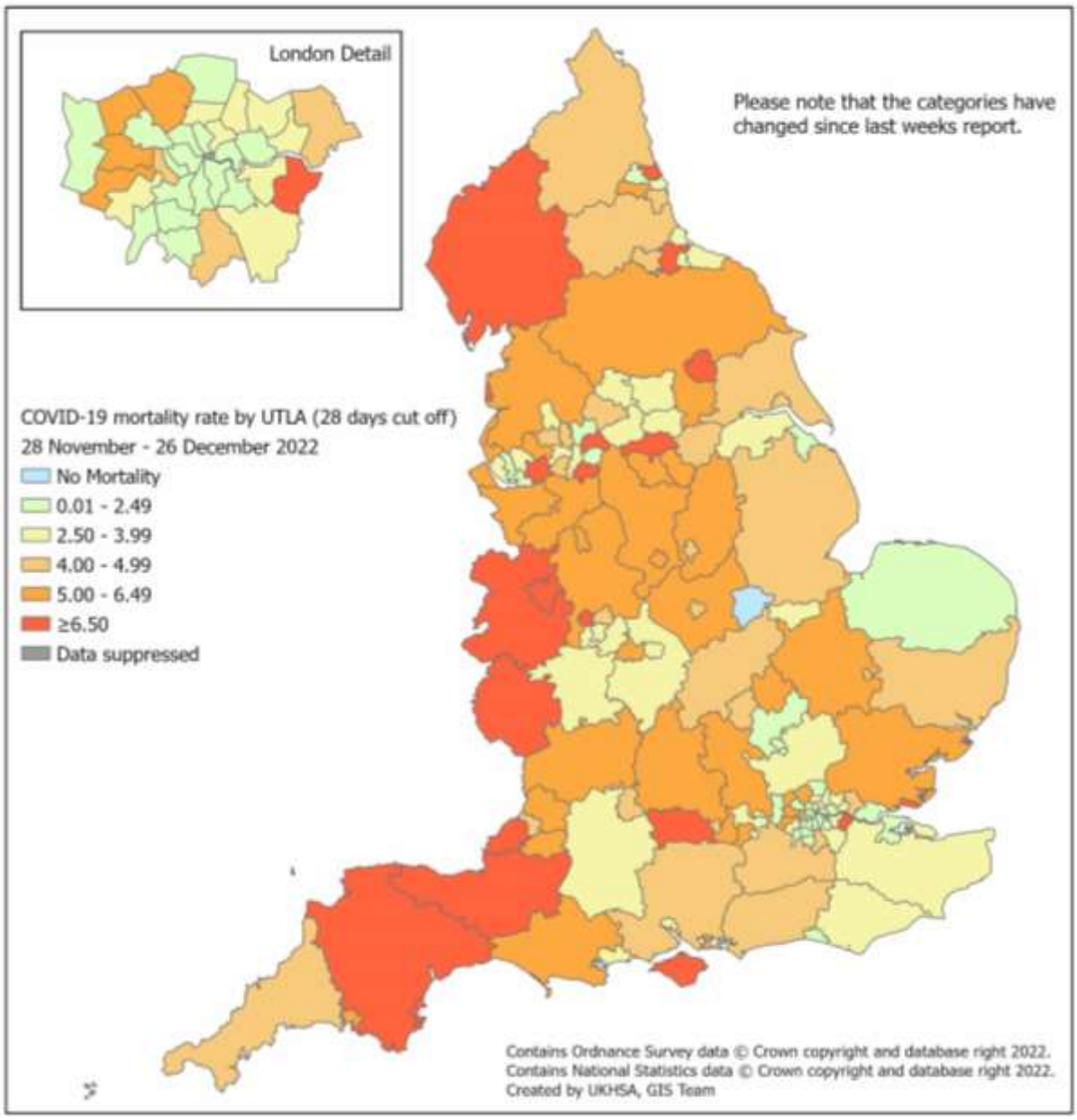
Figure 52: Number of deaths by week of death and time since a positive COVID-19 test (28 day definition), England



* 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 53: Cumulative mortality rate of COVID-19 cases per 100,000 population tested under Pillars 1 and 2 for the weeks 47 to 51 by 28 day definition



Daily excess all-cause mortality (England)

Deaths occurring from 1 January 2020 to 18 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 54).

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 Figures 55 and 56.

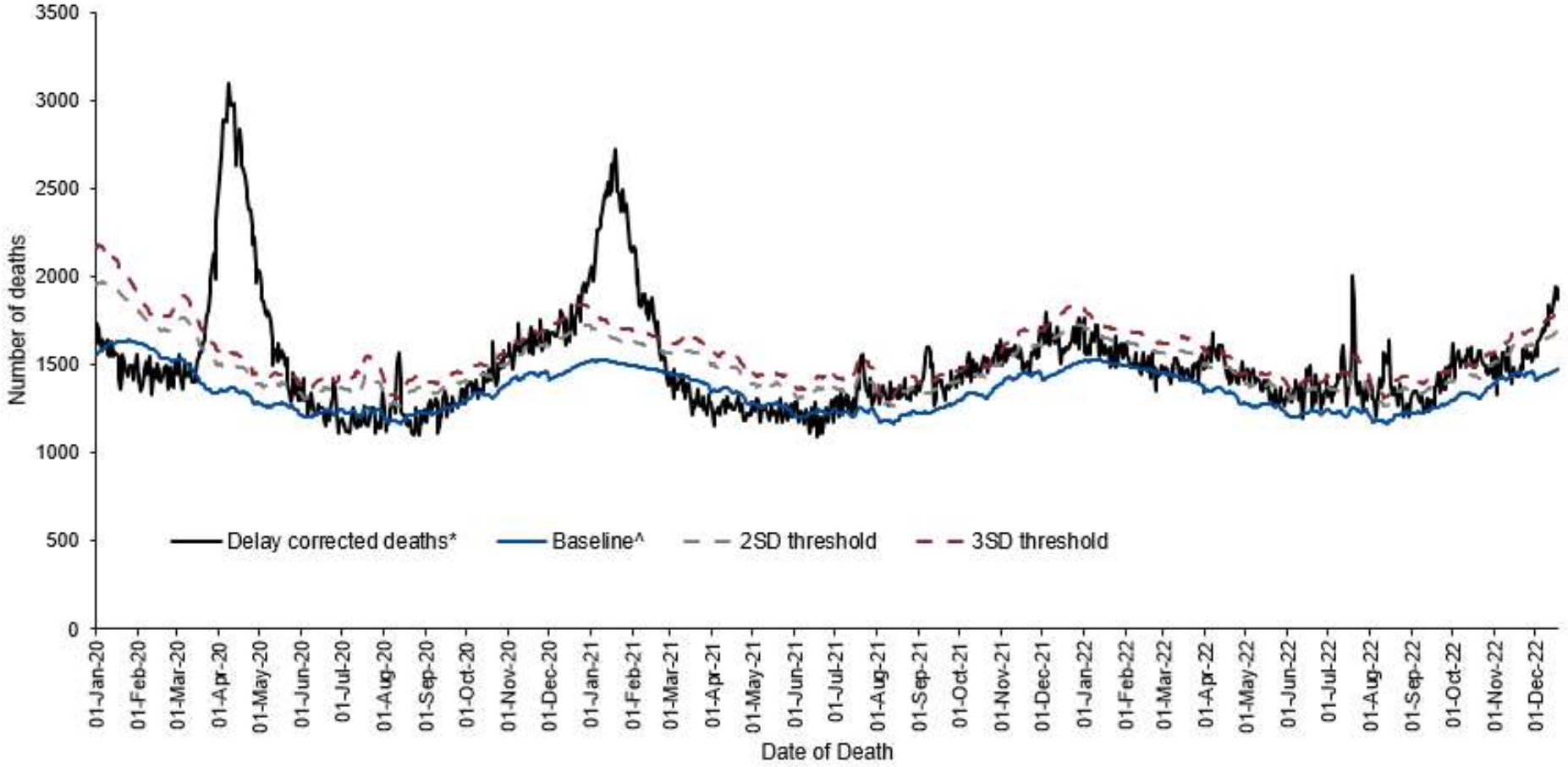
Note that as this data is by date of death with delay corrections, numbers are subject to change each week, particularly for more recent days. The current week's model supersedes models presented in previous week.

Excess all-cause mortality was observed in week 50.

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 54: Daily excess all-cause deaths in all ages, England, 1 January 2020 to 18 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)

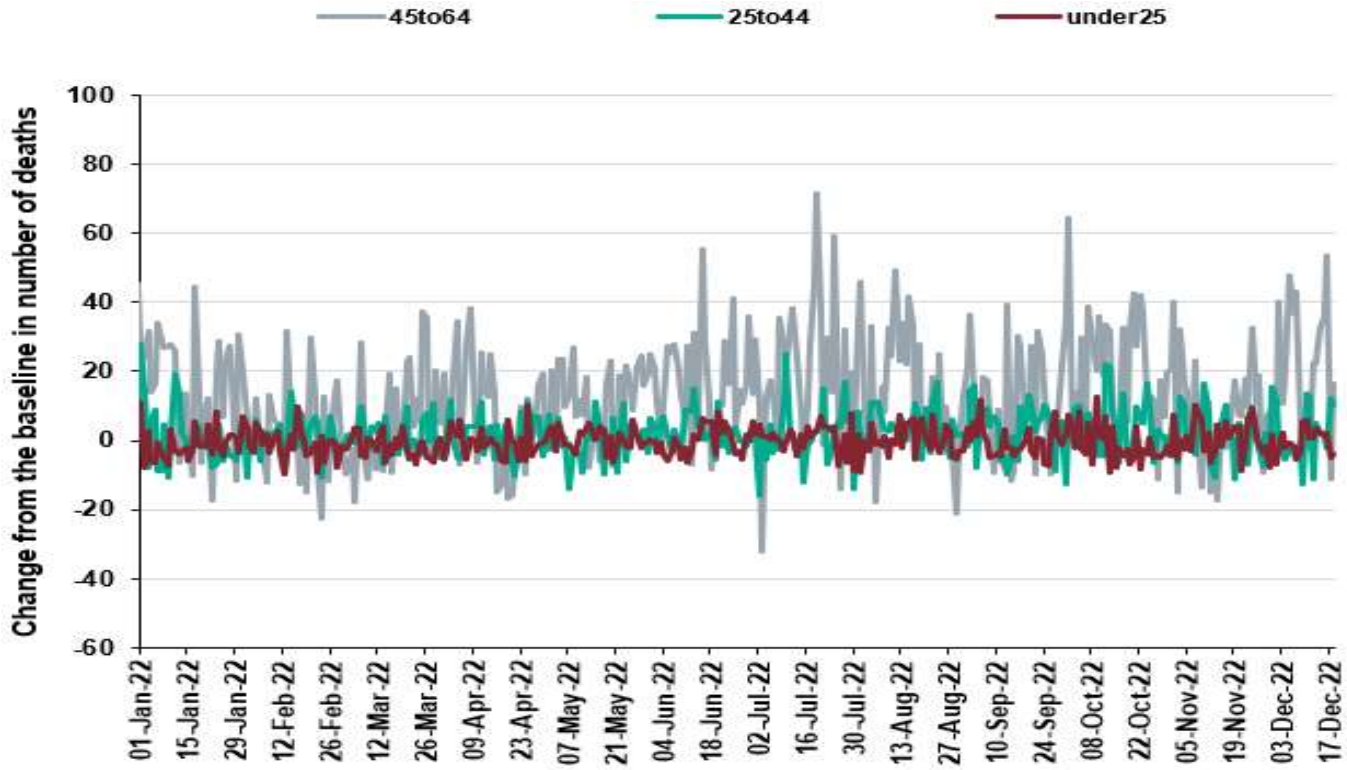
Age Group	Excess detected in week 50 2022	Weeks in excess from week 10 to 53 2020	Weeks in excess from week 1 to 52 2021	Weeks in excess from week 1 2022
All	✓	13 to 21, 33, 43, 45, 50, 52 to 53	01 to 07, 29, 31 to 32, 35 to 36, 40 to 44, 48	14 to 15, 17 to 18, 23 to 24, 27 to 29, 32 to 33, 39 to 42, 49 to 50
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, 42
65 to 74	x	13 to 19, 46, 48, 52 to 53	01 to 07, 36, 43, 48	32
75 to 84	✓	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, 49 to 50
85+	✓	13 to 21, 33, 53	01 to 07, 31, 36	28 to 29, 32, 39, 41, 49 to 50

(b)

UKHSA Centres	Excess detected in week 50 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	✓	14 to 19, 52 to 53	01 to 07	23, 27, 29, 50
East Midlands	x	13 to 19, 48	01 to 07	29
London	✓	12 to 19, 33, 52 to 53	01 to 06, 36	50
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	✓	13 to 21, 33, 50 to 53	01 to 07, 36, 41, 49	14, 28, 32, 40 to 42, 49 to 50
South West	✓	13 to 19, 33	02 to 07, 29, 36	18, 29, 32, 34, 39, 50
West Midlands	x	13 to 20, 45, 48	01 to 07, 29, 36, 40, 48	13, 29, 32, 41 to 42
Yorkshire and Humber	✓	14 to 21, 23, 43 to 50	02 to 04, 32, 35 to 36	29, 32, 42, 49 to 50

Figure 55: Daily excess all-cause deaths by age group, England, 1 January to 18 December 2022

(a)



(b)

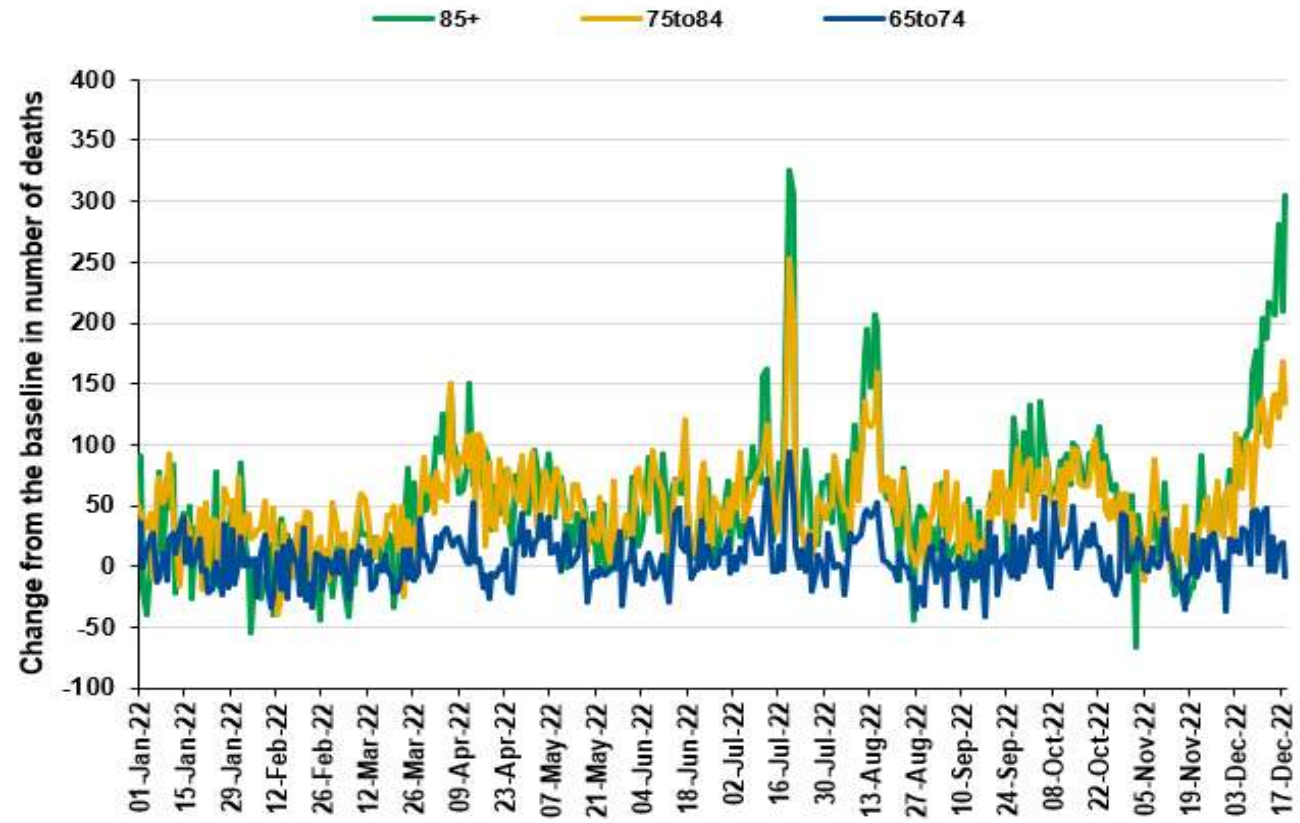
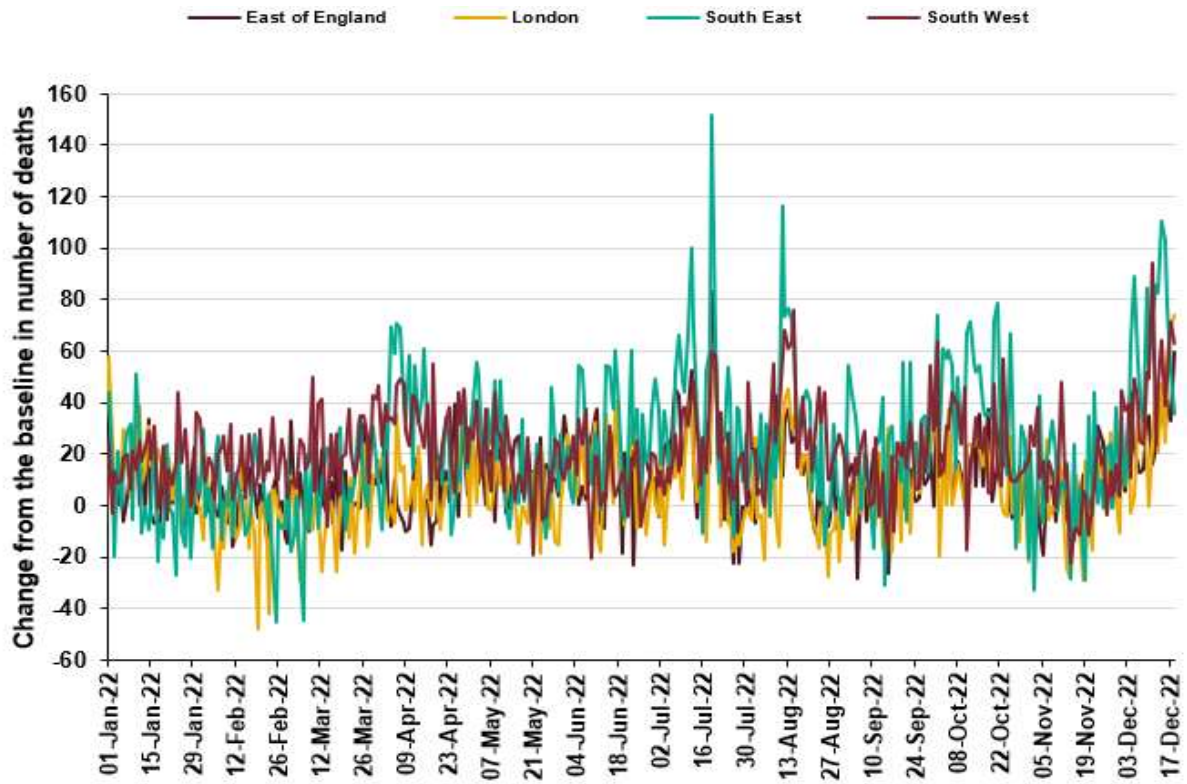
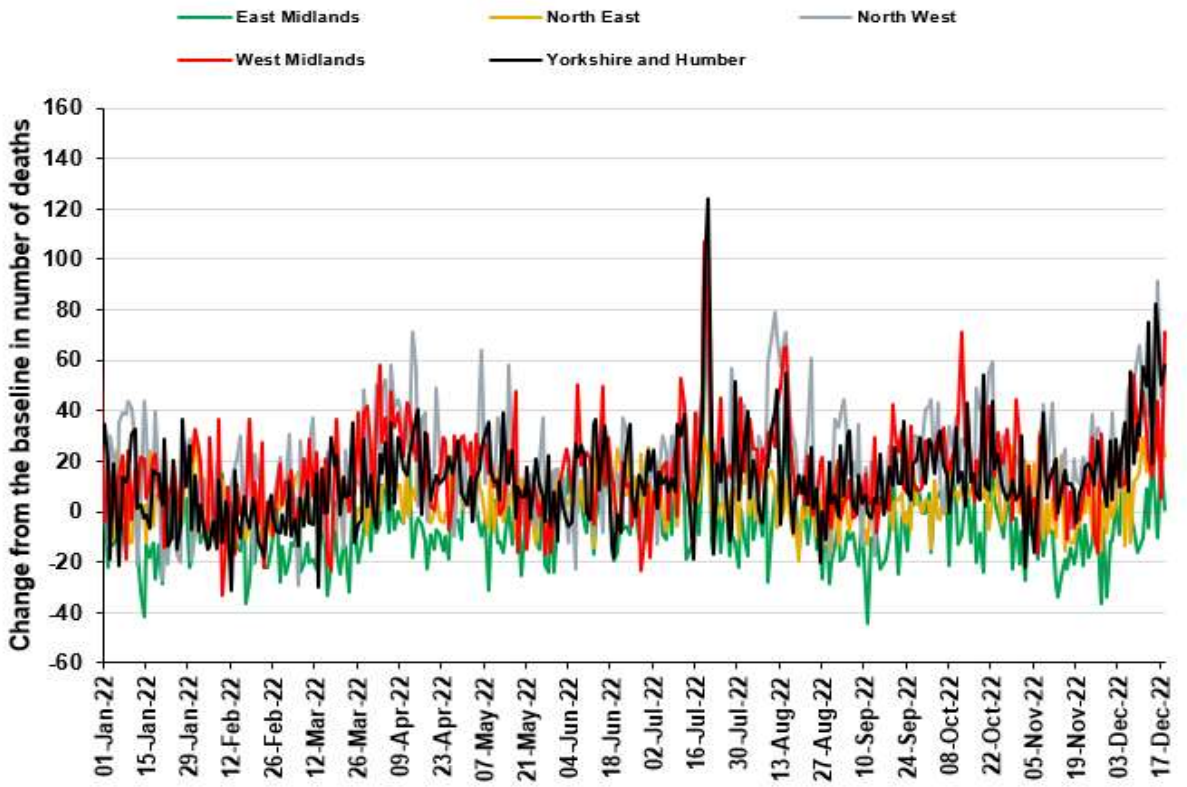


Figure 56: Daily excess all-cause deaths by UKHSA centre, England, 1 January to 18 December 2022

(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.

Between week 40 2022 and week 1 2023, the UKHSA Respiratory Virus Unit have genetically characterised, by sequencing of the haemagglutinin (HA) gene, 1,002 influenza A viruses (583 A(H3N2) and 419 A(H1N1)pdm09 viruses) and 11 influenza B viruses.

The 583 influenza A(H3N2) viruses genetically characterised, all belong in the genetic subclade 3C.2a1b.2a.2. The Northern Hemisphere 2022/23 influenza A(H3N2) vaccine strain (an A/Darwin/9/2021-like virus) also belongs in this 3C.2a1b.2a.2 genetic subclade.

The 419 influenza A(H1N1)pdm09 viruses characterised to date this season, all belong in genetic subgroup 6B.1A.5a.2. The Northern Hemisphere 2022/23 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.

Eleven influenza B/Victoria lineage viruses have been genetically characterised, all belonging in subclade V1A3, within the subgroup V1A3a.2. The Northern Hemisphere 2022/23 influenza B/Victoria lineage vaccine strain (a B/Austria/1359417/2021-like virus) also belongs in this V1A3a.2 subclade/group.

The Respiratory Virus Unit has confirmed by genome sequencing the detection of live attenuated influenza vaccine (LAIV) viruses in one influenza A positive sample and 4 influenza B positive samples collected since week 40, all from children aged 2 to ≤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 40 2022 and 1 2023 have been analysed. No viruses with known markers of resistance to neuraminidase inhibitors were detected in 537 A(H3N2), 397 A(H1N1)pdm09 and 11 Influenza B NA sequences analysed. No viruses with known markers of resistance to baloxavir marboxil were detected in 440 A(H3N2), 308 A(H1N1)pdm09 and 10 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)	537	0	440	0
A(H1N1)pdm09	398	0	308	0
B/Victoria-lineage	11	0	10	0

SARS-CoV-2 variants

This section is updated fortnightly. The last update was in week 50 2022 report.

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

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

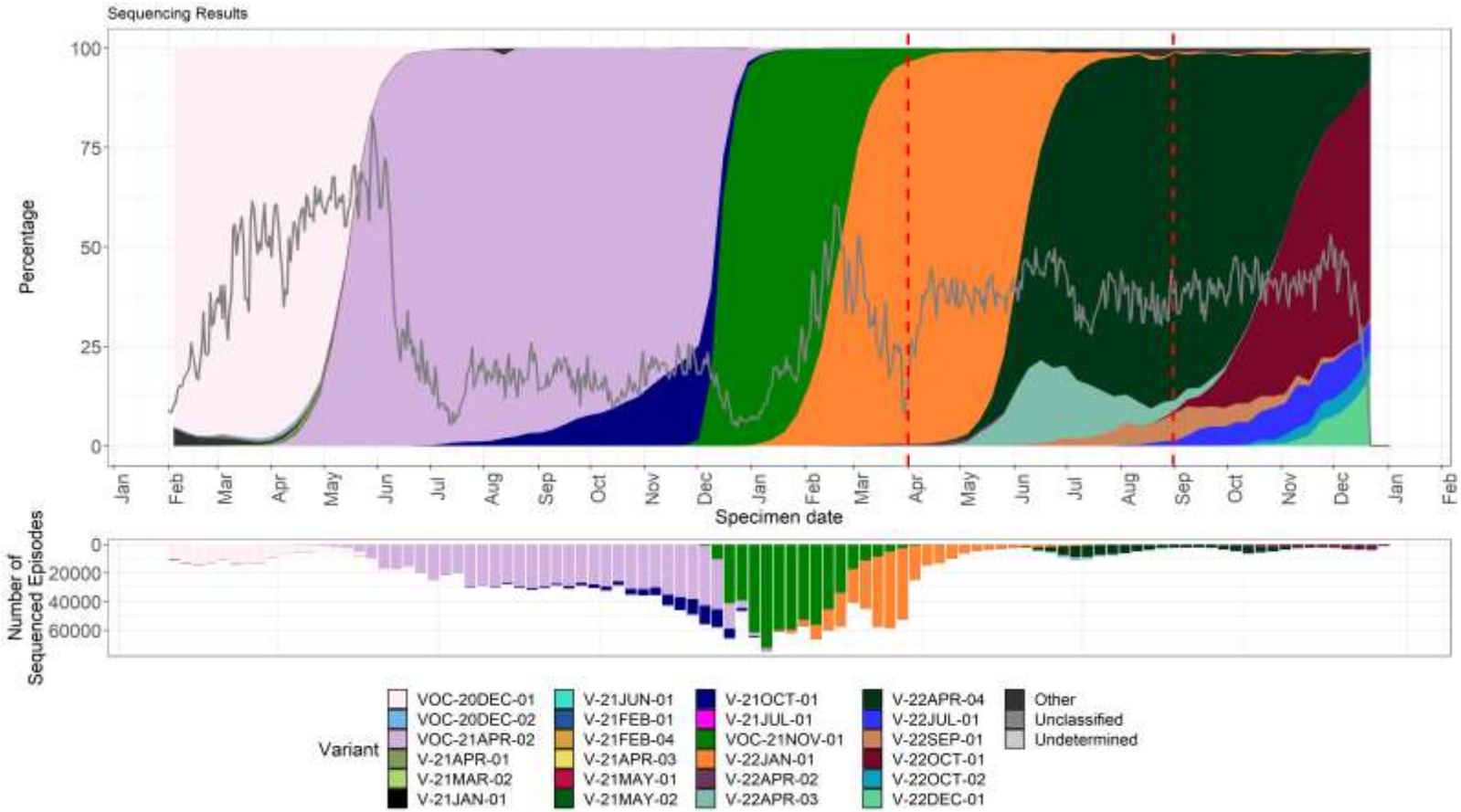
Detailed surveillance of particular variants of concerns can be found in recent technical briefings.

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 57.

Of the sequenced episodes from 19 December 2022 to 25 December 2022, 1% were classified BA.4.6 (V-22SEP-01), 8% were BA.5 (V-22APR-04), 59% were BQ.1 (V-22OCT-01), 7% were BA.2.75 (V-22JUL-01), 7% were as XBB (V-22OCT-02) and 18% were CH.1.1 (V-22DEC-01).

Figure 57. Prevalence of SARS-CoV-2 variants amongst available sequences episodes for England from 1 February, as of 3 January 2023



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 51 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 51 (week ending 25 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	12	17/12/2022
V-22JAN-01	Omicron BA.2	192	21/12/2022
V-22APR-03	Omicron BA.4	128	20/12/2022
V-22APR-04	Omicron BA.5	18709	21/12/2022
V-22JUL-01	Omicron BA.2.75	3543	22/12/2022
V-22SEP-01	Omicron BA.4.6	1160	20/12/2022
V-22OCT-01	Omicron BQ.1	17931	21/12/2022
V-22OCT-02	Omicron XBB	1180	21/12/2022
V-22DEC-01	Omicron CH.1.1	1881	22/12/2022

*****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 52 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 (%)
S. pneumoniae	Penicillin	2,352	89
	Macrolides	2,671	83
	Tetracycline	2,427	82
H. influenzae	Amoxicillin or ampicillin	10,720	42
	Co-amoxiclav	12,760	47
	Macrolides	2,695	5
	Tetracycline	12,669	98
S. aureus	Methicillin	5,134	92
	Macrolides	6,026	69
MRSA	Clindamycin	274	47
	Tetracycline	324	73
MSSA	Clindamycin	3,457	75
	Tetracycline	4,116	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.

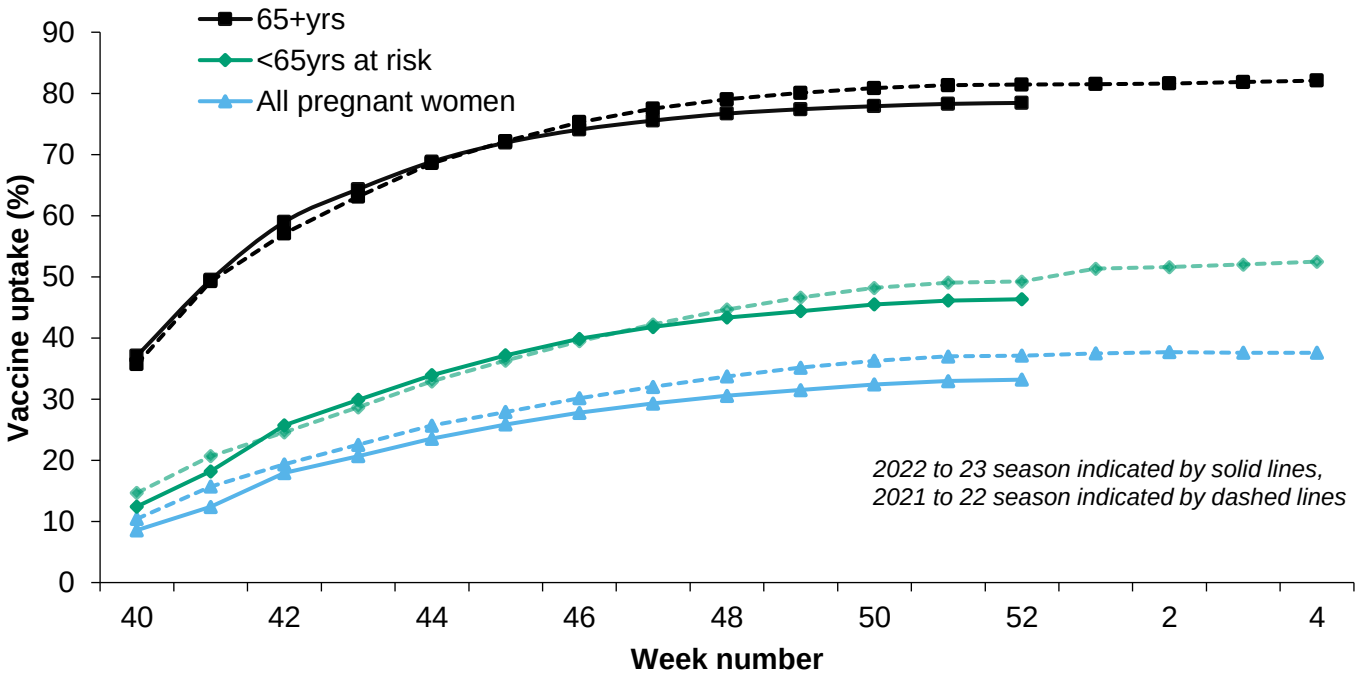
Influenza vaccination

Influenza vaccine uptake in GP patients

Up to week 52 of 2022, in 96.7% 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:

- 46.3% in under 65 years in a clinical risk group
- 33.2% in all pregnant women
- 78.4% in all 65 year olds and over
- 38.8% in those aged 50 to 64 who are not in a clinical risk group

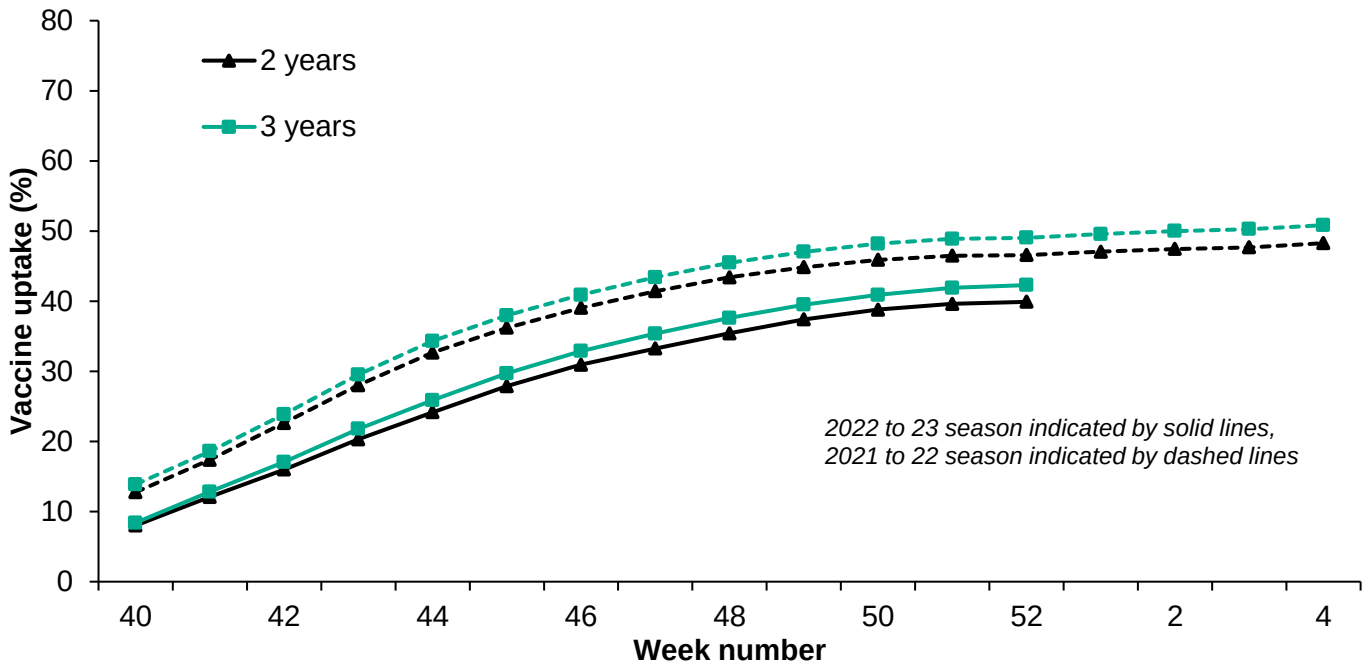
Figure 58: Cumulative weekly influenza vaccine uptake by target group in England



In 2022 to 2023, all 2 and 3 year olds continue to be eligible for influenza vaccination through their GPs. Up to week 52 of 2022, in 98.6% 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:

- 39.9% in all 2 year olds
- 42.3% in all 3 year olds

Figure 59: 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 52 2022 (week ending 1 January 2023) 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 52 2022 (week ending 1 2023), 64.1% (14,939,946 out of 23,310,486) of all people aged over 50 years old had been vaccinated with an Autumn booster dose since 1 September 2022, Table 7 and Figure 60. Vaccine uptake of those aged over 80 years old was 81.9% (2,441,611 out of 2,979,705).

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	2,979,705	2,441,611	81.9
75 to under 80	2,419,784	1,987,316	82.1
70 to under 75	2,732,094	2,150,787	78.7
65 to under 70	3,036,311	2,174,067	71.6
60 to under 65	3,688,498	2,243,547	60.8
55 to under 60	4,201,529	2,164,092	51.5
50 to under 55	4,252,565	1,778,526	41.8
Total aged 50 and over	23,310,486	14,939,946	64.1

*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 60: 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

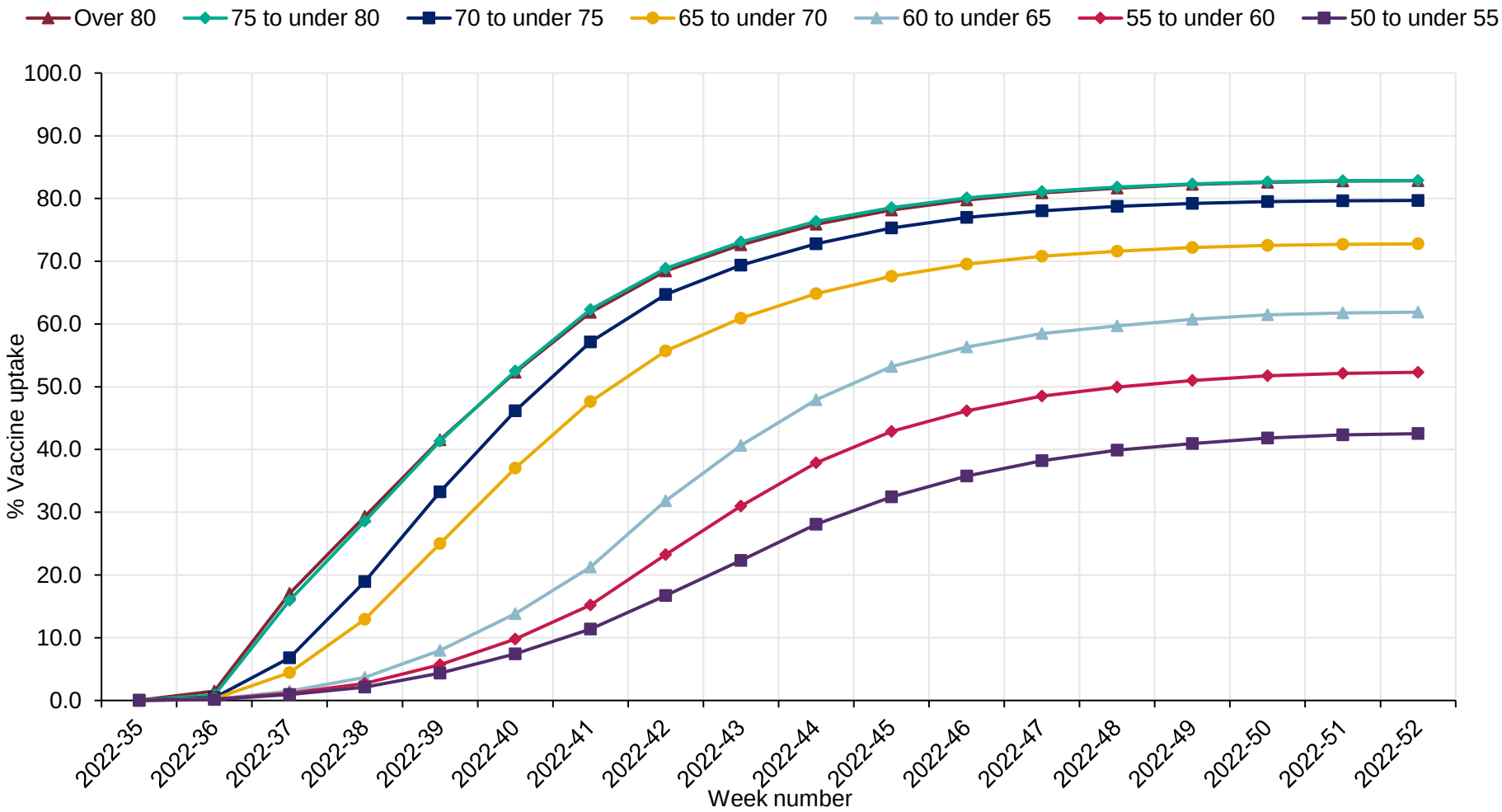


Table 8 presents data by eligibility at the end of December 2022 for the autumn booster campaign if they have completed a primary course of 2 doses and are at least 3 months (84 days) from their previous dose.

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	2,824,750	2,437,038	86.3
75 to under 80	2,295,792	1,984,544	86.4
70 to under 75	2,542,290	2,149,777	84.6
65 to under 70	2,758,090	2,172,791	78.8
60 to under 65	3,285,293	2,242,548	68.3
55 to under 60	3,660,186	2,163,810	59.1
50 to under 55	3,580,848	1,780,035	49.7
Total aged 50 and over	20,947,249	14,930,543	71.3

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	2,979,705	922,534	31.0	1,545,565	51.9	381,255	12.8
75 to under 80	2,419,784	748,022	30.9	1,263,052	52.2	304,819	12.6
70 to under 75	2,732,094	934,142	34.2	1,231,111	45.1	403,921	14.8
65 to under 70	3,036,311	1,100,756	36.3	1,088,226	35.8	606,796	20.0
60 to under 65	3,688,498	1,768,187	47.9	491,847	13.3	1,076,622	29.2
55 to under 60	4,201,529	1,780,379	42.4	402,127	9.6	1,544,351	36.8
50 to under 55	4,252,565	1,485,847	34.9	312,917	7.4	1,861,180	43.8
45 to under 50	3,961,876	380,394	9.6	192,219	4.9	2,638,106	66.6
40 to under 45	4,449,938	293,912	6.6	161,482	3.6	2,933,734	65.9
35 to under 40	4,783,518	246,817	5.2	144,277	3.0	3,036,478	63.5
30 to under 35	4,965,093	214,816	4.3	133,084	2.7	3,062,746	61.7
25 to under 30	4,641,988	162,463	3.5	115,689	2.5	2,838,749	61.2
20 to under 25	3,954,972	113,289	2.9	97,477	2.5	2,596,053	65.6
18 to under 20	1,425,614	35,635	2.5	42,140	3.0	925,691	64.9
16 to under 18	1,420,106	43,783	3.1	56,803	4.0	796,290	56.1
12 to under 16	2,995,444	61,543	2.1	133,697	4.5	1,261,631	42.1
5 to under 12	5,107,159	106,684	2.1	238,313	4.7	208,913	4.1

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 61: 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

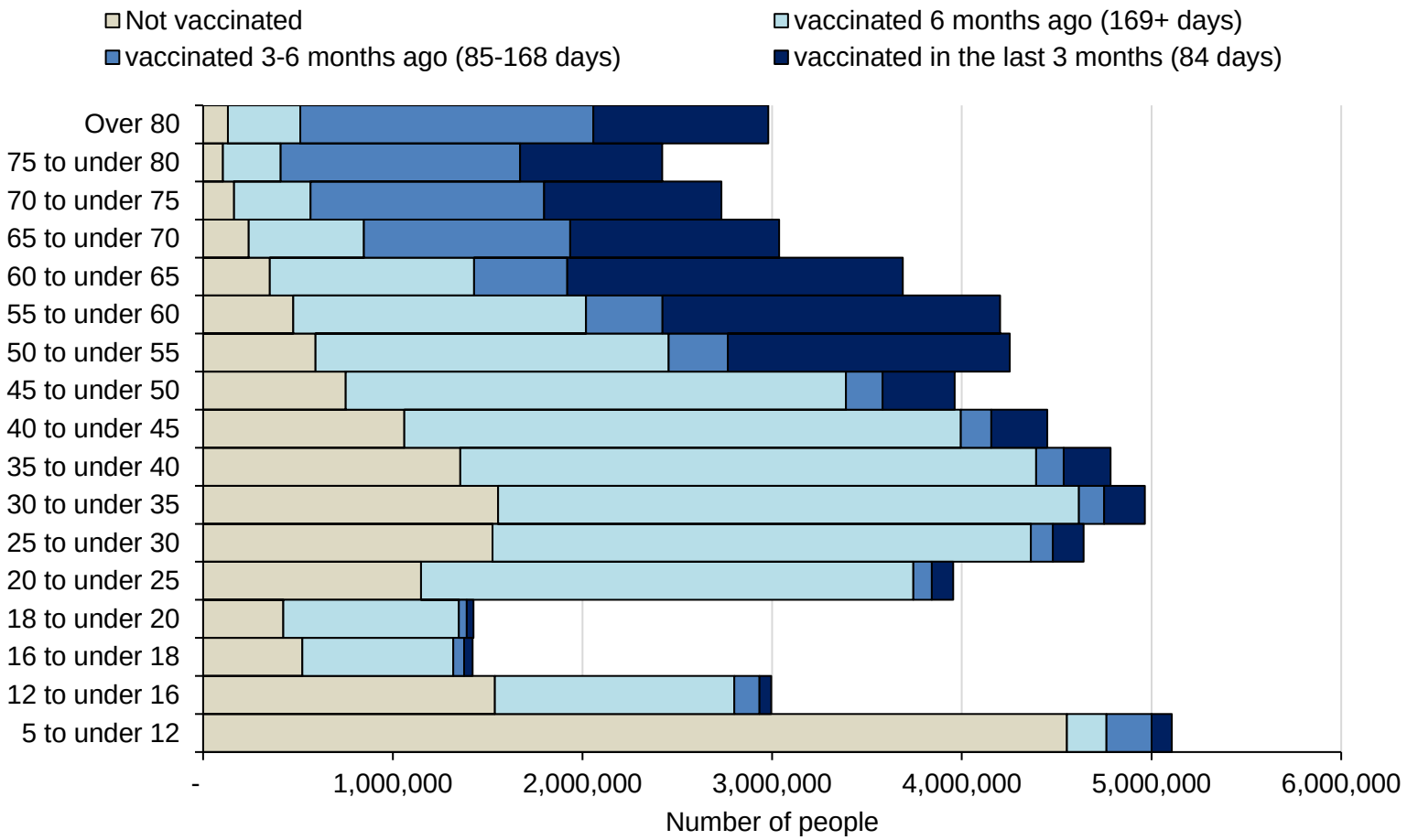


Figure 62: Provisional data on the proportion of people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago by ethnicity in those living and resident in England, aged 50 and over

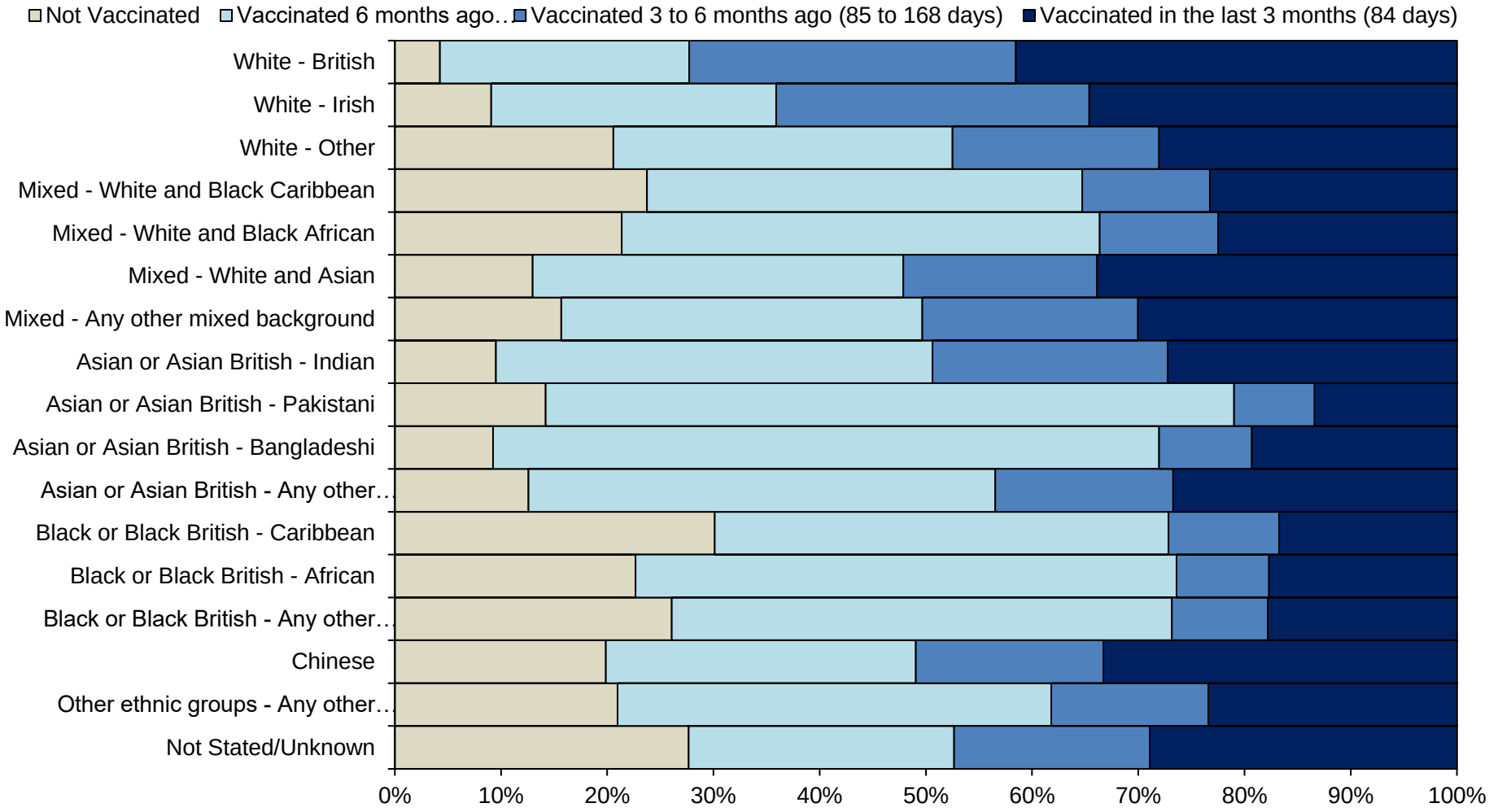
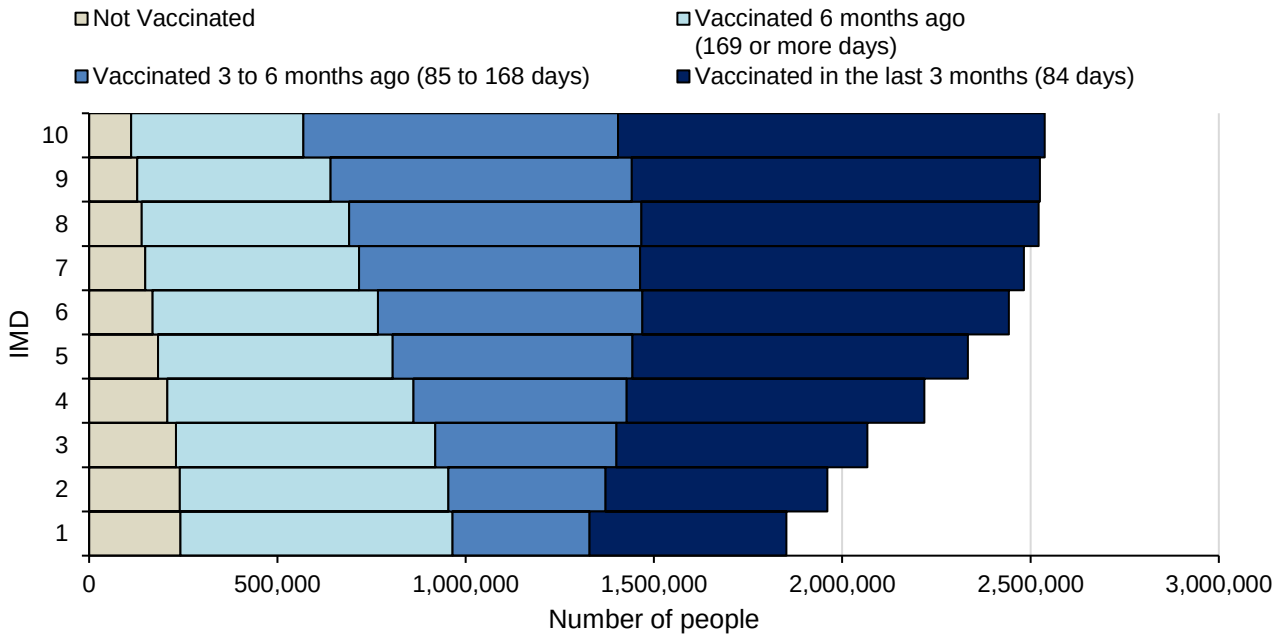


Figure 63: Provisional cumulative people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago by indices of multiple deprivation (IMD)* in those living and resident in England, aged 50 and over



*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 52 (week ending 1 January 2023) was 67.7%, 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 69.9% 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	490,500	332,259	67.7

*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
490,500	182,857	37.3	159,825	32.6	126,642	25.8

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 here. 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 23 December 2022 (based on data up to 11 December 2022) (WHO website).

Globally, influenza activity remained elevated due to activity in the northern hemisphere. Where subtyped, influenza A(H3N2) viruses predominated.

In the countries of North America, some indicators of influenza activity decreased while others were stable or continued to increase. Many indicators were above levels typically observed at this time of year and some were 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 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 recent weeks.

In central Asia, influenza activity increased with relatively equal proportions of influenza A(H1N1)pdm09 and influenza B viruses reported. Influenza B viruses predominated in Kazakhstan and Uzbekistan while influenza A(H1N1)pdm09 predominated in Kyrgyzstan and Tajikistan.

In Northern Africa, influenza detections increased but remained low. Morocco reported mainly B/Victoria lineage virus detections. Tunisia reported increasing detections of mainly influenza A (H1N1)pdm09 as well as some influenza A(H3N2) and influenza B/Victoria lineage virus detections.

In Western Asia, influenza activity decreased overall with all seasonal influenza subtypes detected in similar proportions, though increased activity was reported in some countries.

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 predominantly influenza A(H3N2) viruses decreased but remained elevated in Mexico.

In the tropical countries of South America, influenza detections were low, and A(H3N2) viruses predominated.

In tropical Africa, influenza activity remained low with detections of all seasonal influenza subtypes reported. An increased number of detections was reported from Eastern Africa.

In Southern Asia, influenza activity continued to decrease to low levels, mainly due to decreased activity reported in Iran. Influenza A(H1N1)pdm09 was the most frequently detected subtype in the subregion.

In South-East Asia, detections of predominantly influenza B increased and remained elevated.

In the temperate zones of the southern hemisphere, influenza activity decreased in Argentina and Chile and remained low elsewhere.

The WHO GISRS laboratories tested more than 447,351 specimens during that time period. 81,619 were positive for influenza viruses, of which 79,209 (97%) were typed as influenza A and 2,410 (3%) as influenza B. Of the sub-typed influenza A viruses, 4,722 (28.6%) were influenza A(H1N1)pdm09 and 11,791 (71.4%) were influenza A(H3N2). Of the 370 characterized B viruses, all belonged to the B-Victoria lineage.

Influenza in Europe

Updated for data for week 50 2022 (Joint ECDC-WHO Europe Influenza weekly update).

The percentage of 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%) and increased to 23% from 22% in the previous week.

For week 50 2022, of 43 countries and areas reporting on intensity of influenza activity, 9 reported baseline-intensity (across the Region), 7 reported low-intensity (Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Hungary, Iceland and Serbia), 15 reported medium-intensity (across the Region), 6 reported high-intensity (Belarus, Estonia, Finland, Germany, Malta and Slovakia) and 6 reported very high-intensity (Austria, France, Lithuania, Luxembourg, Republic of Moldova and Russian Federation).

Of 43 countries and areas reporting on geographic spread of influenza viruses, 4 reported no activity (Azerbaijan, Croatia, Tajikistan and United Kingdom (Northern Ireland)), 6 reported sporadic spread (Bosnia and Herzegovina, Israel, Montenegro, North Macedonia, Uzbekistan and Kosovo), 4 reported local spread (Georgia, Malta, Romania and Serbia), 6 reported regional spread (Bulgaria, Greece, Hungary, Kazakhstan, Latvia and Poland) and 23 reported widespread activity (across the Region).

For week 50 2022, 1,376 (31%) of 4,449 sentinel specimens tested positive for an influenza virus; 96% were type A and 4% were type B. Of 884 subtyped A viruses, 78% were A(H3) and 22% A(H1)pdm09. All 18 type B viruses ascribed to a lineage were B/Victoria.

Of 34 countries and areas across the Region that each tested at least 10 sentinel specimens in week 50 2022, 23 reported positivity rates of influenza virus detections above 10% (median 45%; range 15% - 66%): Slovakia (66%), Finland (64%), Republic of Moldova (59%), France (56%), Poland (55%), Germany (55%), Lithuania (54%), Kyrgyzstan (53%), Portugal (50%), Estonia (50%), Switzerland (46%), Slovenia (45%), Luxembourg (43%), Uzbekistan (43%), Italy (39%), Czechia (32%), Netherlands (32%), Spain (26%), Russian Federation (26%), Sweden (25%), Belgium (21%), Norway (21%) and Denmark (15%).

For the season to date, 6,443 (17%) of 38,776 sentinel specimens tested positive for an influenza virus. More influenza type A (n=5,982, 93%) than type B (n=461, 7%) viruses have been detected. Of 4,682 subtyped A viruses, 3,927 (84%) were A(H3) and 755 (16%) were A(H1)pdm09. All 155 influenza type B viruses ascribed to a lineage were B/Victoria (66% of type B viruses were reported without a lineage).

For week 50 2022, 15,006 of 80,730 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; 14,161 (94%) were type A and 845 (6%) were type B. Of 4,599 subtyped A viruses, 2,933 (64%) were A(H1)pdm09 and 1,666 (36%) A(H3). All 5 type B viruses ascribed to a lineage were B/Victoria.

For the season to date, more influenza type A (n=47,313, 94%) than type B (n=2,910, 6%) viruses have been detected. Of 17,071 subtyped A viruses, 8,654 (51%) were A(H3) and 8,417 (49%) were A(H1)pdm09. All 270 influenza type B viruses ascribed to a lineage were B/Victoria (91% 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

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