



# Influenza and COVID-19 Surveillance graphs

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

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

The figures presented in this slide set are based on data from week 38 (between 18 September and 24 September 2023).



# Contents

- 1) [Confirmed COVID-19 episodes in England](#)
- 2) [Respiratory Datamart system \(England\)](#)
- 3) [Google search queries](#)
- 4) [Flu detector](#)
- 5) [Secondary Care surveillance](#)
- 6) [SARS-CoV-2 Whole Genome Sequencing \(WGS\) coverage, England](#)
- 7) [COVID-19 vaccine uptake, England](#)
- 8) [Influenza vaccination - Impact of vaccination in 2022-23](#)



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# Confirmed COVID-19 episodes in England



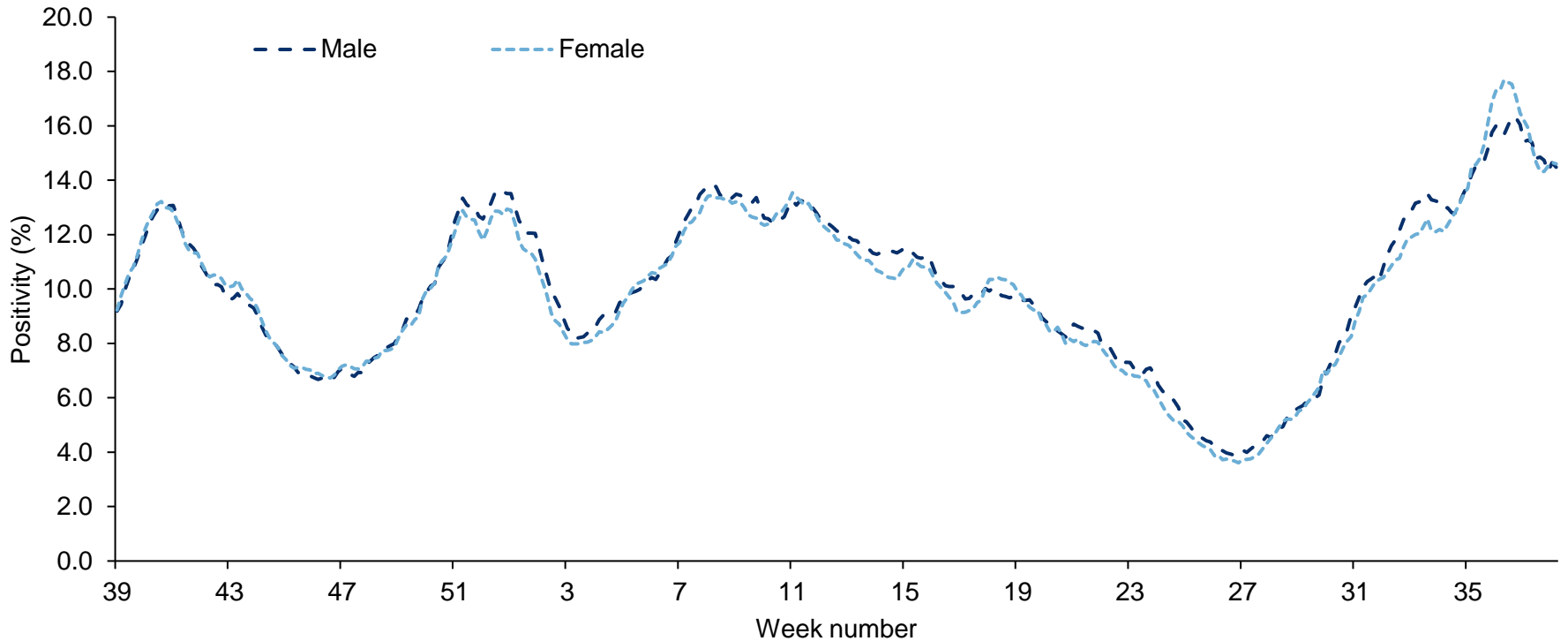
## Confirmed COVID-19 episodes in England

### Data Information

- From the week 32 report onwards, case rates have been updated to use the latest ONS population estimates for mid-2020. Previously case rates were calculated using the mid-2019 population estimates
- From 11 January 2022 the requirement for [confirmatory PCR testing in individuals who test positive using a lateral flow device was temporarily removed](#).
- Rates by ethnicity and IMD quantile will continue to be presented using the mid-2019 estimates, until the mid-2020 estimates become available.
- From 31 January 2022, 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 (PCR or LFD). Each infection episode begins with the earliest positive specimen date. Further information can be found on the [UK COVID-19 dashboard](#).
- Since 1 April 2022, free universal symptomatic and asymptomatic testing for the general public in England is no longer available, as outlined in the plan for [living with COVID-19](#). As such, there will be a reduction in the reporting of data obtained through Pillar 2 from April 2022 onwards. Data in this report should be interpreted in the context of this change to testing. [Public health guidance](#) remains in place for cases and their close contacts. Additionally, further changes in [testing policy](#) are in effect since 1 April 2023, which may affect case rates and positivity rates.

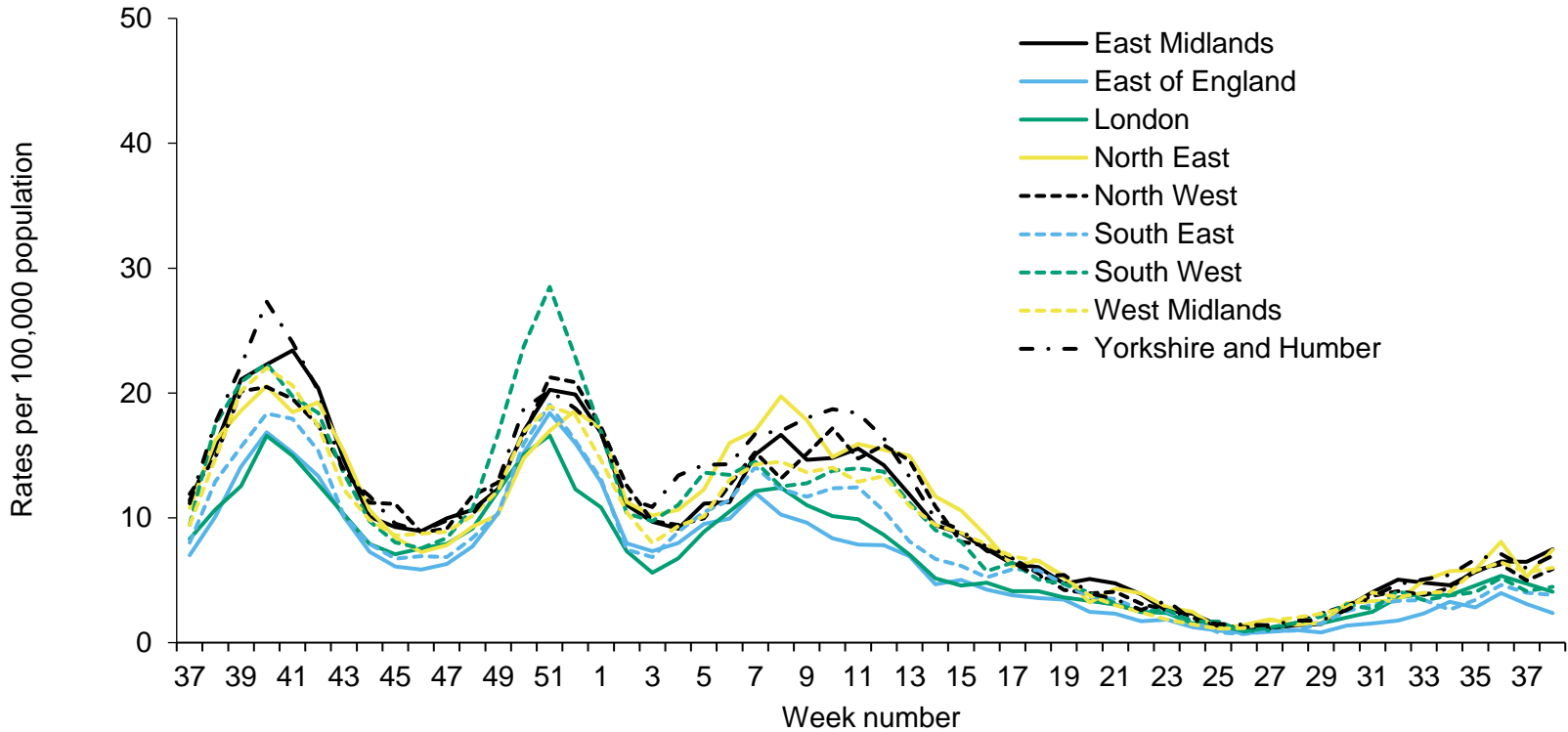


# Seven-day rolling average PCR positivity (%) of confirmed COVID-19 cases tested by sex under Pillar 1



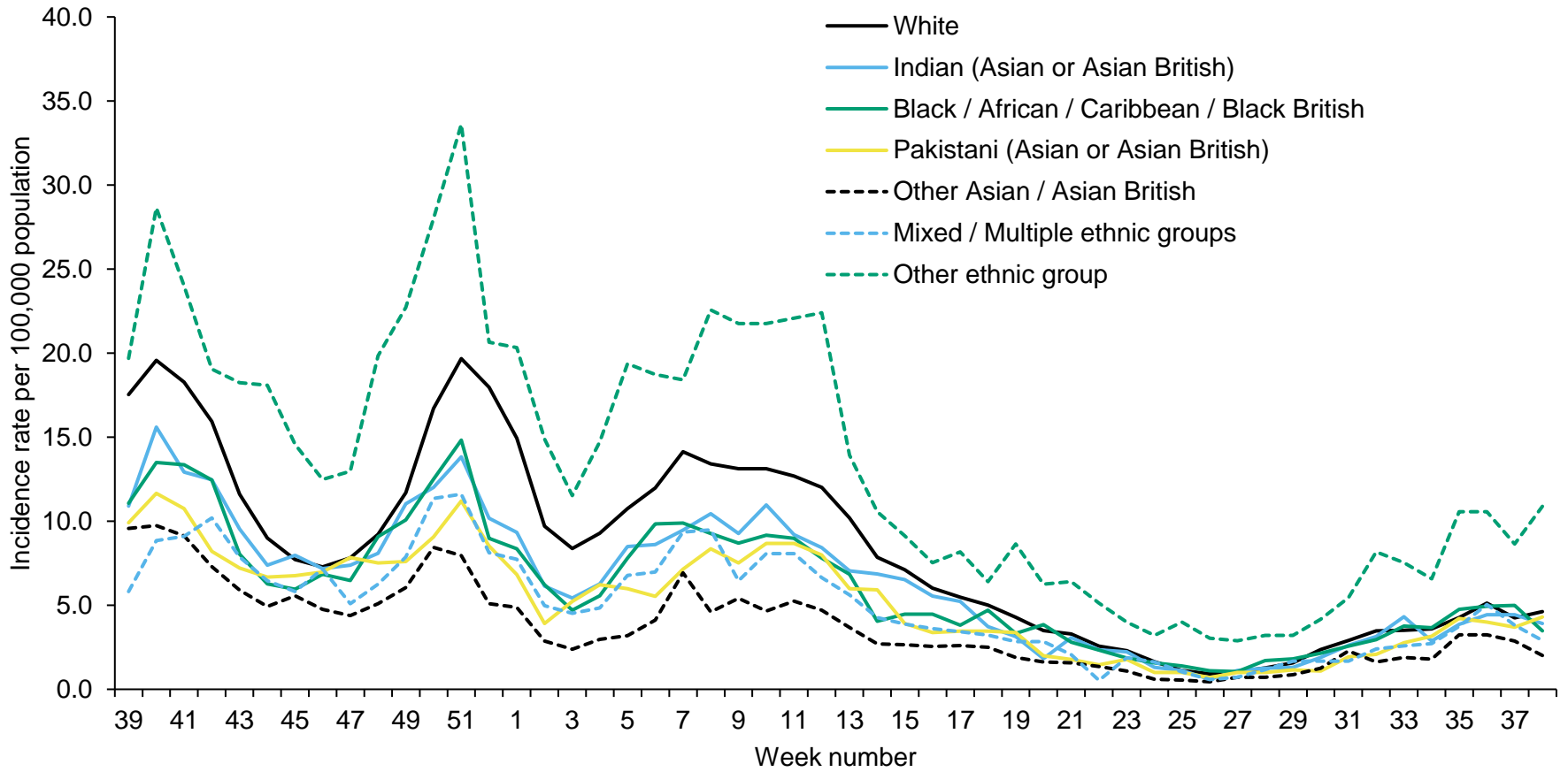


# Weekly confirmed COVID-19 case rates by episode, per 100,000 population (Pillar 1), by UKHSA centres and sample week



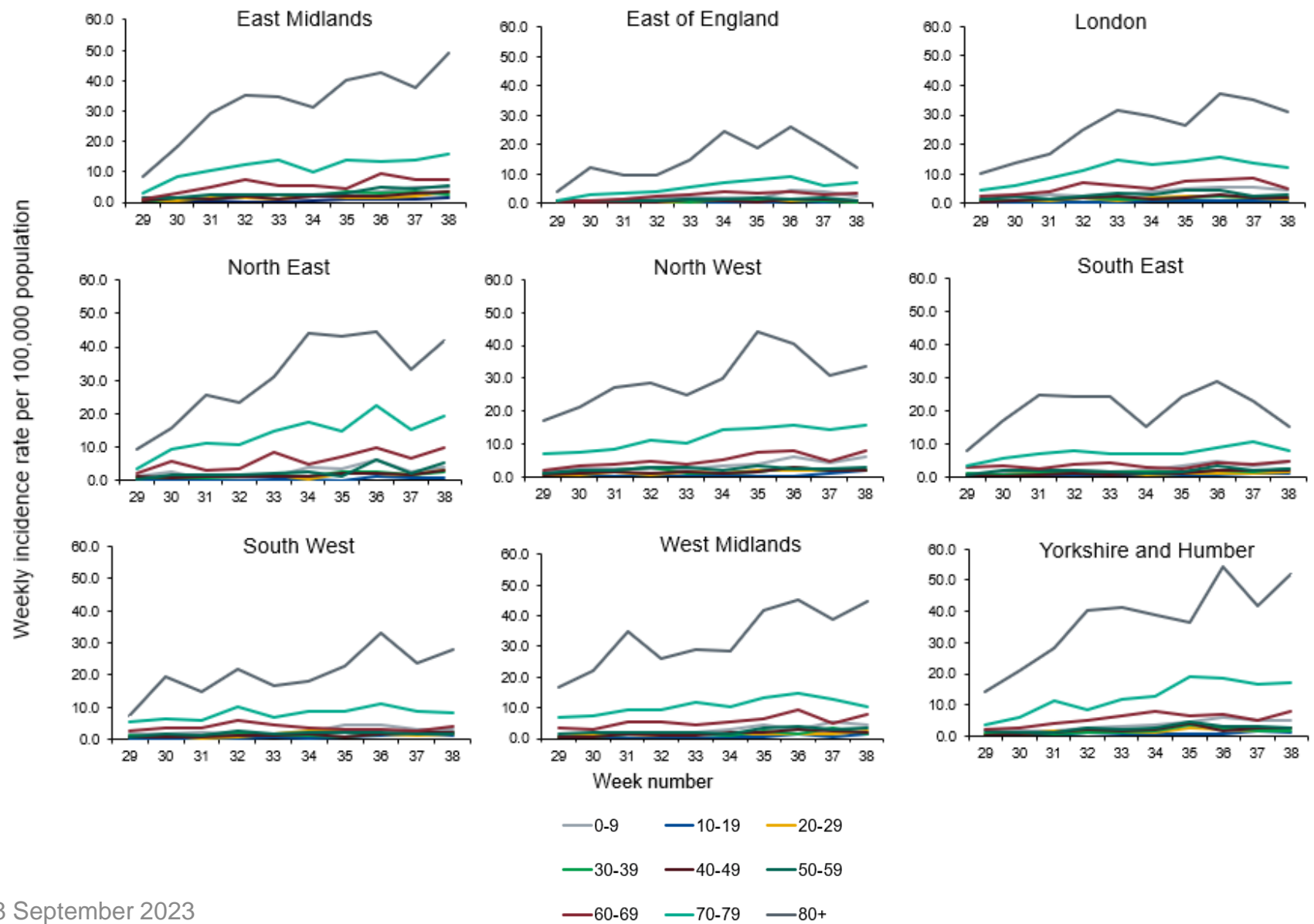


# Weekly incidence per 100,000 population by ethnicity (Pillar 1), England





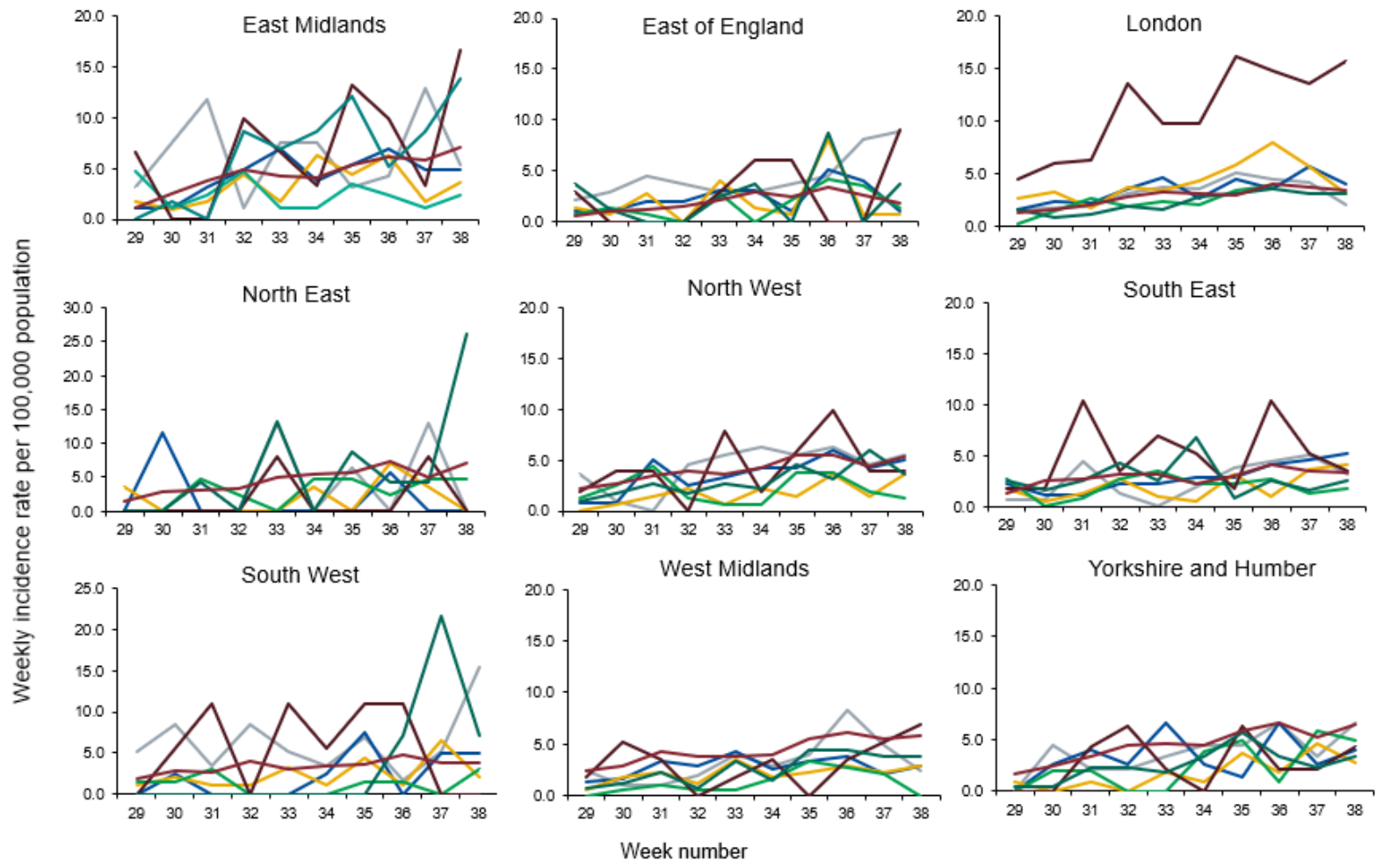
# Weekly COVID-19 episodes tested under Pillar 1, per 100,000 population by age group and region, weeks 29 to 38







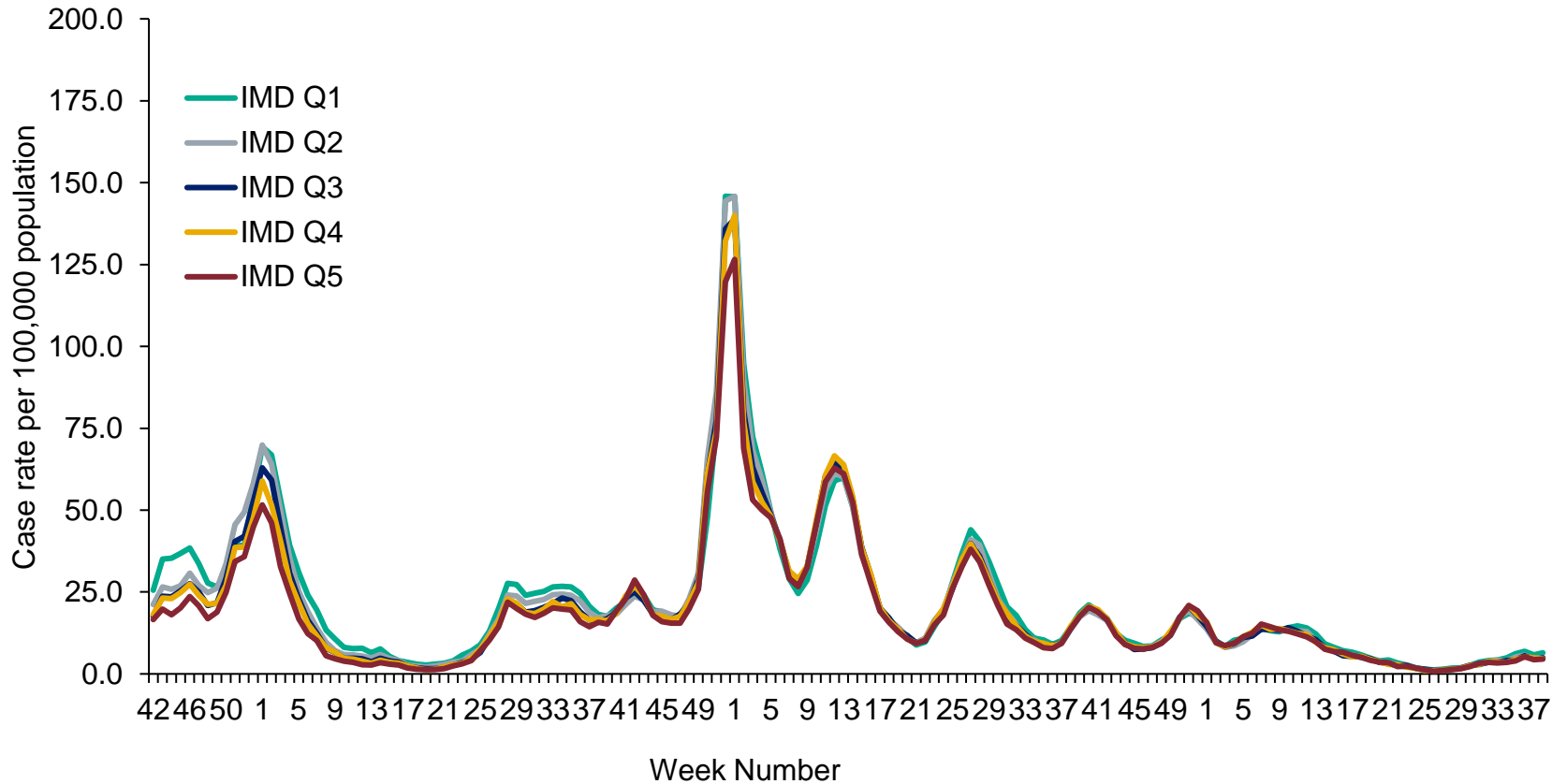
# Weekly COVID-19 episodes tested under Pillar 1, per 100,000 population by ethnicity and region, weeks 29 to 38



- Black/African/Caribbean/Black British
- Indian (Asian or British)
- Mixed/Multiple Ethnic Groups
- Other Asian/Asian British
- Other ethnic group
- Pakistani (Asian or British)
- White



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



\*incidence rates have been calculated using the mid-2019 ONS population estimates

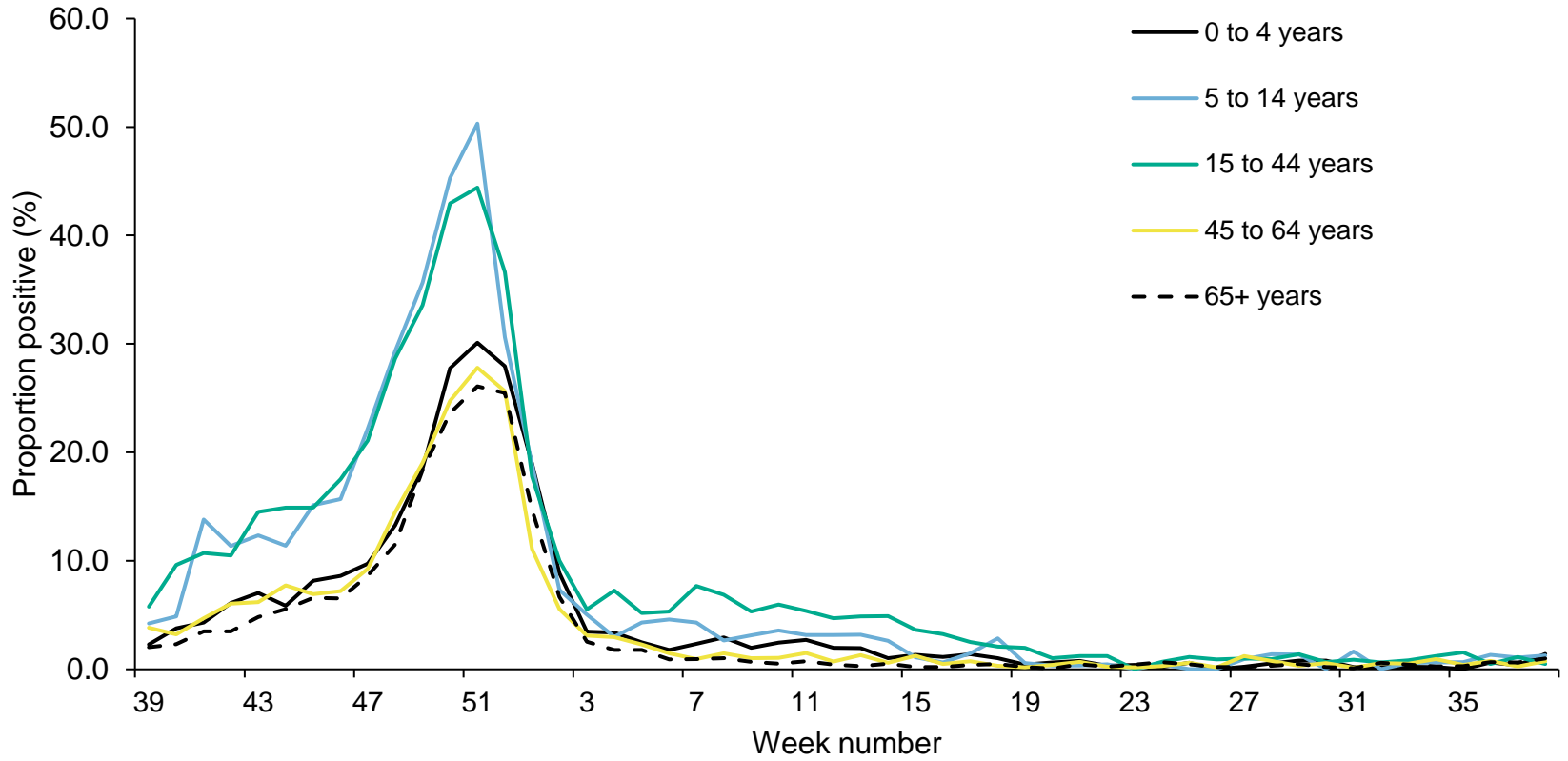


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# Respiratory Datamart system (England)

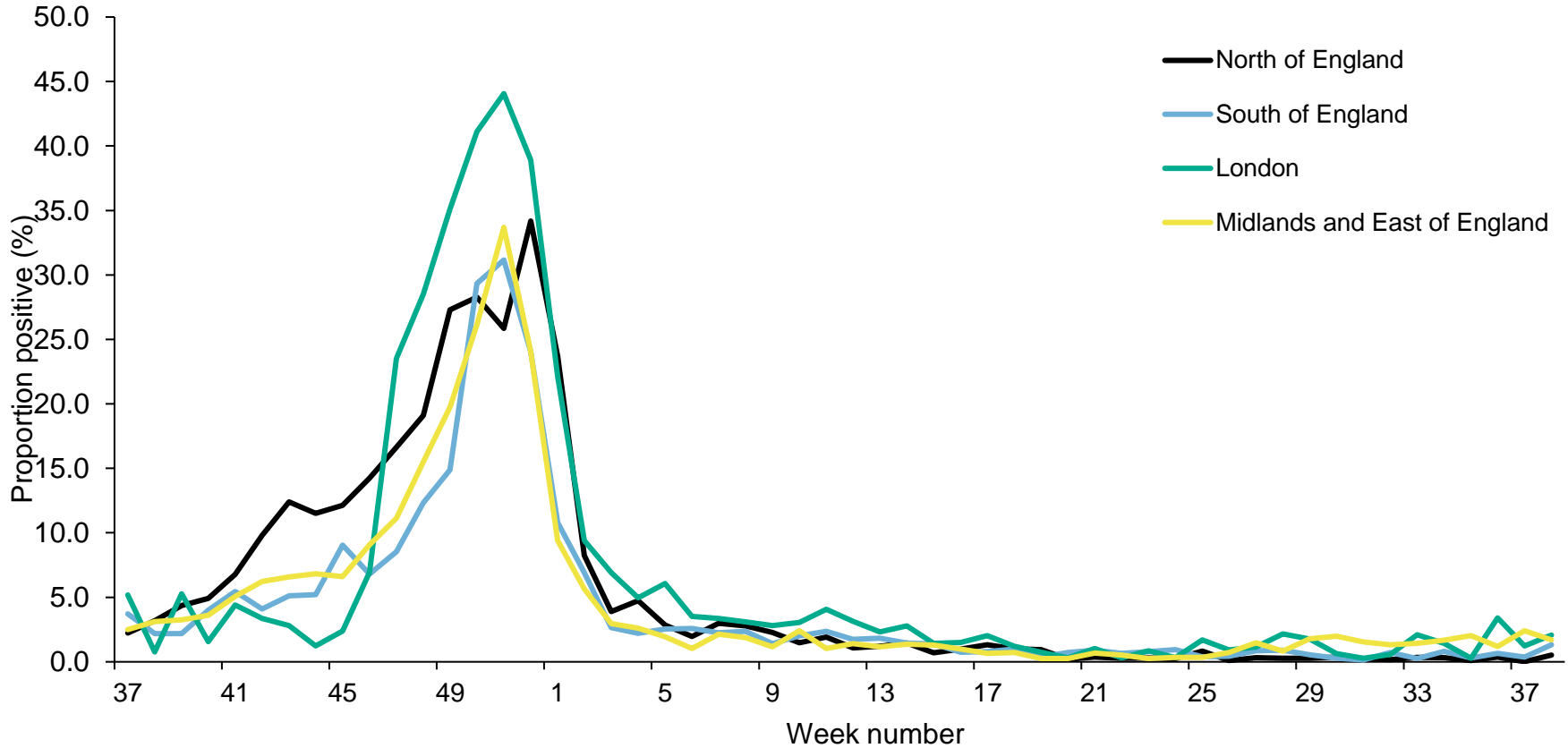


# Respiratory DataMart weekly positivity (%) for influenza by age, England



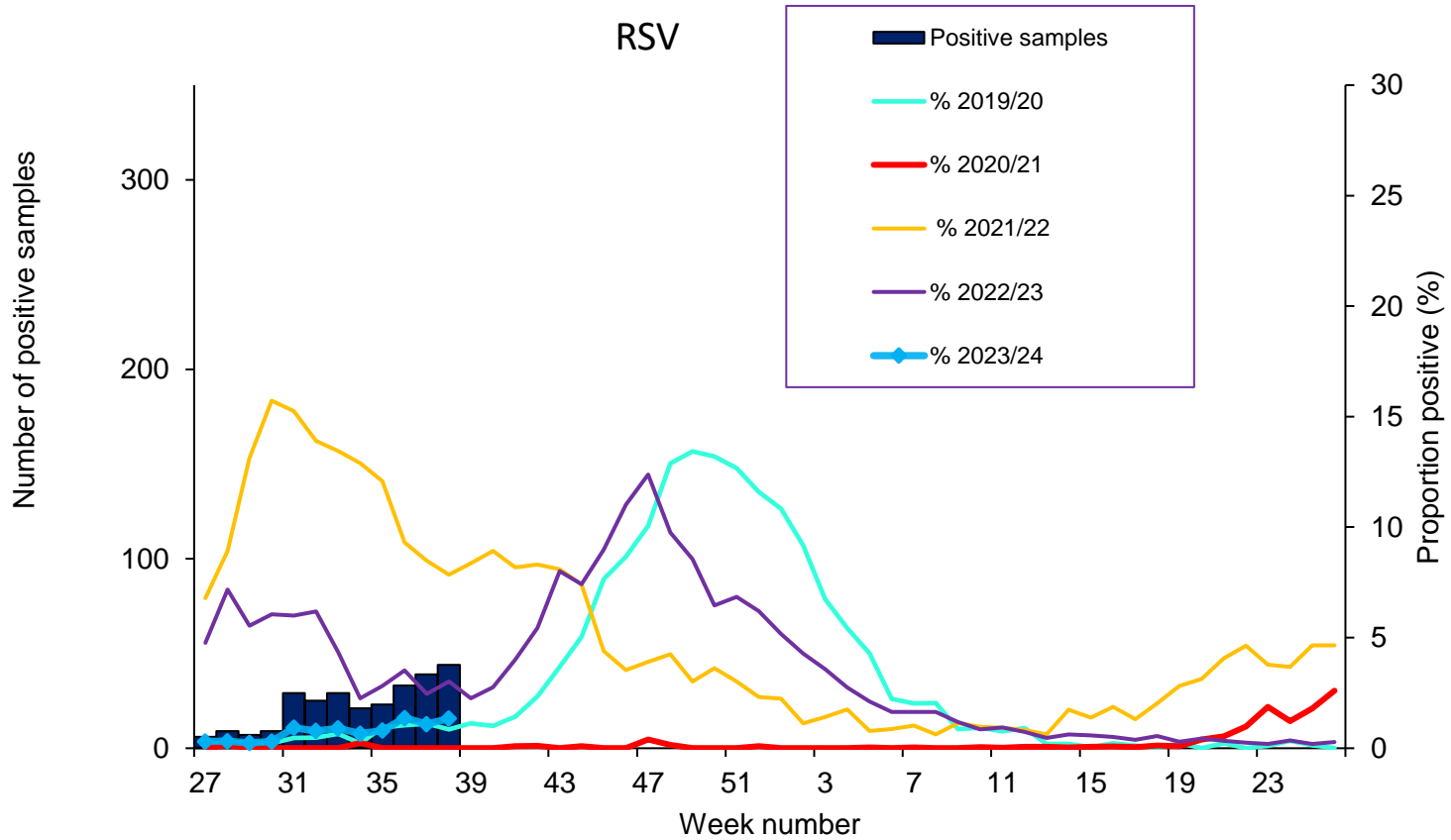


# Respiratory DataMart – Influenza weekly positivity by UKHSA region



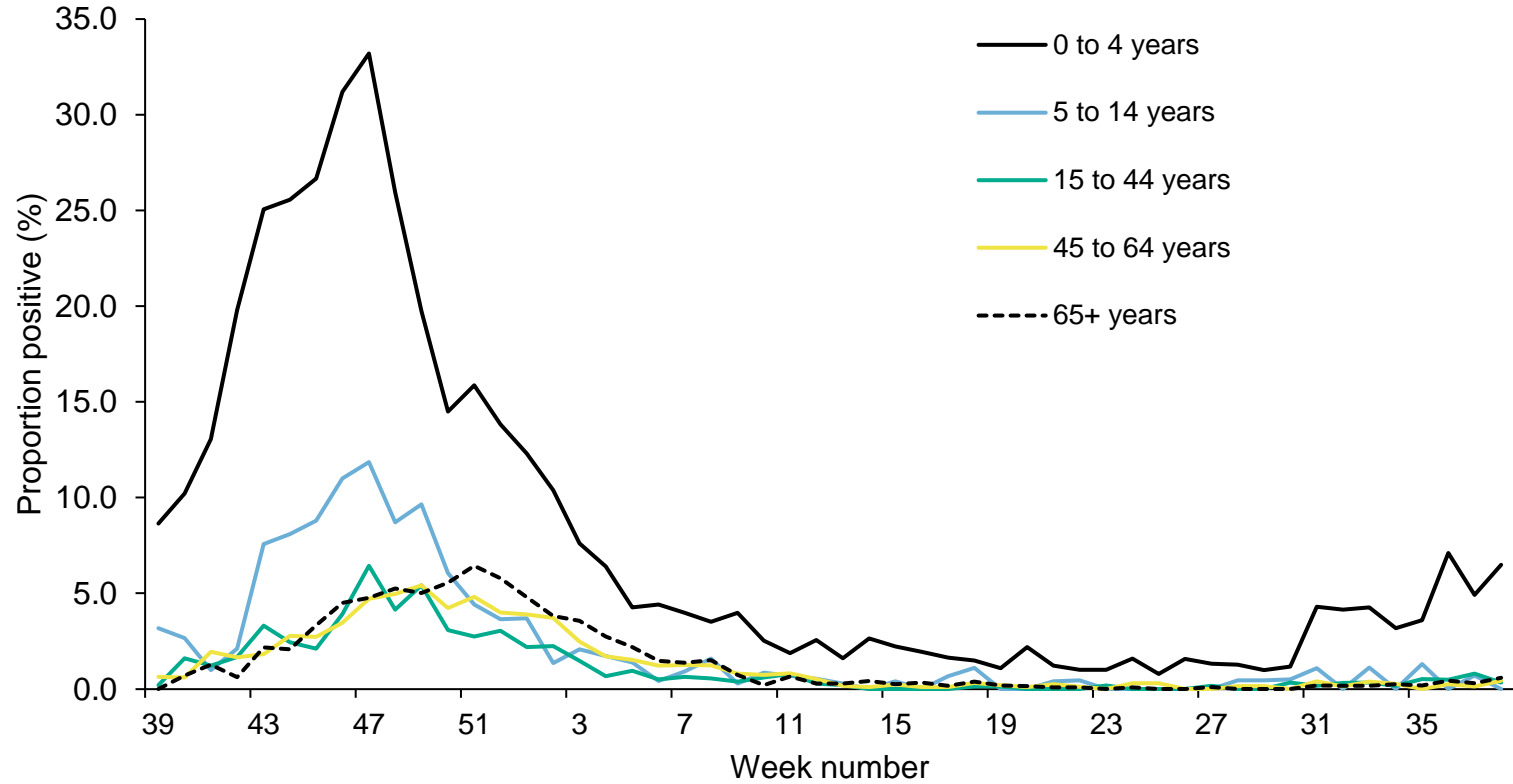


# Respiratory DataMart – Respiratory syncytial virus (RSV)



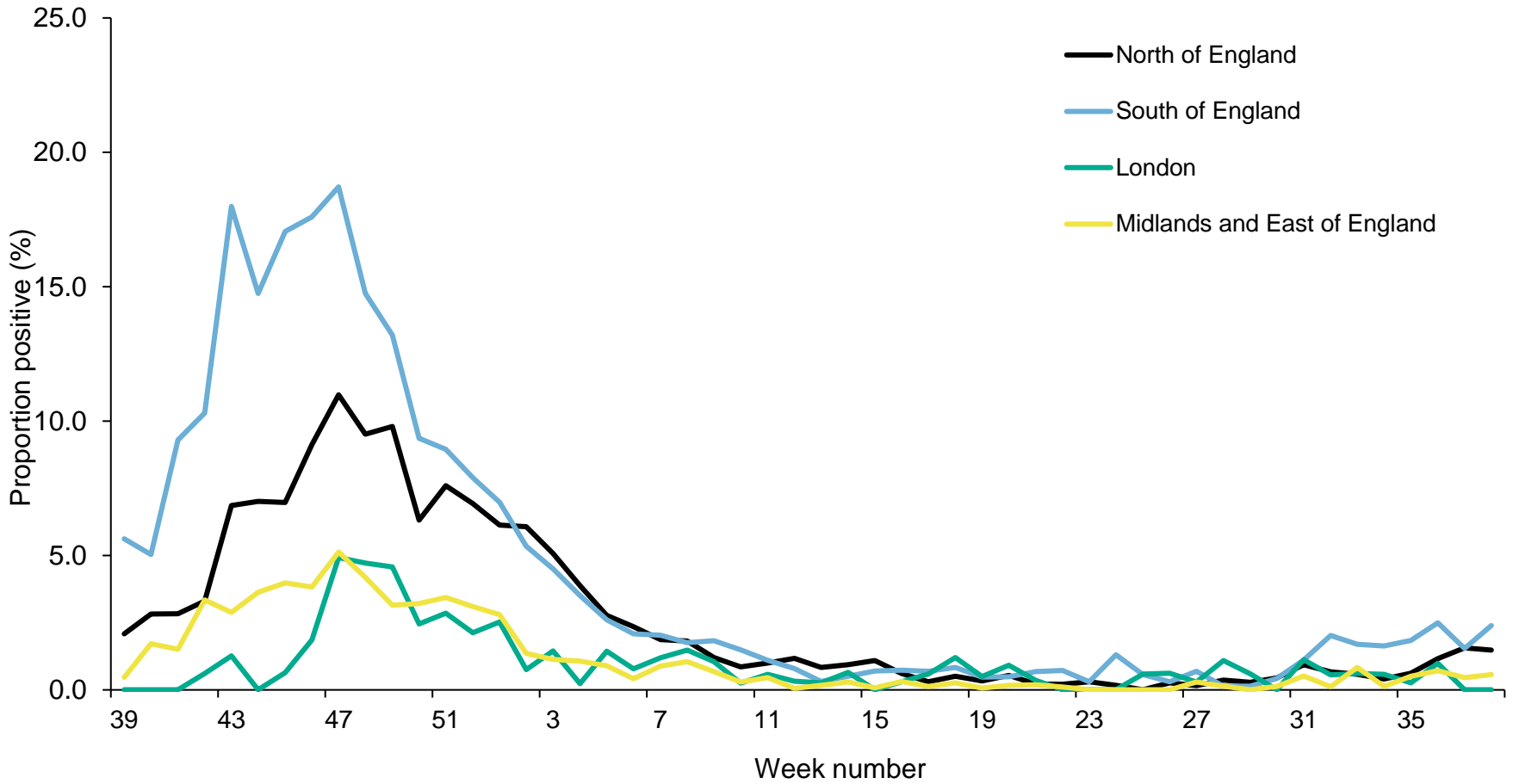


# Respiratory DataMart weekly positivity (%) for RSV by age, England





# Respiratory DataMart – Respiratory syncytial virus (RSV) weekly positivity by UKHSA region





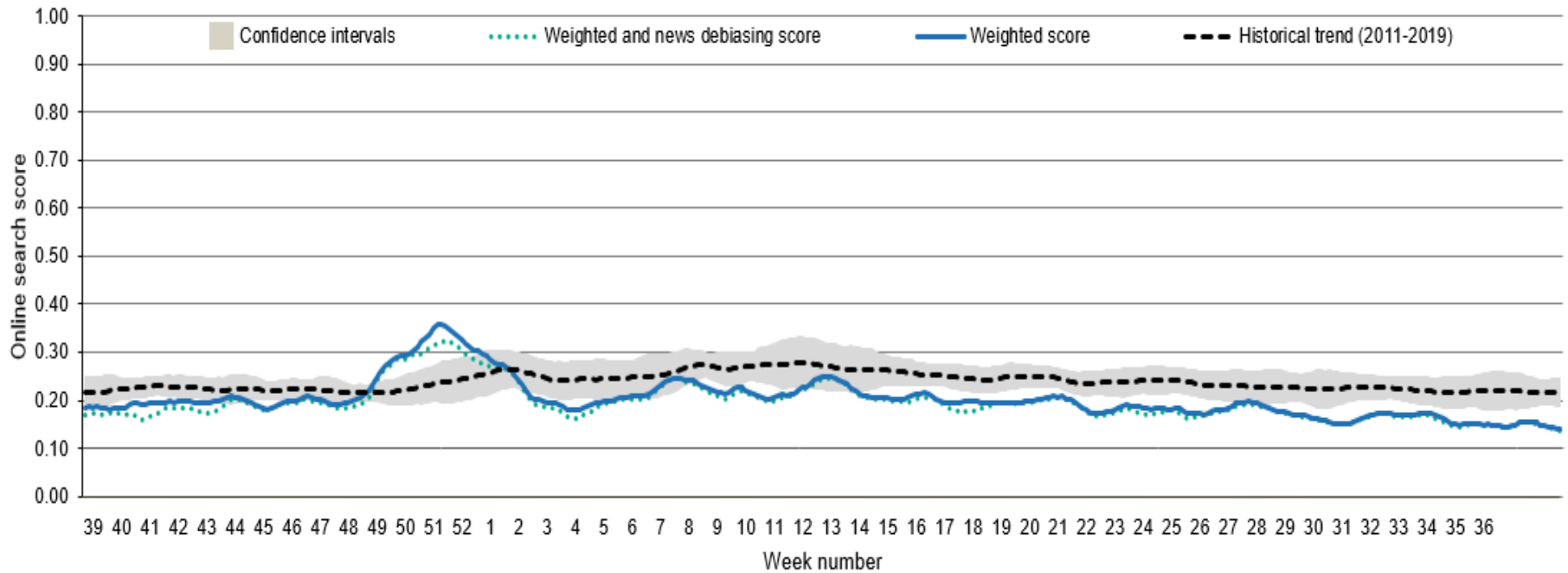


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# Google search queries



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



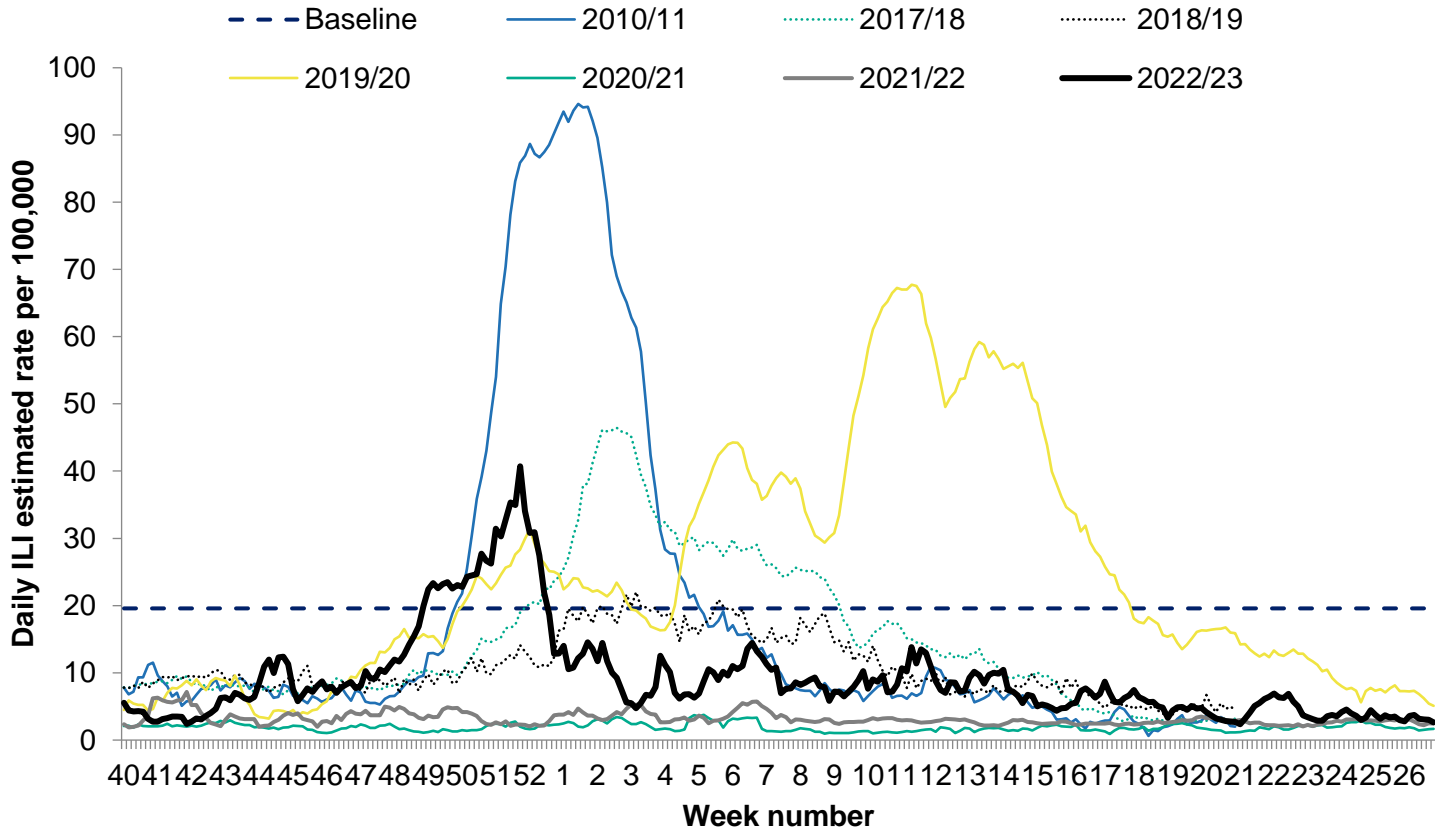


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# Flu detector



# Daily estimated ILI Google search query rates per 100,000 population, England



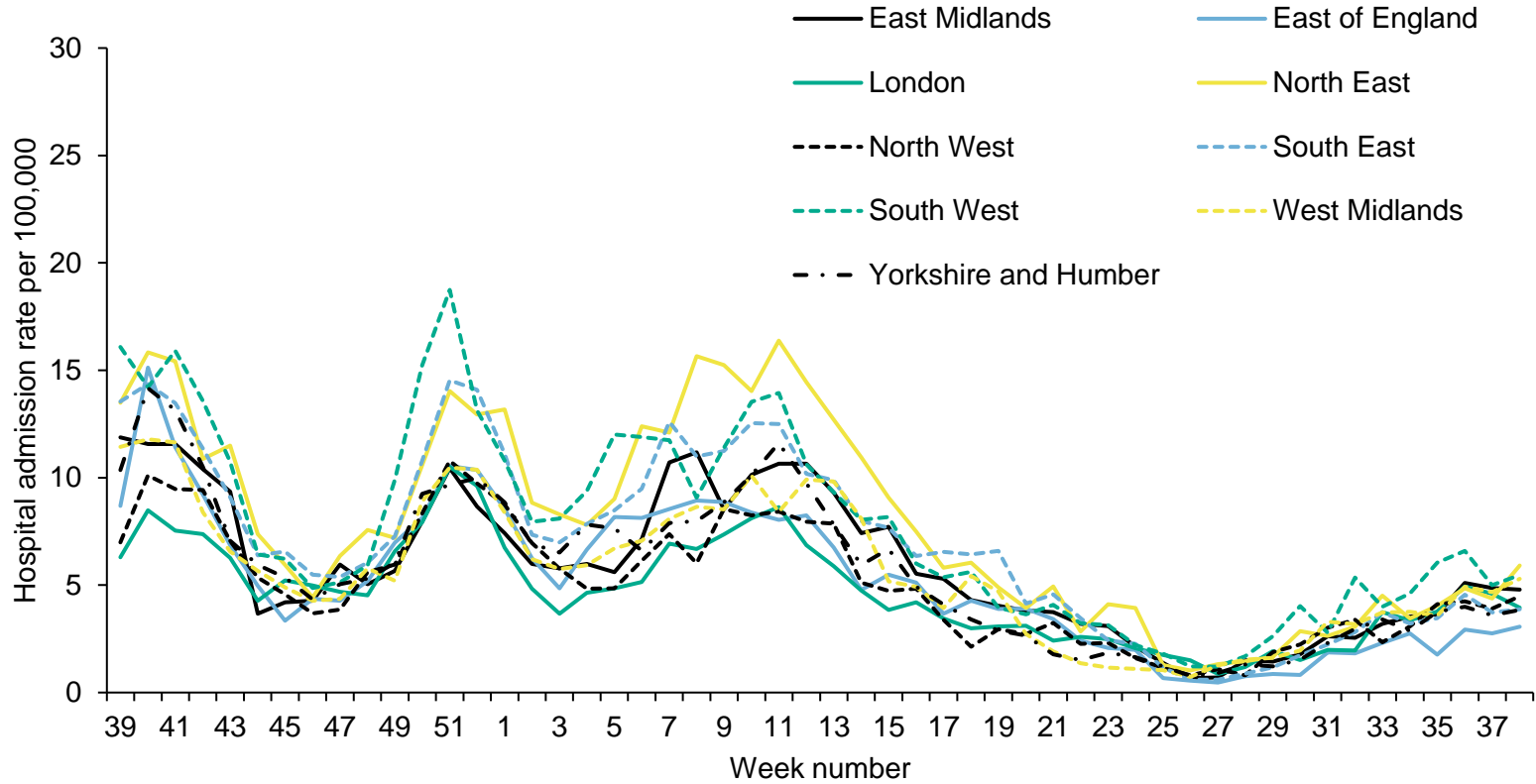


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# Secondary Care surveillance

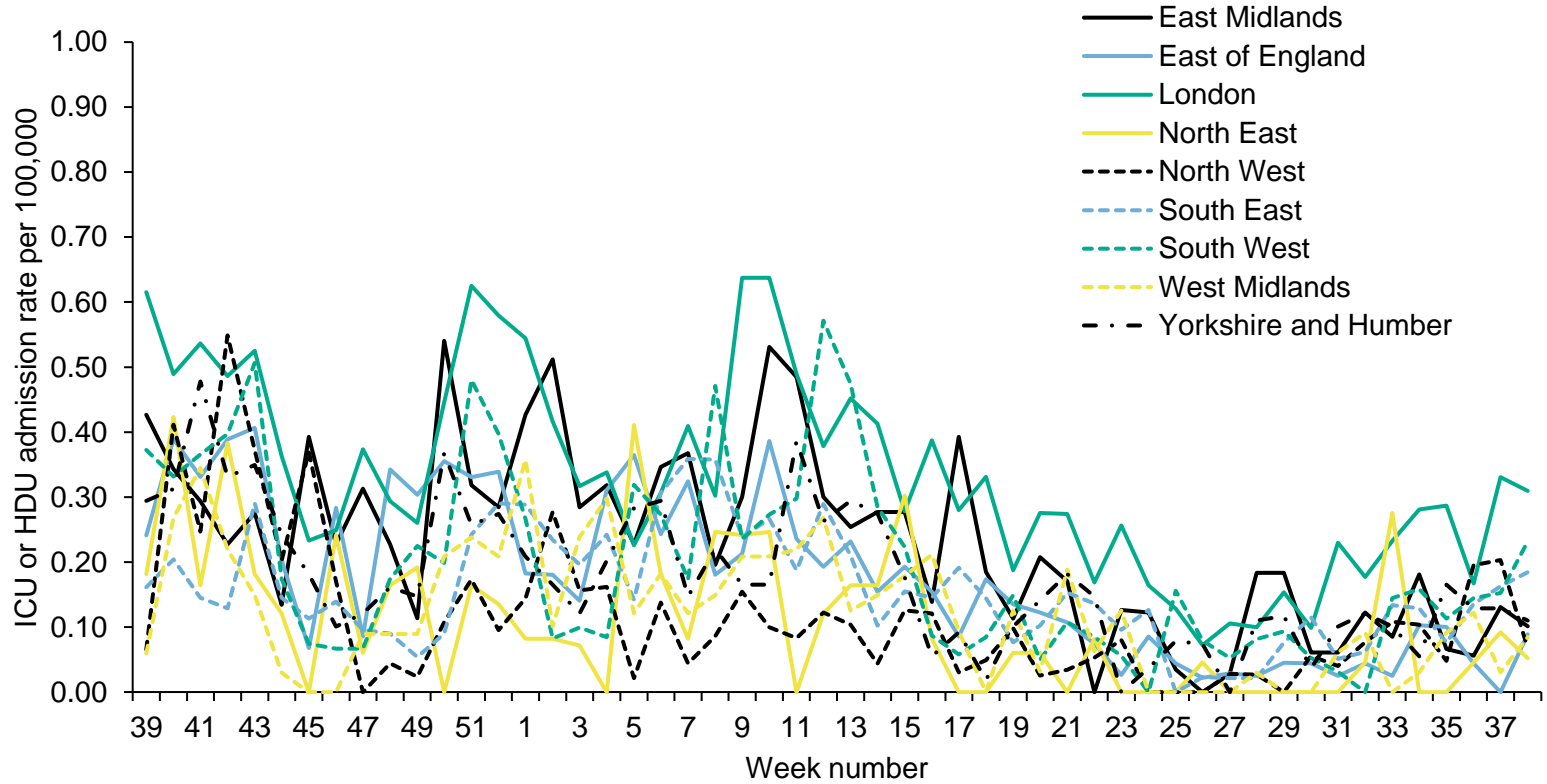


# Weekly hospital admission rate by UKHSA centre for new COVID-19 positive cases reported through SARI Watch



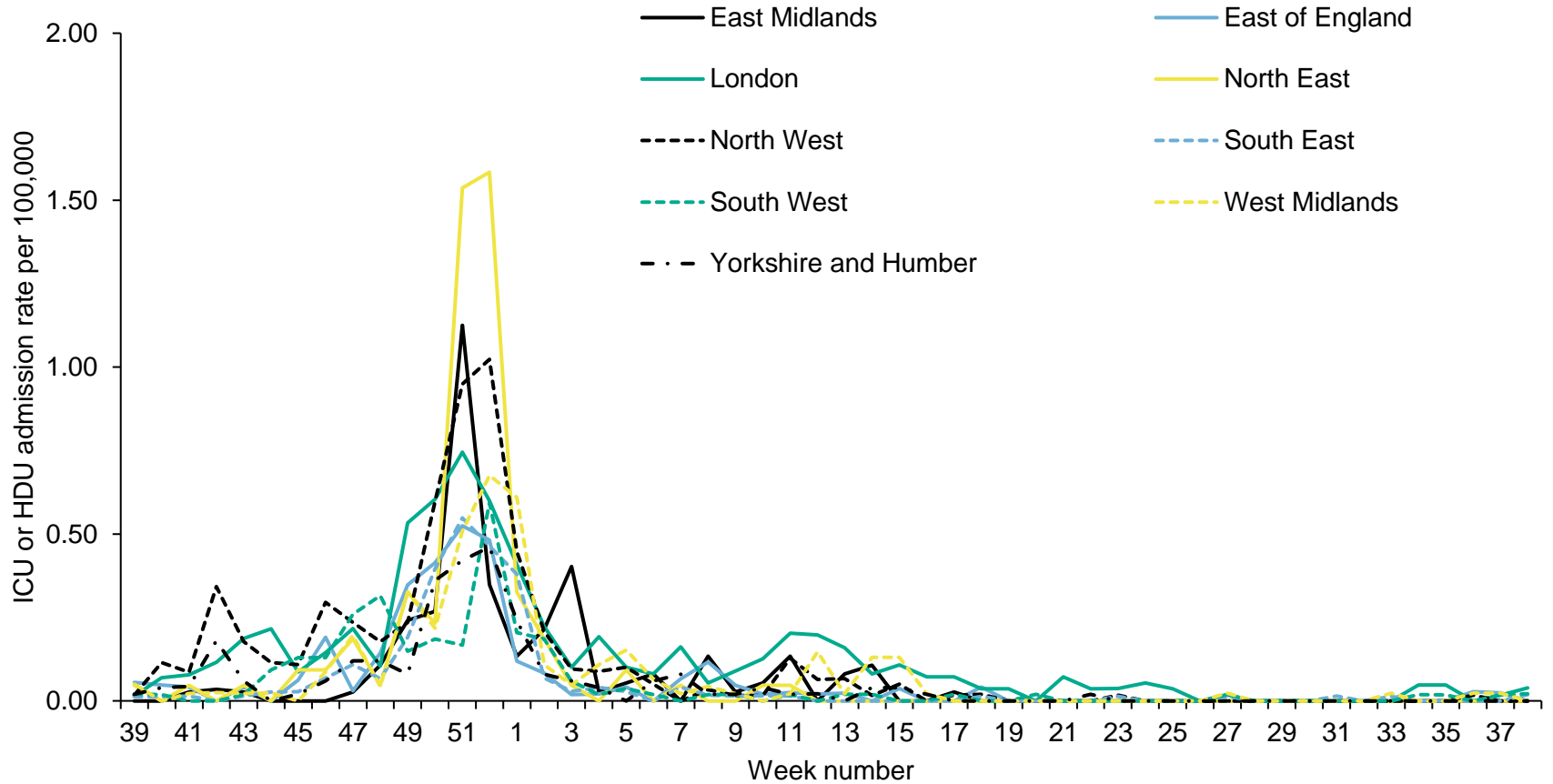


# Weekly ICU or HDU admission rate by UKHSA centre for new COVID-19 positive cases, reported through SARI Watch





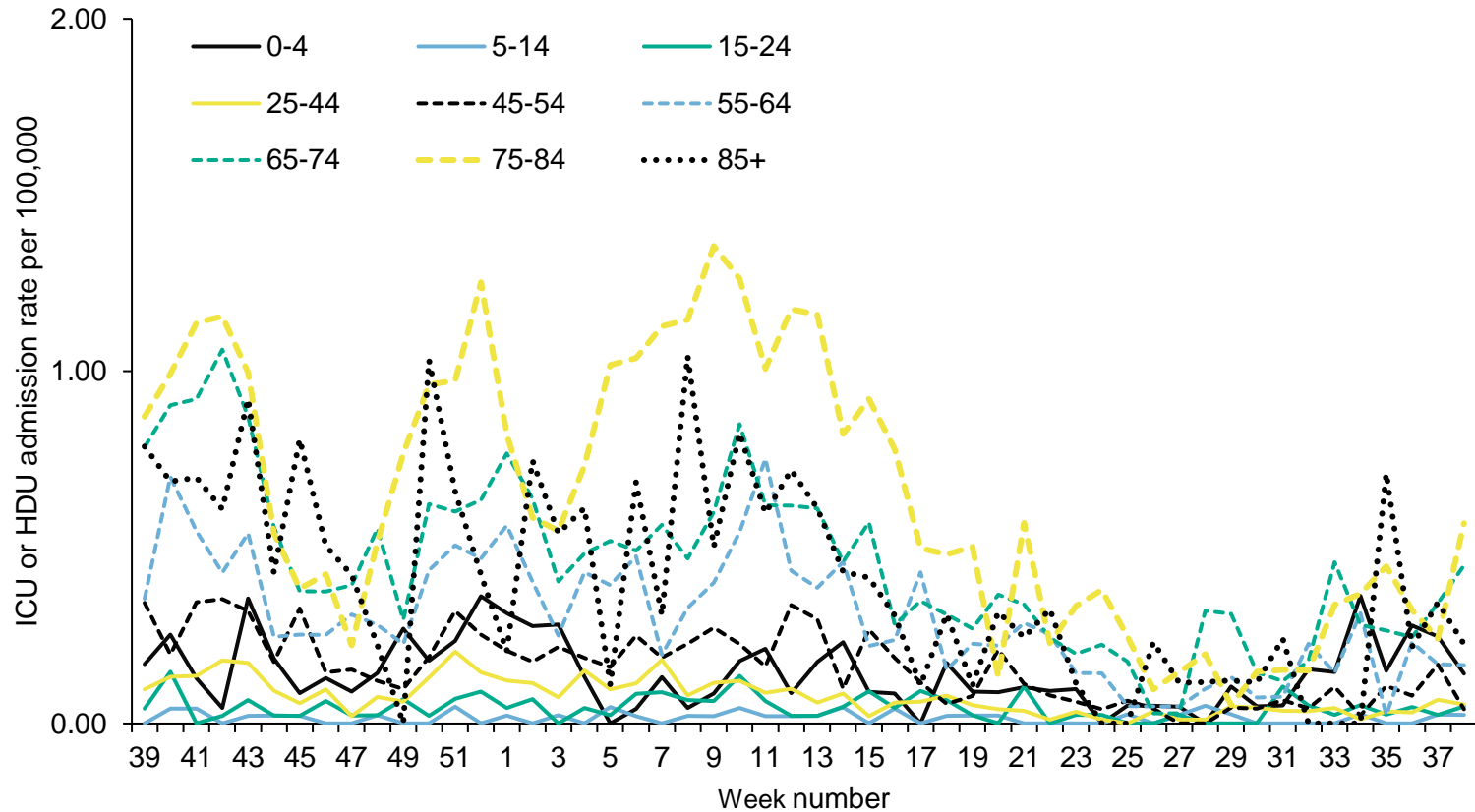
# Weekly ICU or HDU admission rate by UKHSA centre for new influenza, reported through SARI Watch





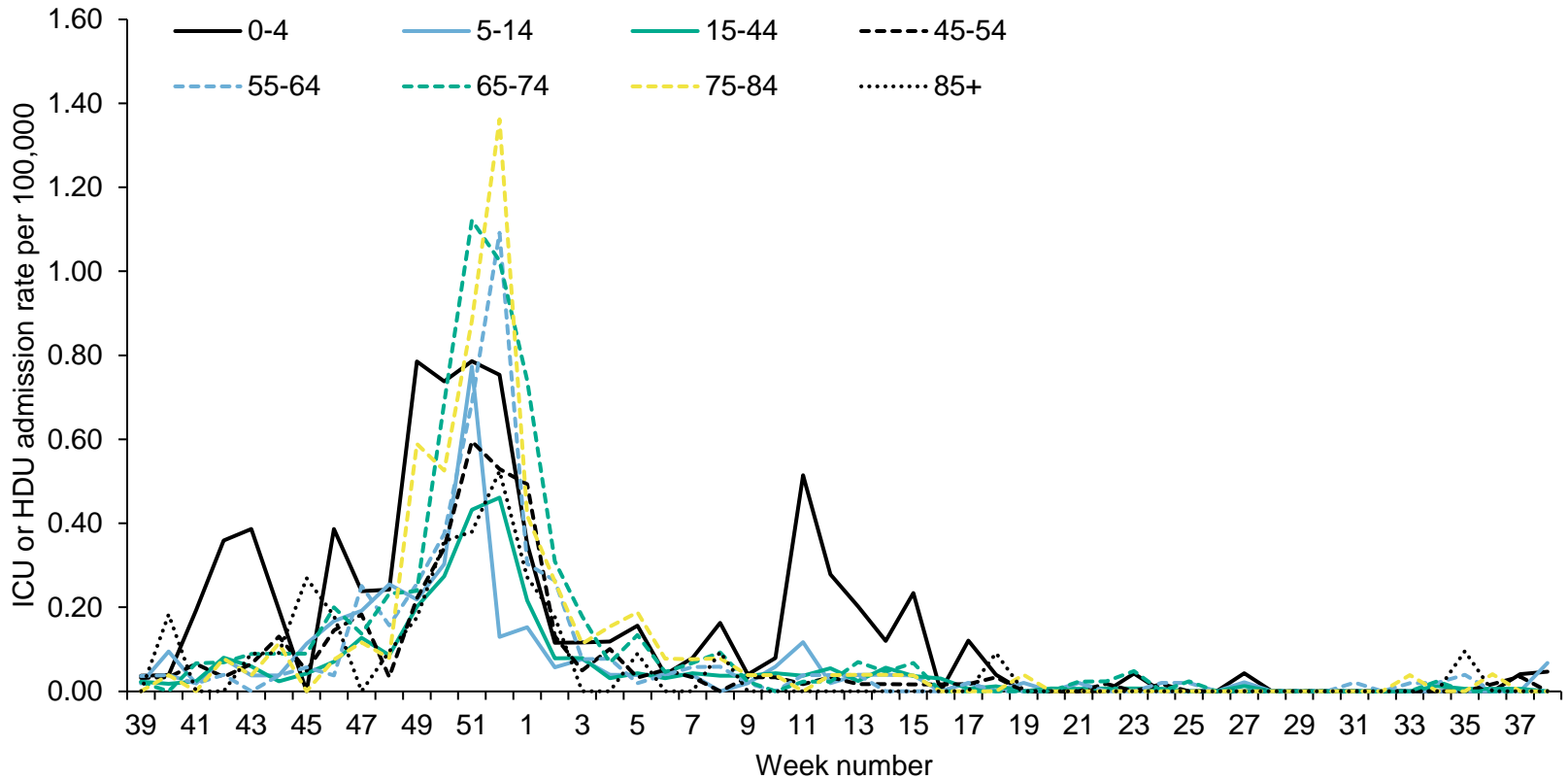


# Weekly ICU or HDU admission rate by age group for new COVID-19 positive cases, reported through SARI Watch



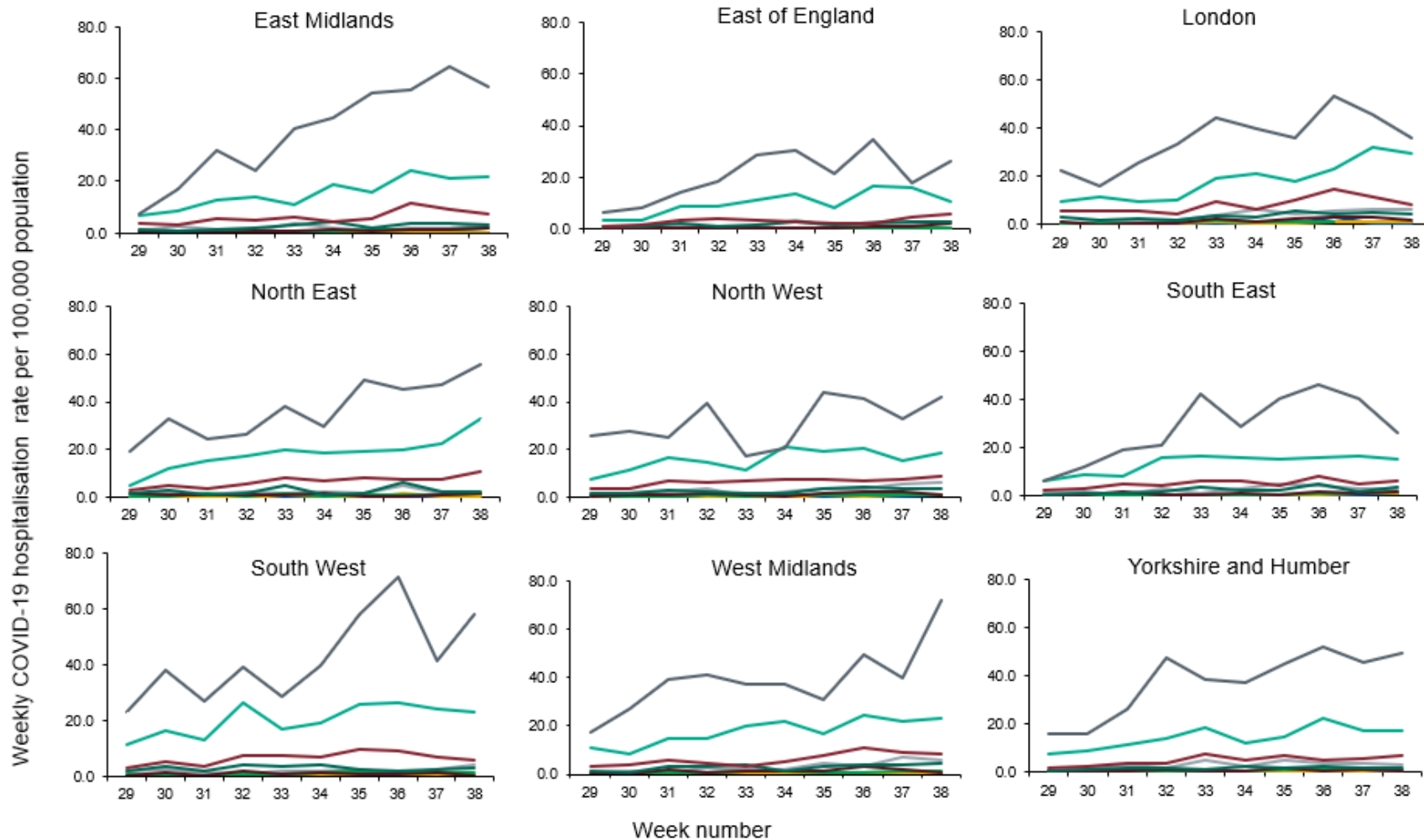


# Weekly ICU or HDU admission rate by age group for new influenza, reported through SARI Watch





# Weekly COVID-19 hospitalisation rate per 100,000 trust catchment population by age group and region, weeks 29 to 38

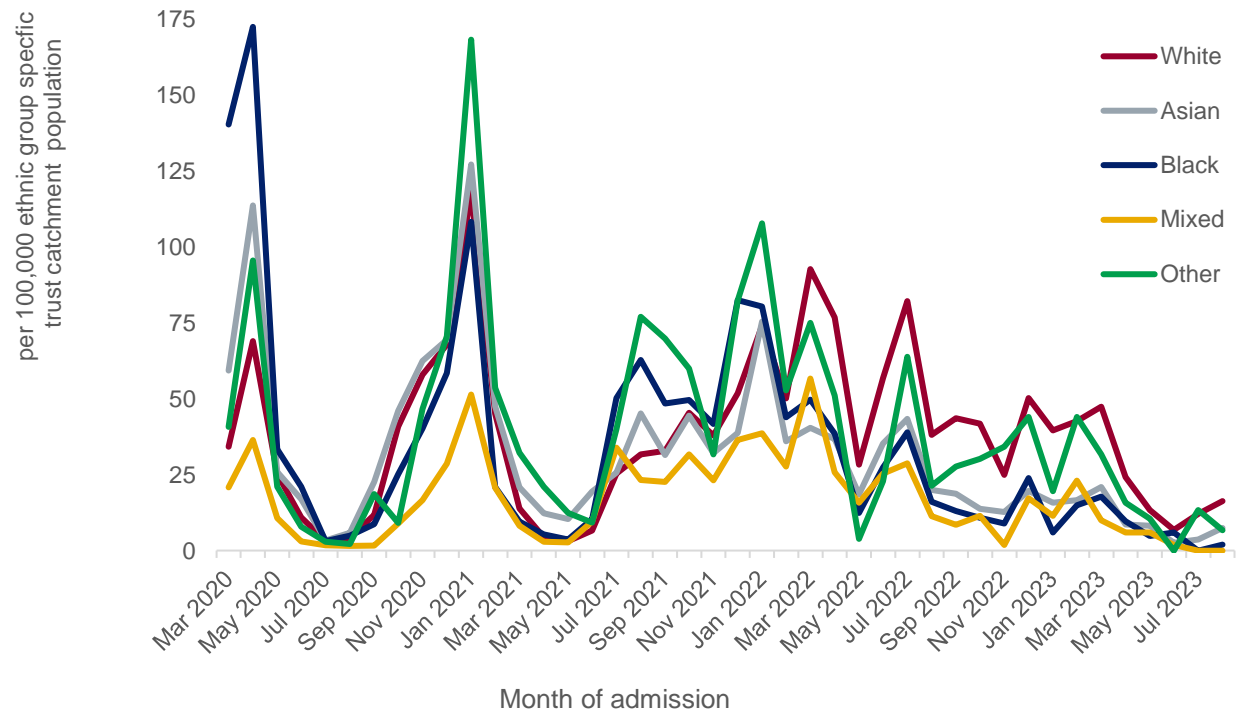


- 0 to 4
- 5 to 14
- 15 to 24
- 25 to 44
- 45 to 54
- 55 to 64
- 65 to 74
- 75 to 84
- 85+



# Rate of hospitalisation (to all levels of care including ICU-HDU) by ethnic group, per 100,000 ethnic group specific trust catchment population, England

Rate of COVID-19 hospitalisation (to all levels of care including ICU-HDU) by ethnic group, per 100,000 ethnic group specific population

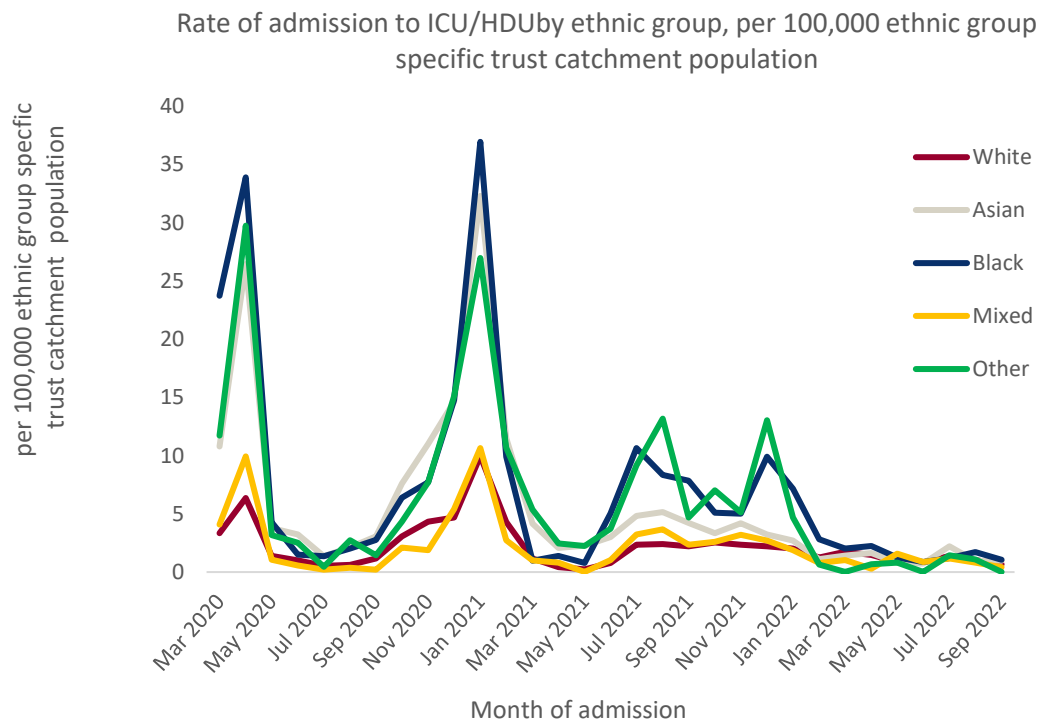


**Notes:**

- This is based on data from the sentinel surveillance involving a network of spotter trusts submitting enhanced data on laboratory confirmed cases admitted to any level of care including ICU-HDU.
- Due to retrospective updates from trusts rates are revised accordingly. Data extracted on 20<sup>th</sup> September 2023. Data series to end of August 2023.
- From week (24 2021) the ethnicity analysis is based on a new method for assigning ethnicity, developed by UKHSA. The previous method used the most recent ethnicity recorded through linkage to Hospital Episode Statistics. However, this method led to unfeasibly high rates in the 'Other' ethnic group when applied to COVID-19 cases, hospitalisation or mortality. The new method uses the most frequent ethnicity recorded through linkage to Hospital Episode Statistics, unless the most frequent was 'Other' when the second most frequent was chosen.
- A caveat is that more recent data has under representations from London trusts, so trusts from that region are encourage to participate to strength this surveillance. Another caveat, is imprecise estimates due to periods of low SARS-CoV-2 circulation leading to a decrease in hospitalisations combined with the effect of non matches in the linkage.



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



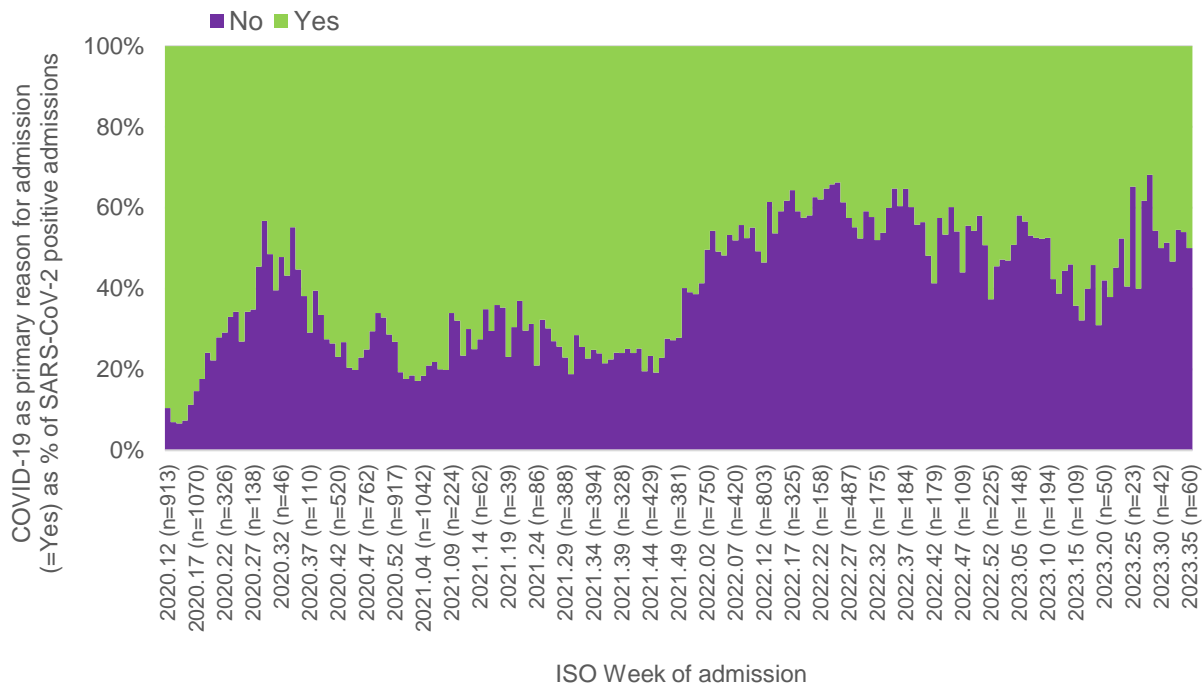
**Note:**

- From week (24 2021) the ethnicity analysis is based on a new method for assigning ethnicity, developed by UKHSA. The previous method used the most recent ethnicity recorded through linkage to Hospital Episode Statistics. However, this method led to unfeasibly high rates in the ‘Other’ ethnic group when applied to COVID-19 cases, hospitalisation or mortality. The new method uses the most frequent ethnicity recorded through linkage to Hospital Episode Statistics, unless the most frequent was ‘Other’ when the second most frequent was chosen.
- The ICU-HDU rates prior to October 2022 were based on mandatory data i.e. acute NHS trusts were required to submit enhanced data on all cases of COVID-19 admitted to ICU-HDU ward. The mandatory requirement to submit data on COVID-19 cases admitted to ICU-HDU was discontinued in October 2022.
- From October 2022, enhanced surveillance is based on sentinel data (data reported by a network of spotter trusts). Sentinel surveillance involves reporting cases of COVID-19 admitted to all levels of care. ICU-HDU cases from sentinel surveillance data maybe too small to stratify by time and ethnicity, this is due to a smaller number of reported trusts from the sentinel scheme.



# COVID-19 as primary reason for admission (Yes/No) among SARS-CoV-2 positive patients by week of admission, England, All ages

Data extracted on 20 September 2023

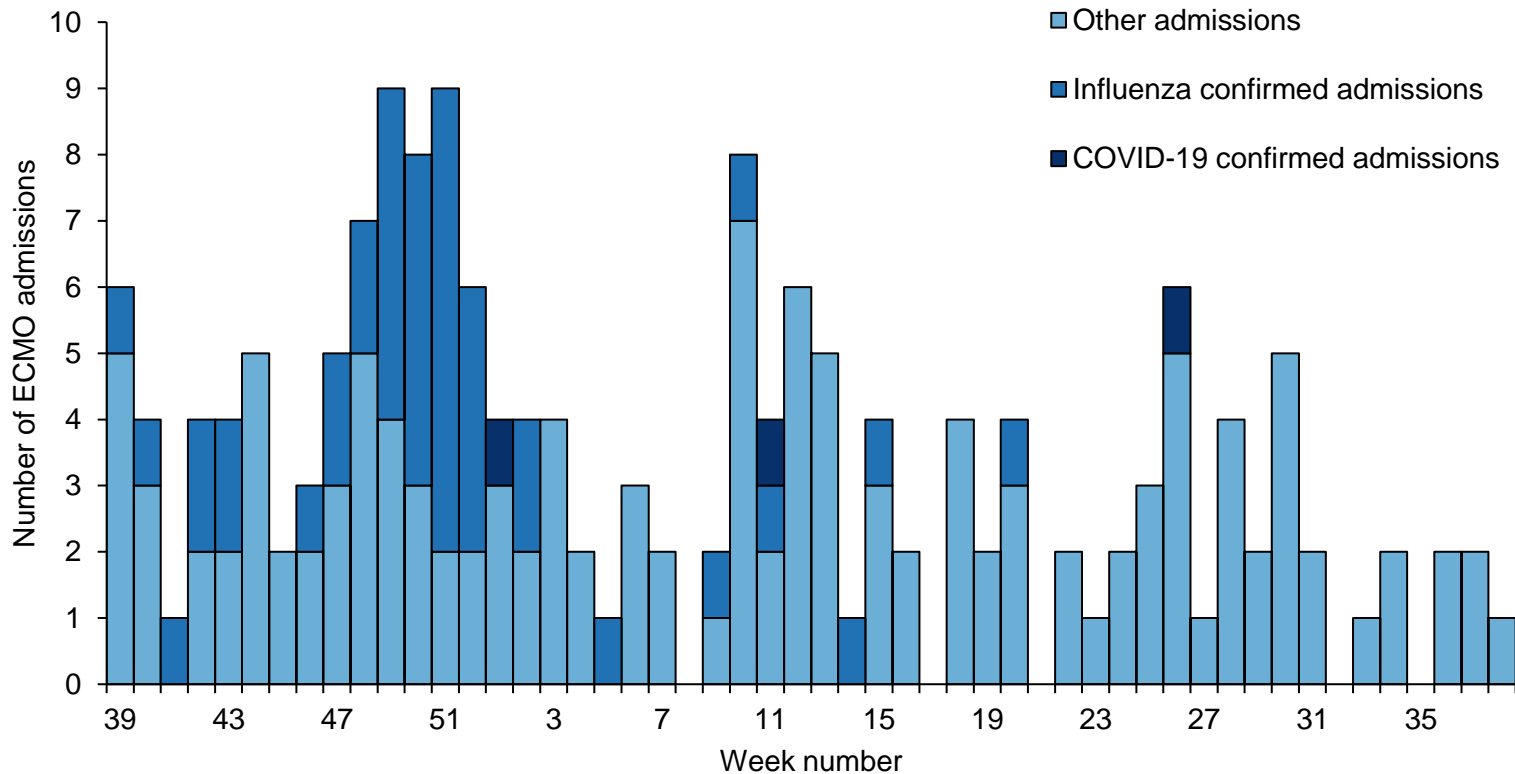


## Notes

- 1) Case-level sentinel surveillance data from SARI-Watch, from week 12 2020 (commencing 16 March 2020) to week 35 2023 (ending 3 September 2023) inclusive.
- 2) Total 81,885 records in period of analysis, of which 42% (n=34,591) had COVID-19 as primary reason for admission ('Yes').
- 3) SARS-CoV-2 patients with evidence of COVID-19 treatment (antivirals or respiratory support) or COVID-19 death but have 'No' or 'Unknown' for COVID-19 as primary reason for admission (n=9,484) are reassigned to COVID-19 as primary reason of admission ('Yes').
- 4) Reassignment increases COVID-19 as primary reason for admission ('Yes') from 34,591 to 44,075 (now accounting for 54% of data).
- 5) 21% (17,319/81,885) of total records in this period have missing data on the 'Admission due to COVID-19' indicator – these are excluded from analysis.
- 6) Caveats: 1) London trusts under-represented since January 2021. 2) The most recent weeks are subject to retrospective updates 3) Admissions reported as not primarily due to COVID-19 should not be interpreted as all true incidental cases as there will be some with non ARI presentation due to exacerbation after recent SARS-CoV-2 infection.



# 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

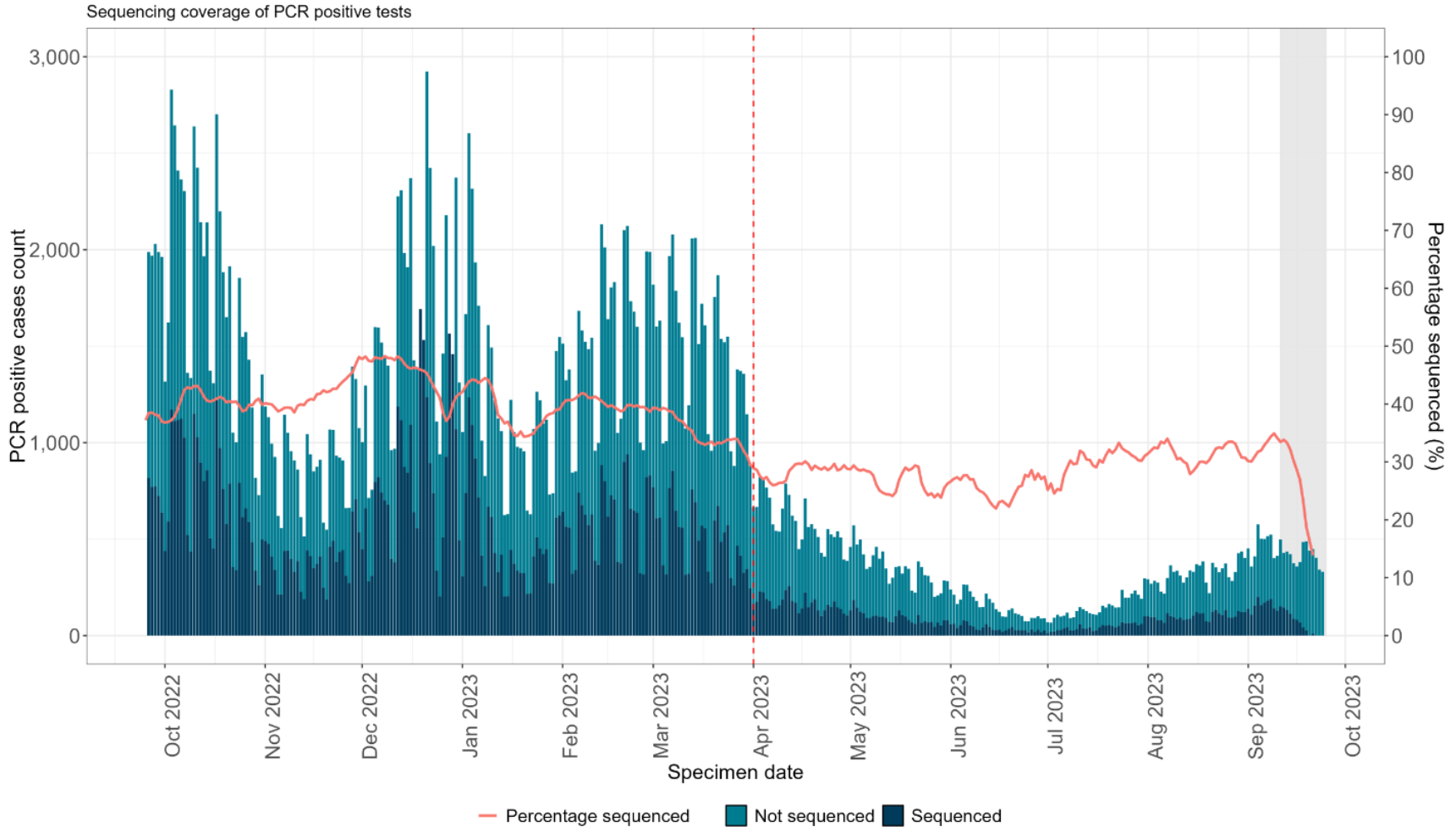




# SARS-CoV-2 Whole Genome Sequencing (WGS) coverage, England



# Coverage of sequencing with a valid result and genotyping over time



Grey shading was applied to the previous 14 days to account for reporting delays in sequencing data. Cases where the individual only tested using a lateral flow device are not included in the percentage denominator.



# COVID-19 vaccine uptake, England



## COVID-19 vaccine uptake, 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 26 2023 (week ending 2 July 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.

### Spring 2023 Campaign

Immunity derived from vaccination declines over time, JCVI has recommended a Spring 2023 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.

The Spring 2023 data reported below covers any booster dose administered from the 3 April 2023 provided there is at least 3 months from the previous dose. Eligible groups for the Spring campaign are defined in the COVID-19 healthcare guidance [Green Book](#) and include residents in all adults aged 75 years and over, residents in a care home for older adults, and individuals aged 5 years and over who are immunosuppressed



## Provisional cumulative people vaccinated by age with a booster of COVID-19 vaccine from the 3 April 2023 as part of the Spring 2023 campaign in England

National	People in NIMS cohort who are living and resident in England	Vaccinated with an Spring booster since 3 April 2023 *	Percentage vaccine uptake
Over 80	2,980,958	2,139,920	71.8
75 to under 80	2,442,116	1,716,284	70.3
Aged 75 and over	5,423,074	3,856,204	71.1

\*Spring 2023 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 3 April 2023.

This table presents coverage as measured against the total population and includes people who are not yet due to have their Spring 2023 booster. It is important that unvaccinated individuals, especially vulnerable adults, receive a primary course of vaccination, irrespective of whether individuals have had previous infection. To understand the data in the context of vaccine waning across the whole COVID-19 programme, we present Table 8 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.



Provisional cumulative people vaccinated by age and sex with a Spring 2023 booster of COVID-19 vaccine from the 3 April 2023 as part of the Spring campaign in England

AGE	MALE			FEMALE		
	People in NIMS Cohort	Vaccinated with an Spring booster since 3 April 2023 *	% Vaccine Uptake	People in NIMS Cohort	Vaccinated with an Spring booster since 3 April 2023 *	% Vaccine Uptake
Over 80	1,233,661	915,870	74.2	1,745,777	1,223,961	70.1
75 to under 80	1,141,812	822,604	72.0	1,298,640	893,578	68.8
Aged 75 and over	2,375,473	1,738,474	73.2	3,044,417	2,117,539	69.6

\*Spring 2023 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 3 April 2023.



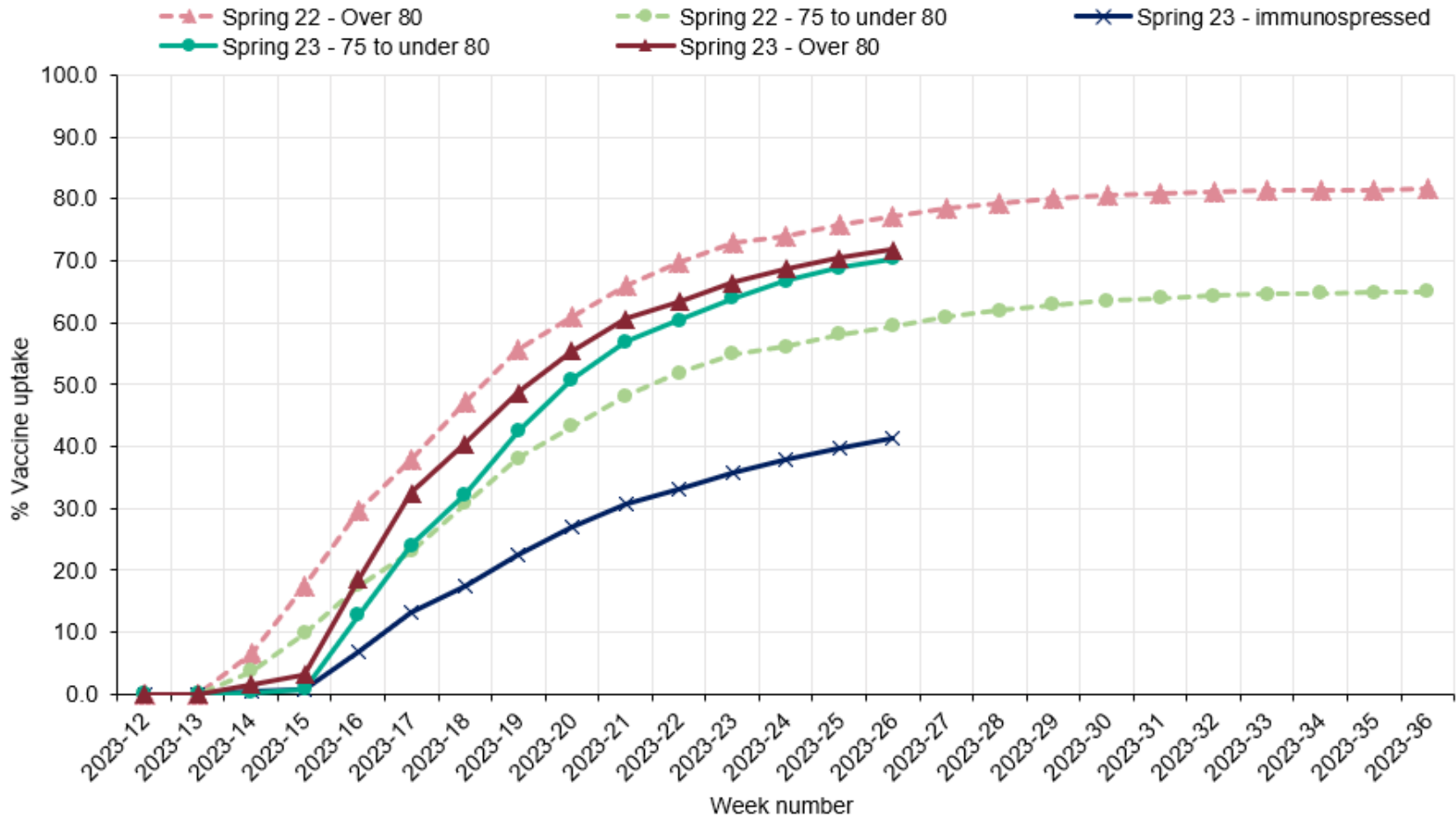
## Provisional cumulative people vaccinated by age with a booster of COVID-19 vaccine from the 3 April 2023 as part of the Spring campaign in England

<b>National</b>	<b>People in NIMS cohort who are living and resident in England</b>	<b>Vaccinated with an Spring booster since 3 April 2023 *</b>	<b>Percentage vaccine uptake</b>
Aged over 5 years and immunosuppressed	2,223,120	915,421	41.2

\*Spring 2023 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 3 April 2023.



# Cumulative weekly COVID-19 vaccine uptake in those who are living and resident in England vaccinated with a Spring 2023 booster since 3 April 2023\*



\*Please note that this graph shows data for the Spring 2022 campaign and does not correspond to the date axis but is aligned to the current Spring 2023 campaign to allow comparison of both.



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

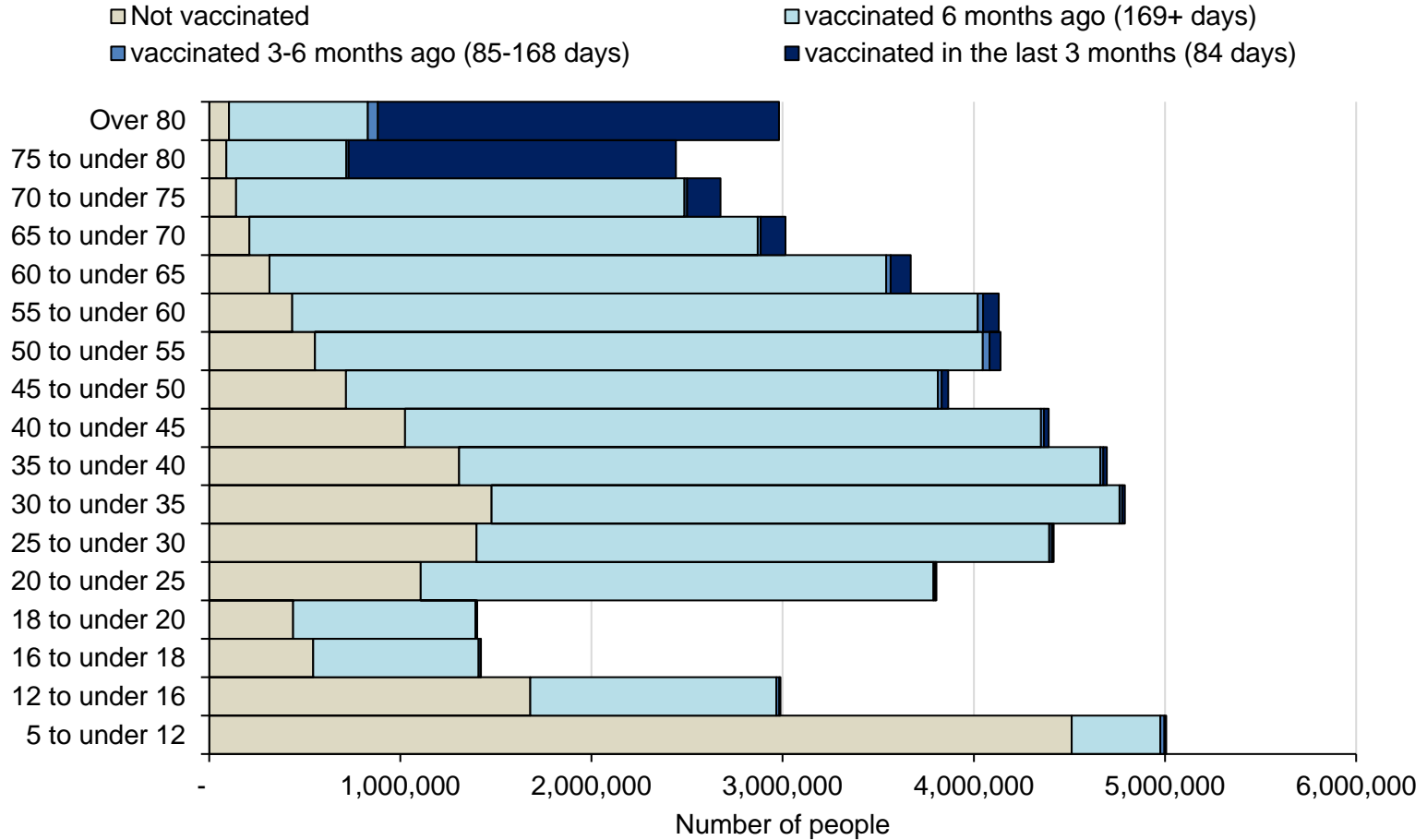
National	People in NIMS cohort who are living and resident in England	Vaccinated in the last 3 months (84 days)		Vaccinated 3 to 6 months ago (85 to 168 days)		Vaccinated 6 months ago (169 or more days)	
		Numbers vaccinated	Percentage vaccinated	Numbers vaccinated	Percentage vaccinated	Numbers vaccinated	Percentage vaccinated
Over 80	2,980,958	2,098,048	70.4	52,189	1.8	726,224	24.4
75 to under 80	2,442,116	1,711,653	70.1	12,483	0.5	627,358	25.7
70 to under 75	2,674,804	174,675	6.5	13,492	0.5	2,345,721	87.7
65 to under 70	3,015,497	130,430	4.3	14,955	0.5	2,659,151	88.2
60 to under 65	3,670,466	106,147	2.9	23,415	0.6	3,225,599	87.9
55 to under 60	4,129,776	80,608	2.0	28,900	0.7	3,585,021	86.8
50 to under 55	4,139,549	56,675	1.4	35,686	0.9	3,493,701	84.4
45 to under 50	3,865,391	33,597	0.9	19,830	0.5	3,096,183	80.1
40 to under 45	4,391,828	24,640	0.6	16,581	0.4	3,325,478	75.7
35 to under 40	4,695,213	17,597	0.4	15,483	0.3	3,353,967	71.4
30 to under 35	4,789,564	13,146	0.3	14,923	0.3	3,283,758	68.6
25 to under 30	4,417,542	9,593	0.2	12,729	0.3	2,996,705	67.8
20 to under 25	3,804,929	6,567	0.2	9,915	0.3	2,681,683	70.5
18 to under 20	1,401,351	3,248	0.2	6,160	0.4	951,856	67.9
16 to under 18	1,422,608	2,750	0.2	10,148	0.7	865,623	60.8
12 to under 16	2,988,769	6,803	0.2	15,761	0.5	1,286,059	43.0
5 to under 12	5,005,988	9,343	0.2	21,217	0.4	463,631	9.3

This table 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, for those aged 75 and over can be found in the backing tables.



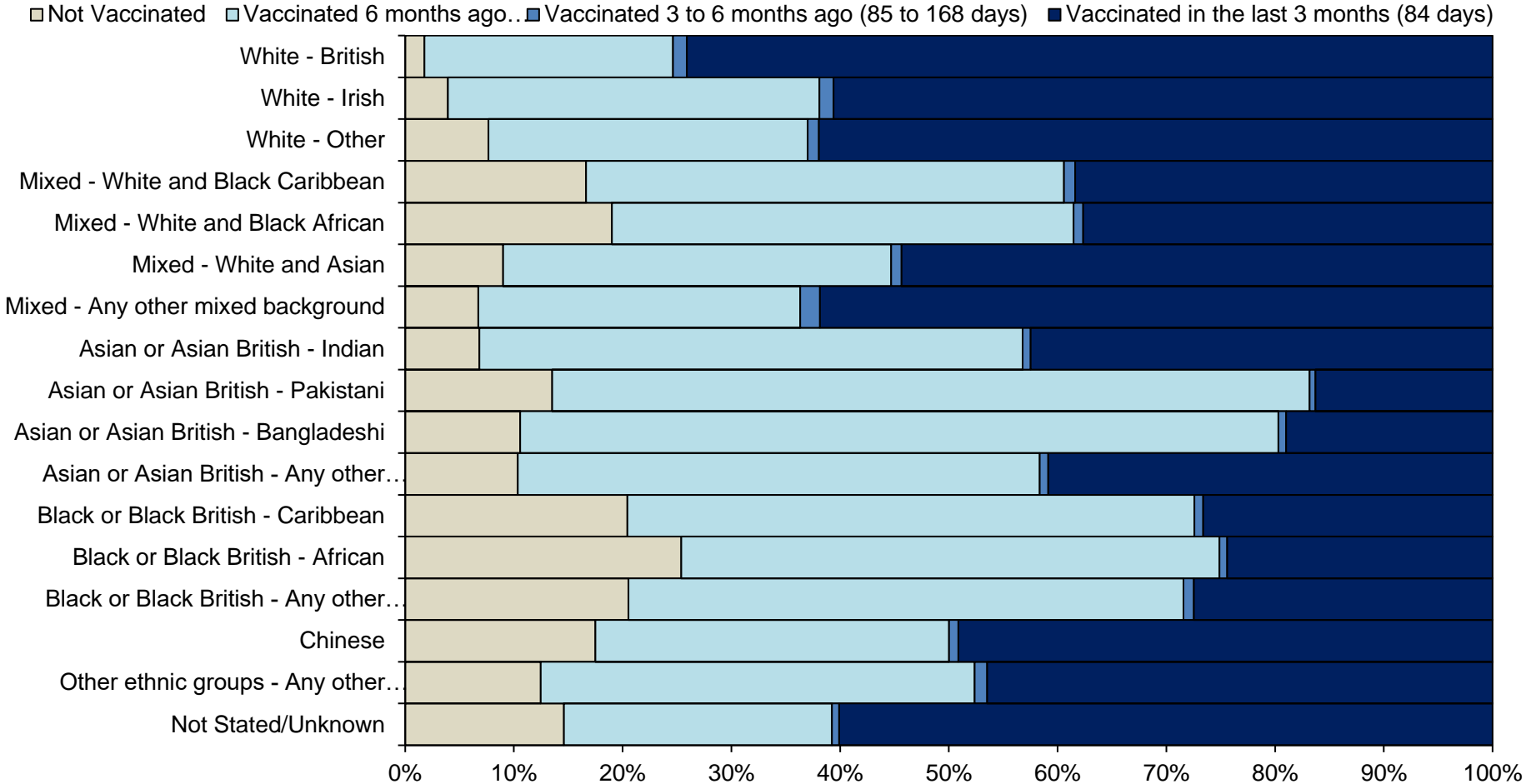


# Provisional cumulative people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago





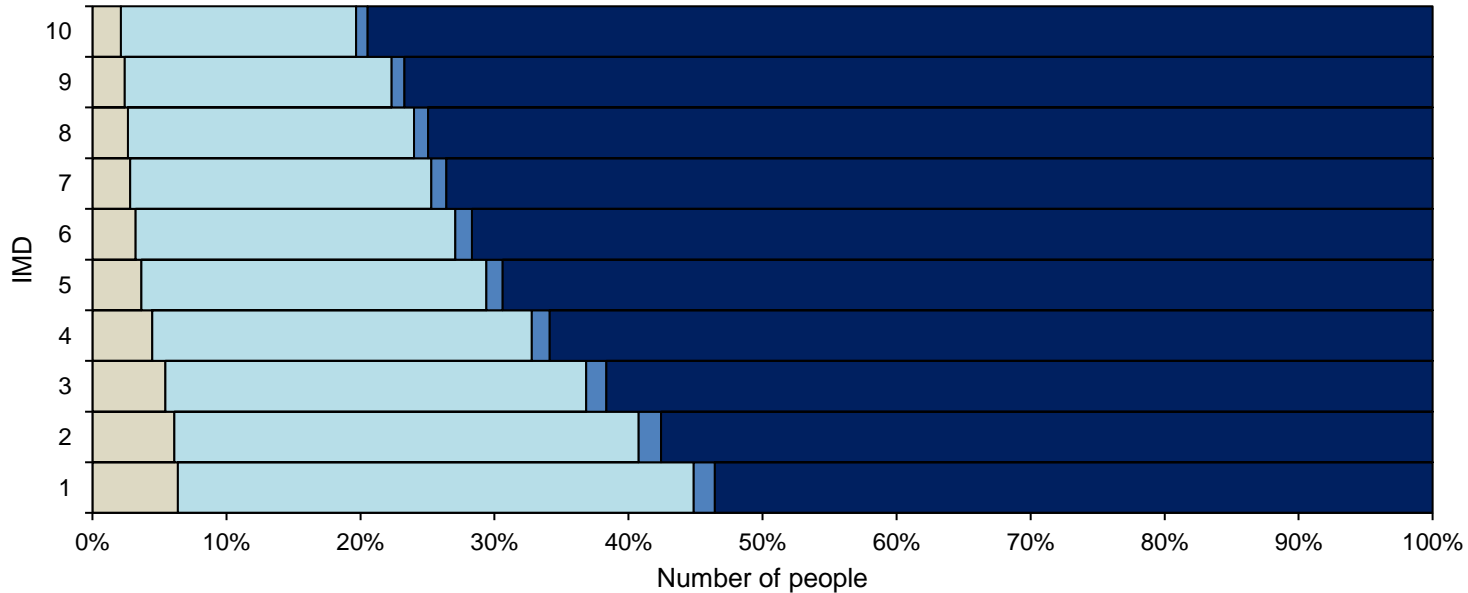
# Provisional cumulative people vaccinated with any dose of COVID-19 vaccine in the last 3 months, 3 to 6 months and vaccinated more than 6 months ago by ethnicity in those living and resident in England, aged 75 and over





# 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 75 and over

Not Vaccinated   Vaccinated 6 months ago   Vaccinated 3 to 6 months ago (85 to 168 days)   Vaccinated in the last 3 months (84 days)



\*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.



## COVID-19 vaccine uptake, England

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

The immunosuppressed group has been updated to include a wider cohort who are eligible for vaccination and therefore is not comparable to data previously used in this report. Detailed information on the NHS Digital characterisation of the immunosuppressed group can be found on the [NHS Digital website](#), including [explanation of the previous definition](#).

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.



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# Influenza vaccination

## Impact of vaccination in 2022-23



## Impact of vaccination in 2022-23

- UKHSA undertakes transmission dynamic modelling as part of disease surveillance to understand the impacts of influenza and support immunisation policy development. This modelling is based on [Baguelin et al](#) PLOS Medicine 2013 and [van Leeuwen et al](#) PLOS Comp Biol 2017.
- Published analysis ([van Leeuwen et al](#) Epidemics 2023) shows that the epidemic shape seen in 2022-23 of early increases followed by a short, sharp season, as described in the [annual report](#), is consistent with low population immunity at the start of the season, associated with low circulation of flu due to COVID-19 controls. This work is being extended to use 2022-23 vaccine effectiveness findings to look at the number of hospitalisations averted, and utilising new sources of data to account for epidemiological changes related to the COVID-19 pandemic.
- Preliminary findings of this work are that compared to a scenario of no vaccinations, the immunisation programme as implemented in 2022-23 averted 25,200 (95%CI 16,800 to 36,400) influenza hospitalisations in England. Analysis is ongoing for preparation of a scientific publication that includes examination of different programme elements.