



# 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 41 (between 9 October and 15 October 2023).



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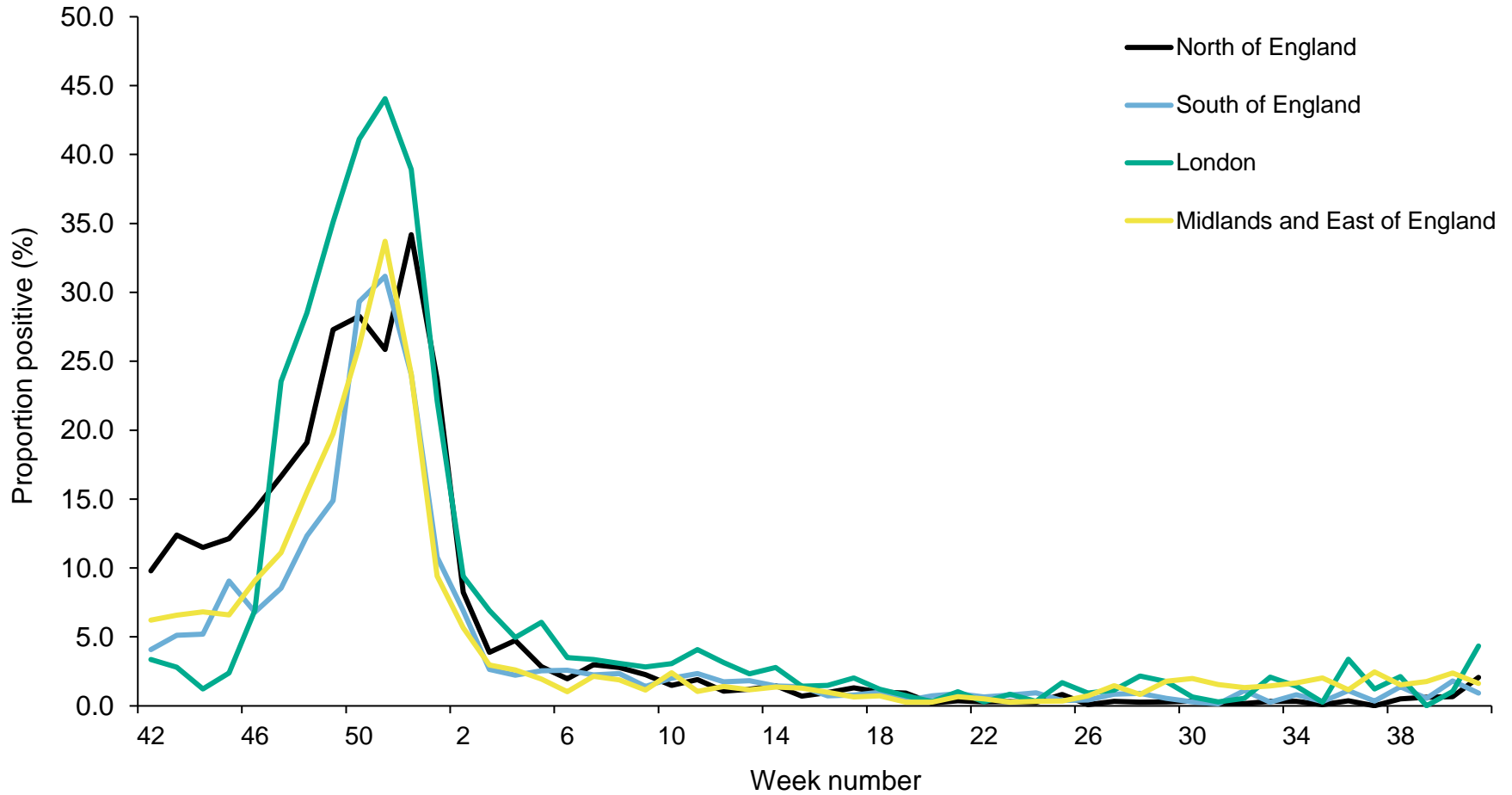


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# Respiratory Datamart system (England)

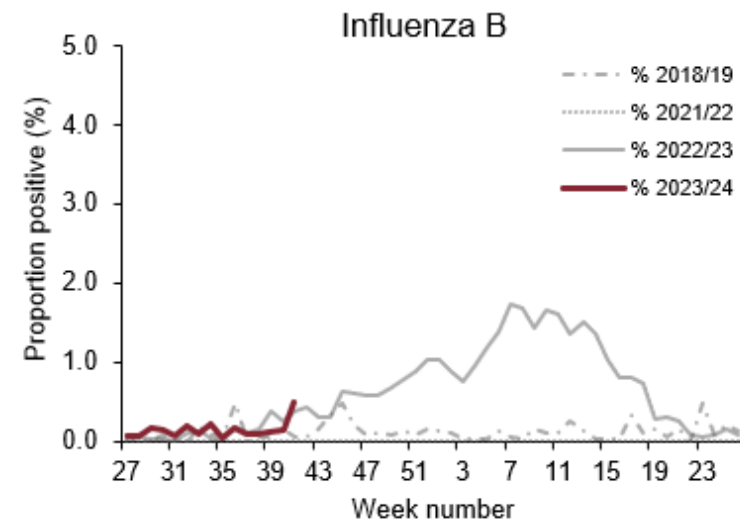
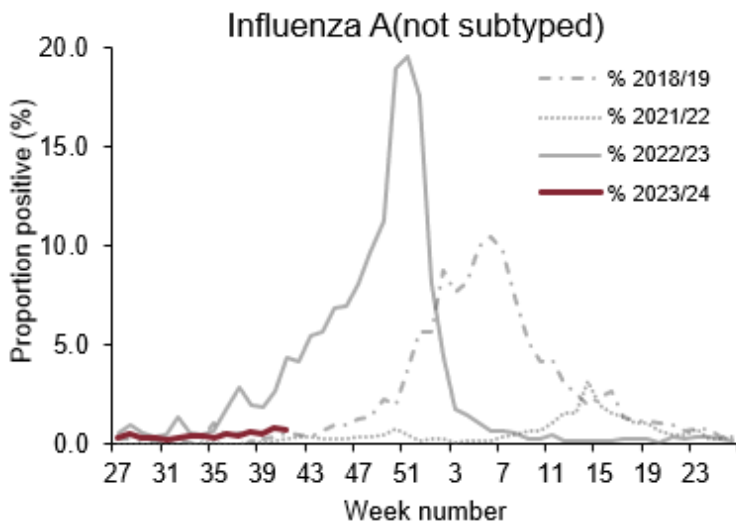
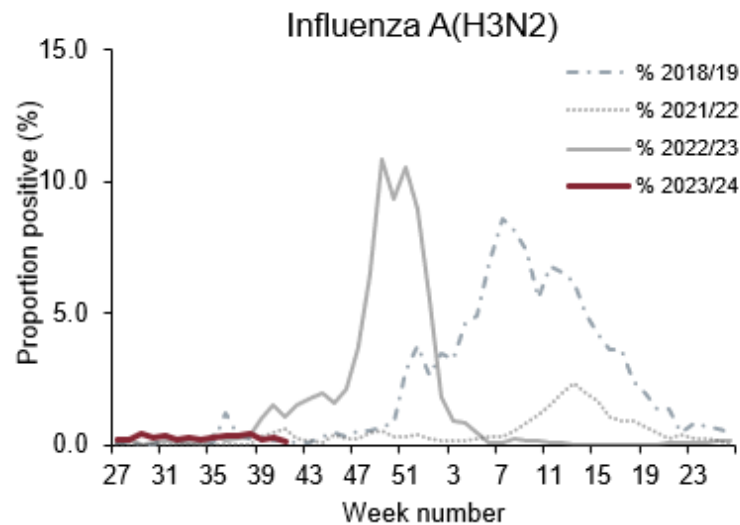
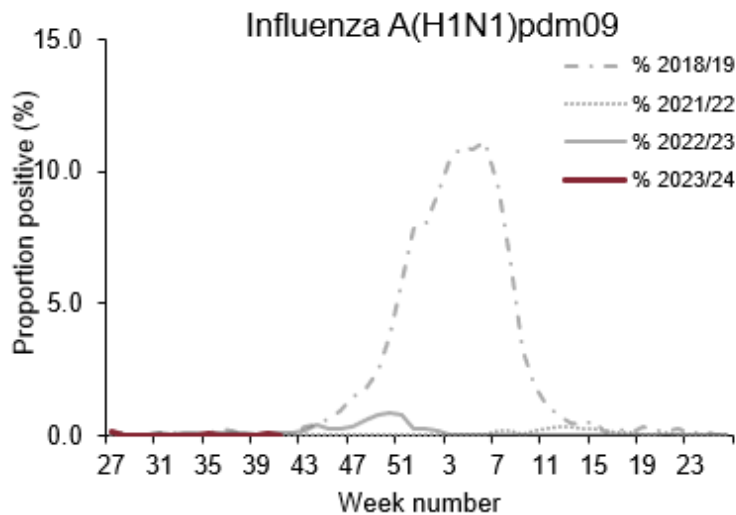


# Respiratory DataMart – Influenza weekly positivity by UKHSA region



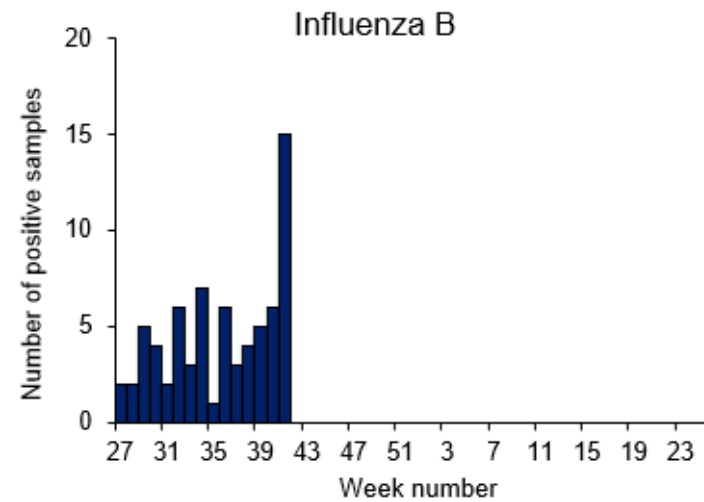
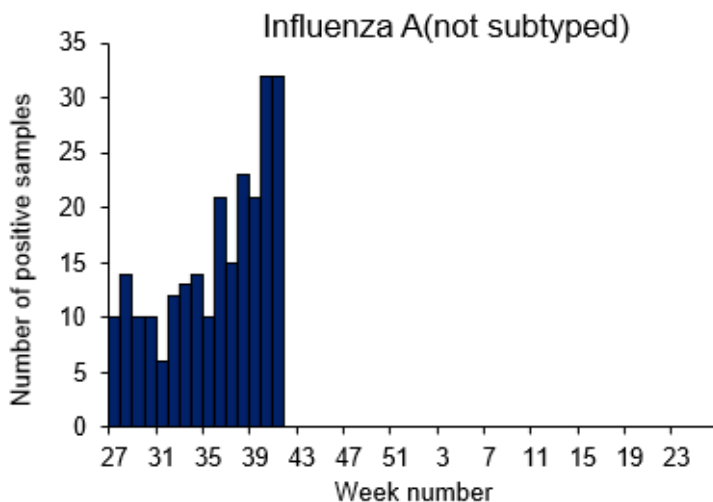
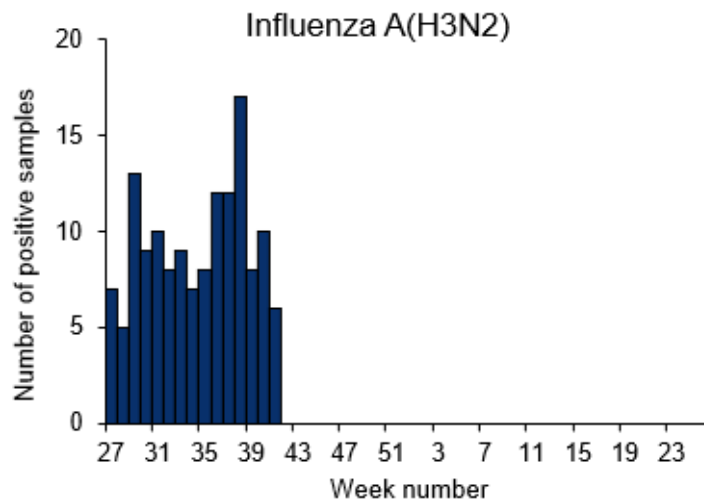
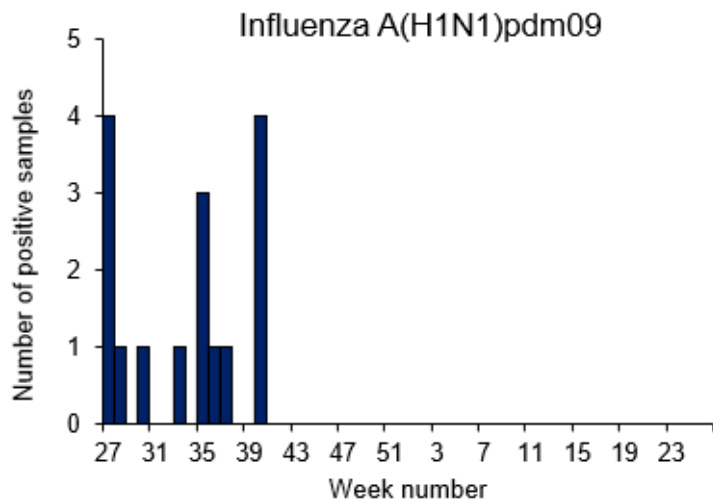


# Respiratory DataMart – Influenza subtypes



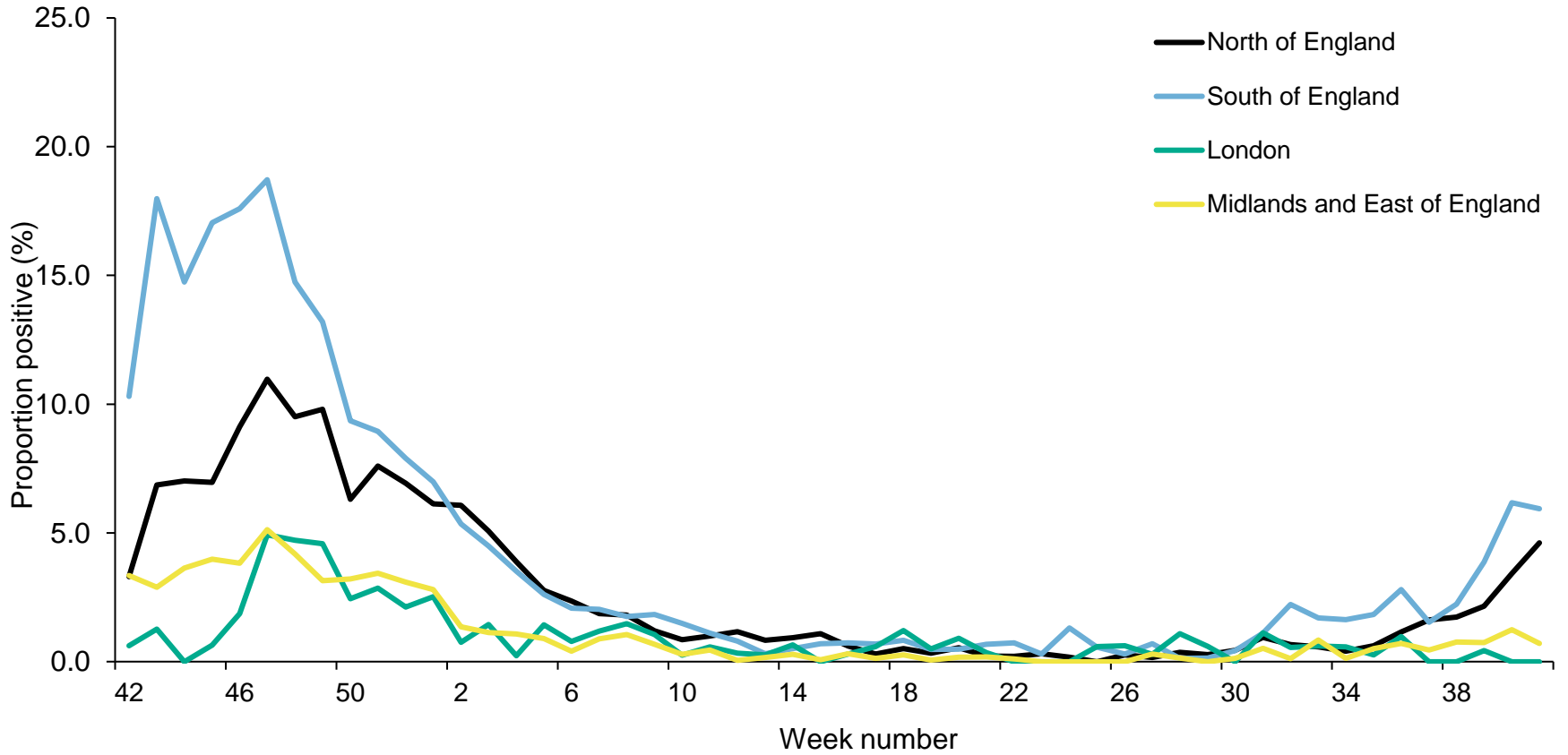


# Respiratory DataMart – Influenza subtypes



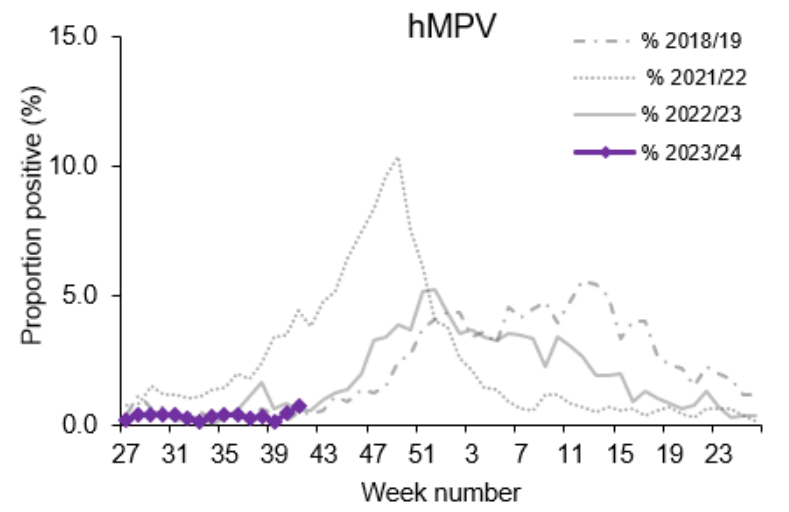
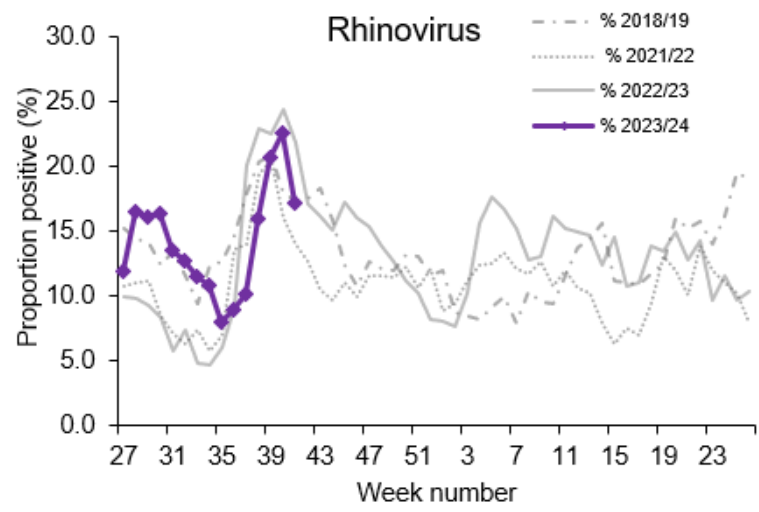
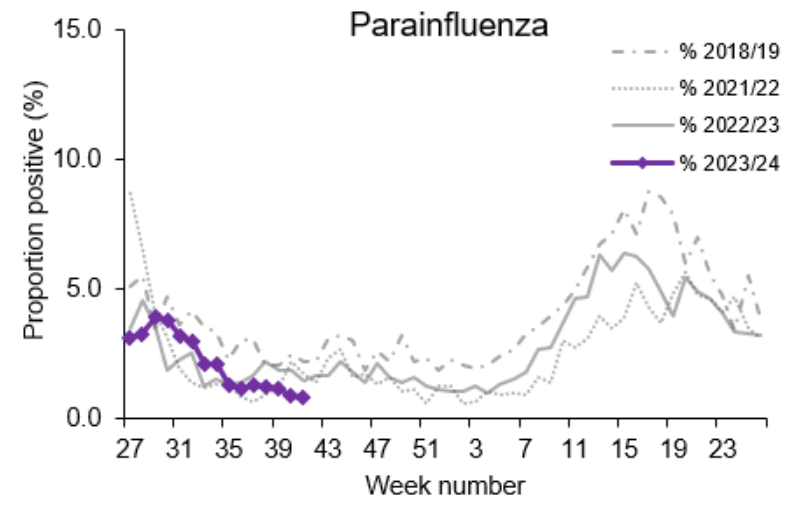
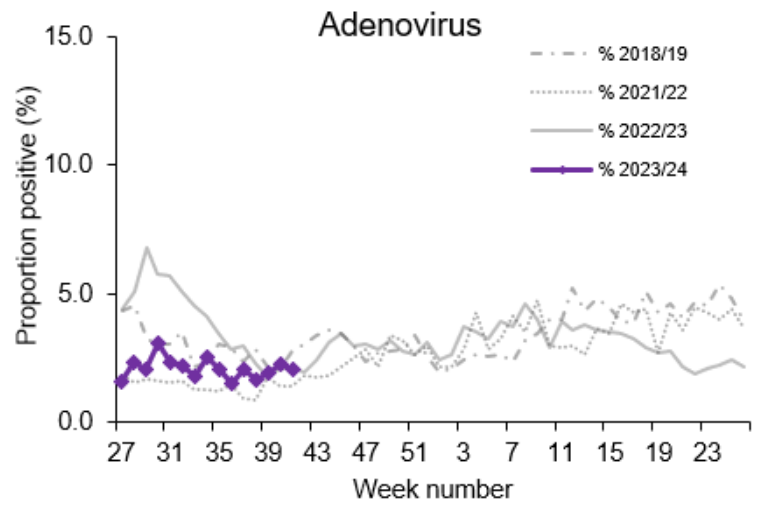


# Respiratory DataMart – Respiratory syncytial virus (RSV) weekly positivity by UKHSA region





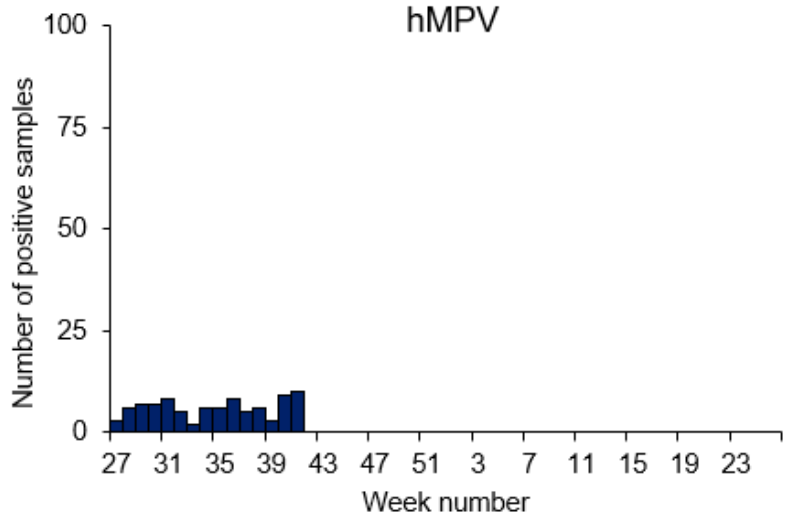
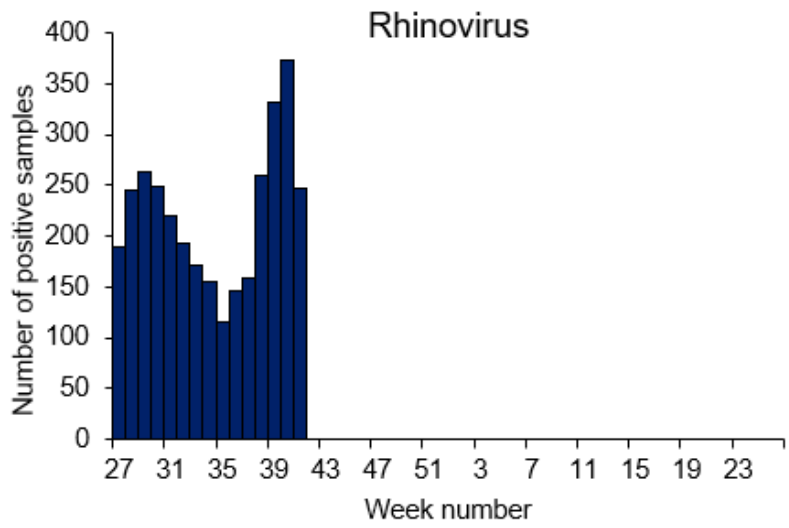
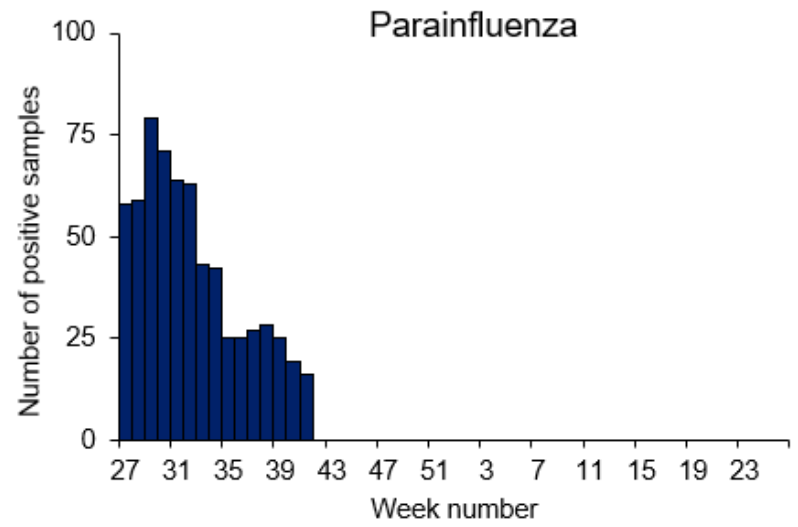
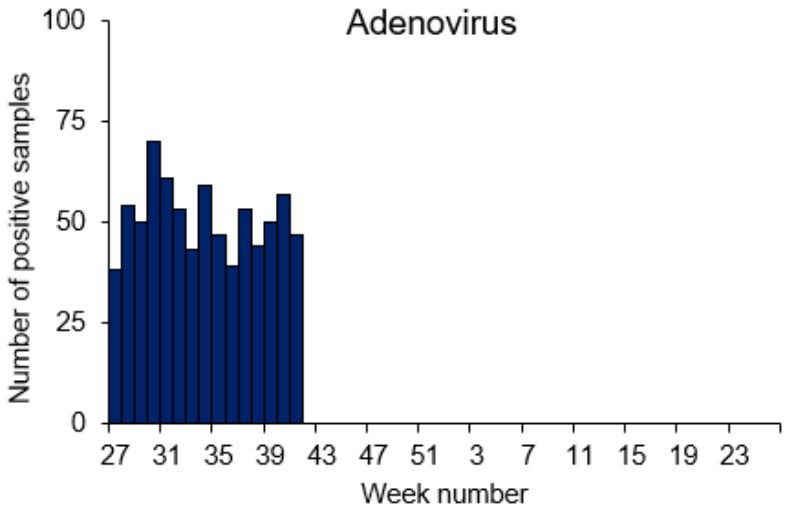
# Respiratory DataMart – other respiratory viruses





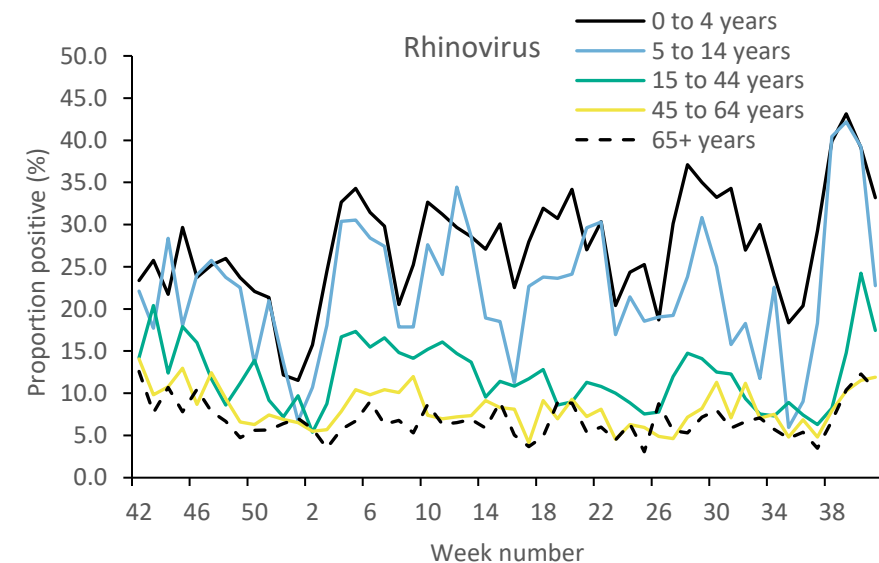
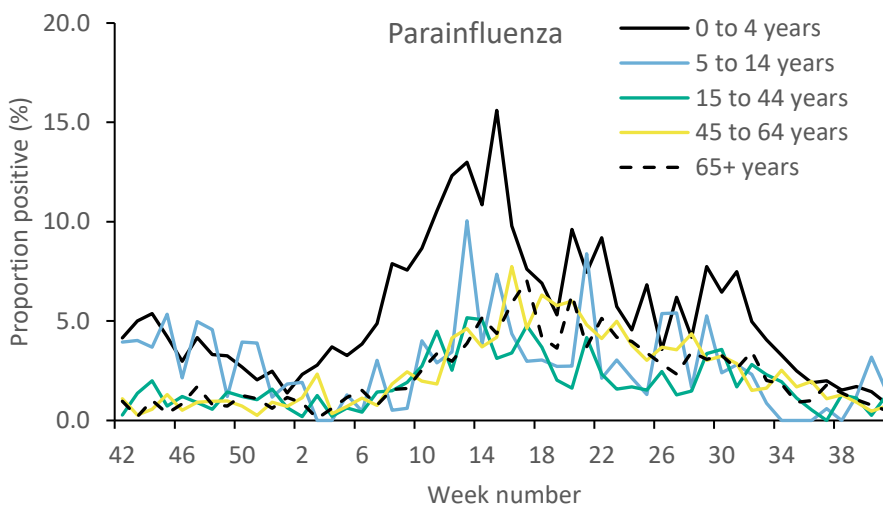
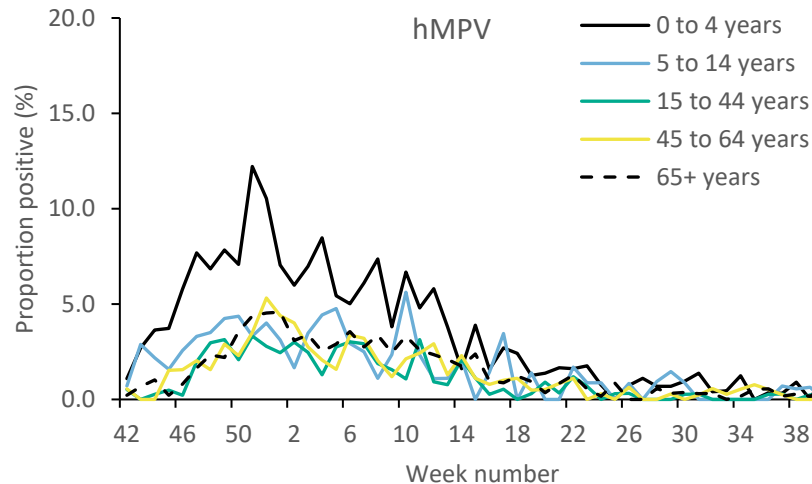
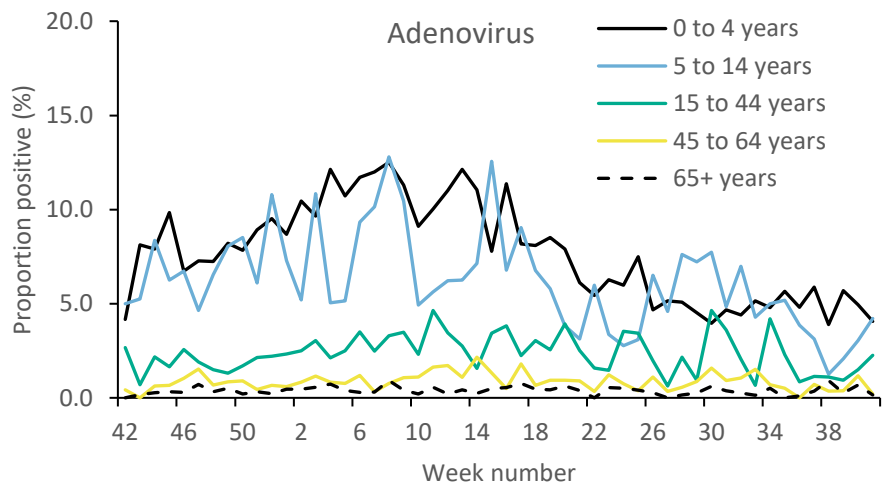


# Respiratory DataMart – other respiratory viruses





# Respiratory DataMart – other respiratory viruses





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# Confirmed COVID-19 episodes in England

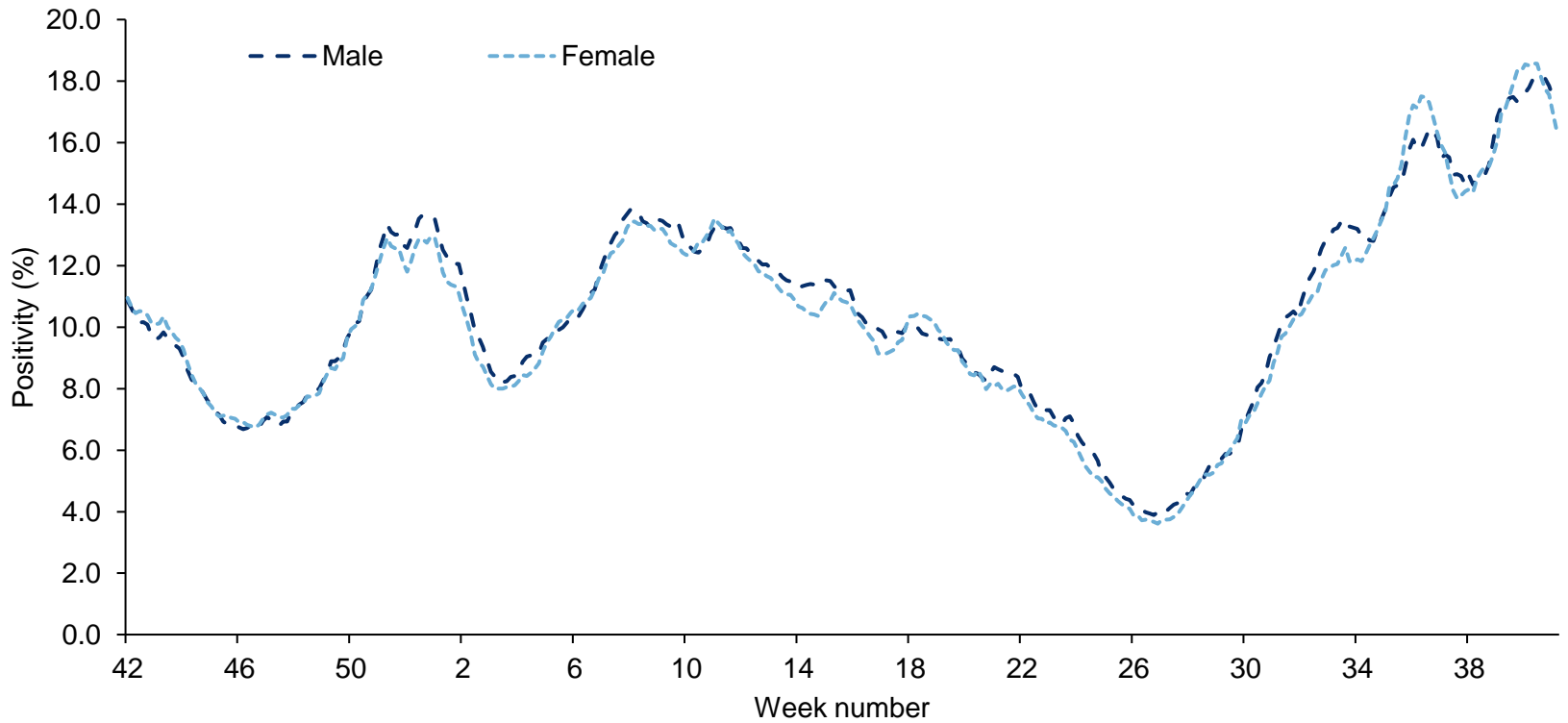


## Data Information

- 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.

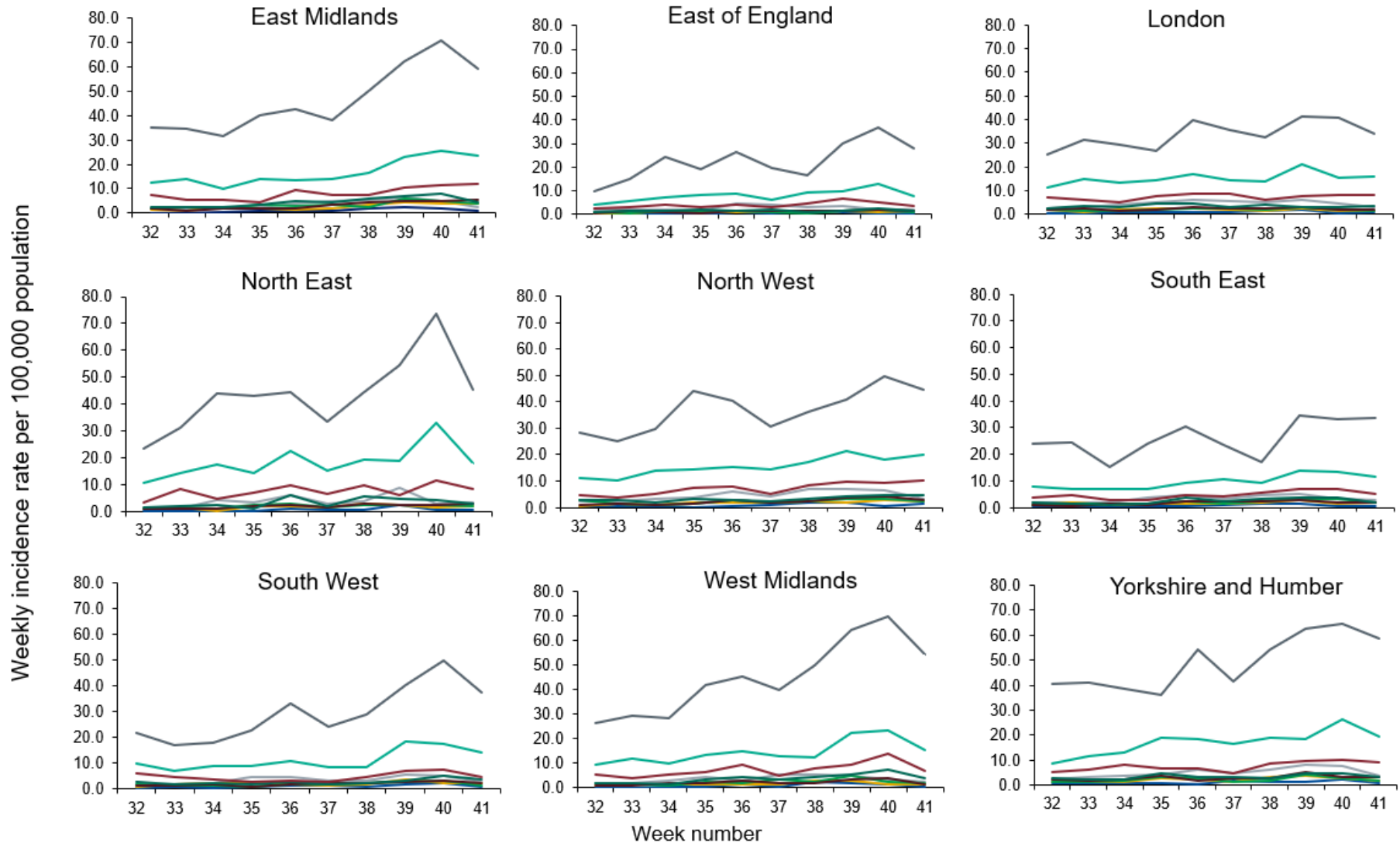


# Seven-day rolling average PCR positivity (%) of confirmed COVID-19 cases tested by sex under Pillar 1





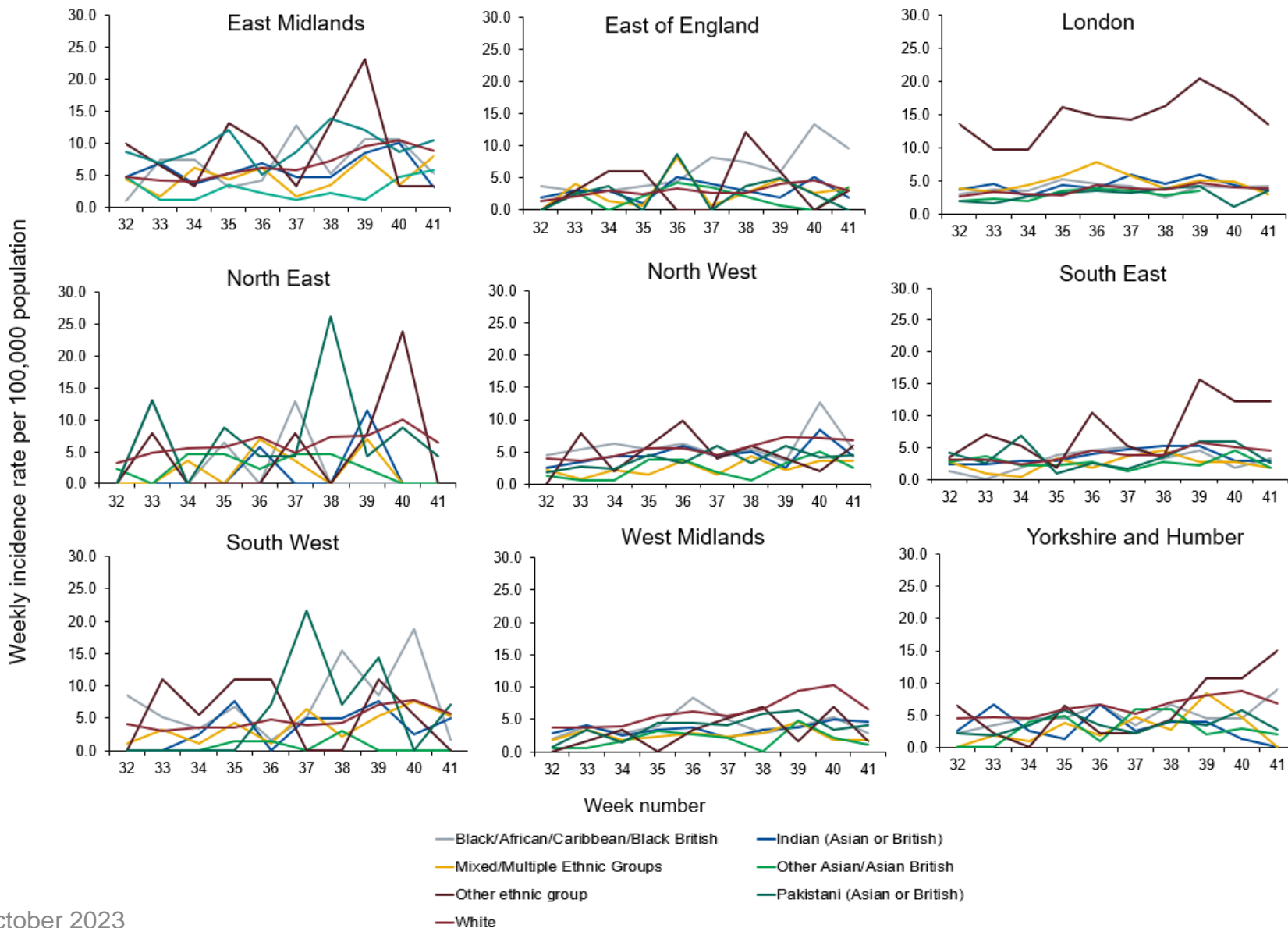
# Weekly COVID-19 episodes tested under Pillar 1, per 100,000 population by age group and region, weeks 32 to 41



- 30-39
- 40-49
- 50-59
- 60-69
- 70-79
- 80+

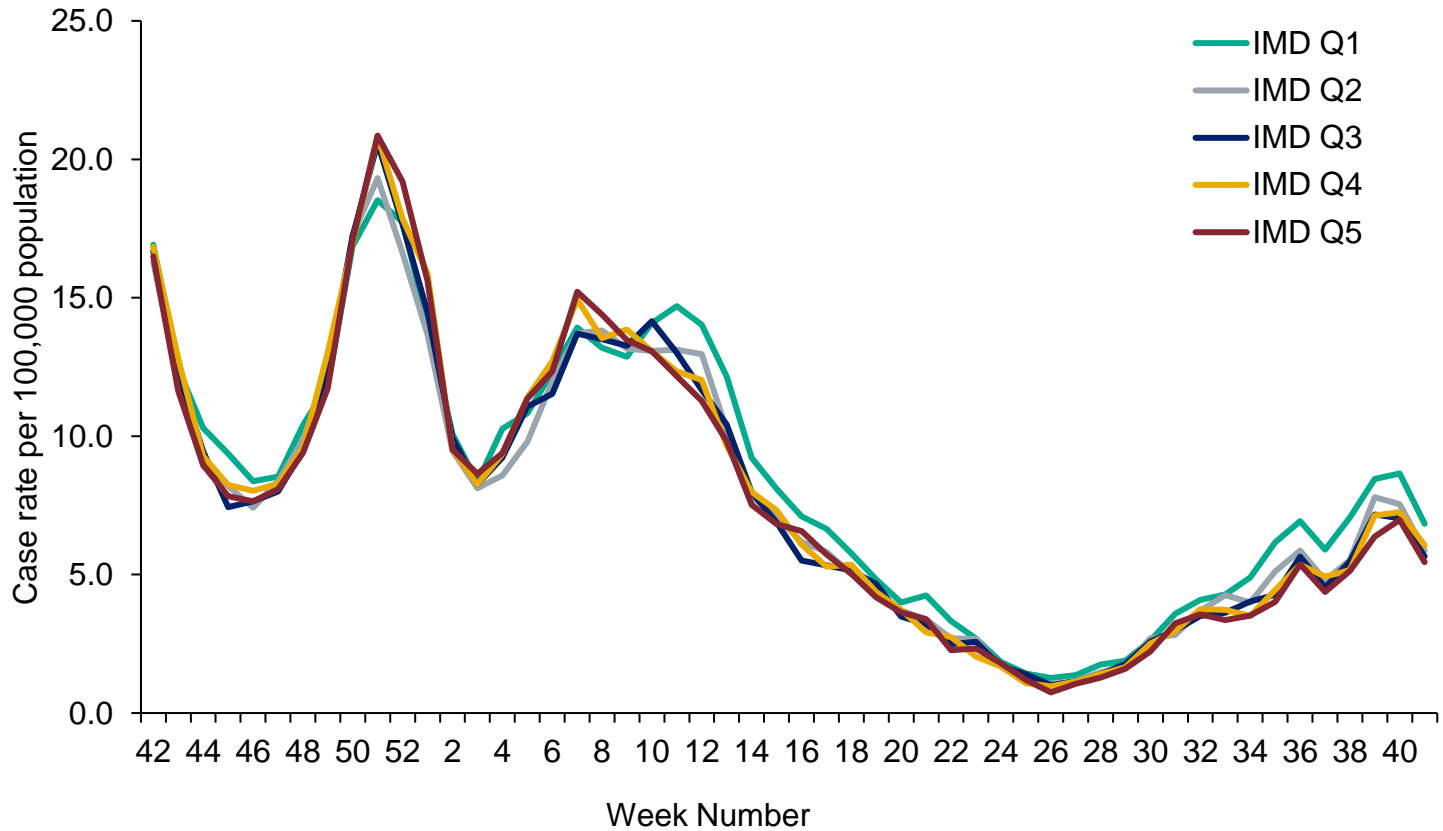


# Weekly COVID-19 episodes tested under Pillar 1, per 100,000 population by ethnicity and region, weeks 32 to 41





## 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)





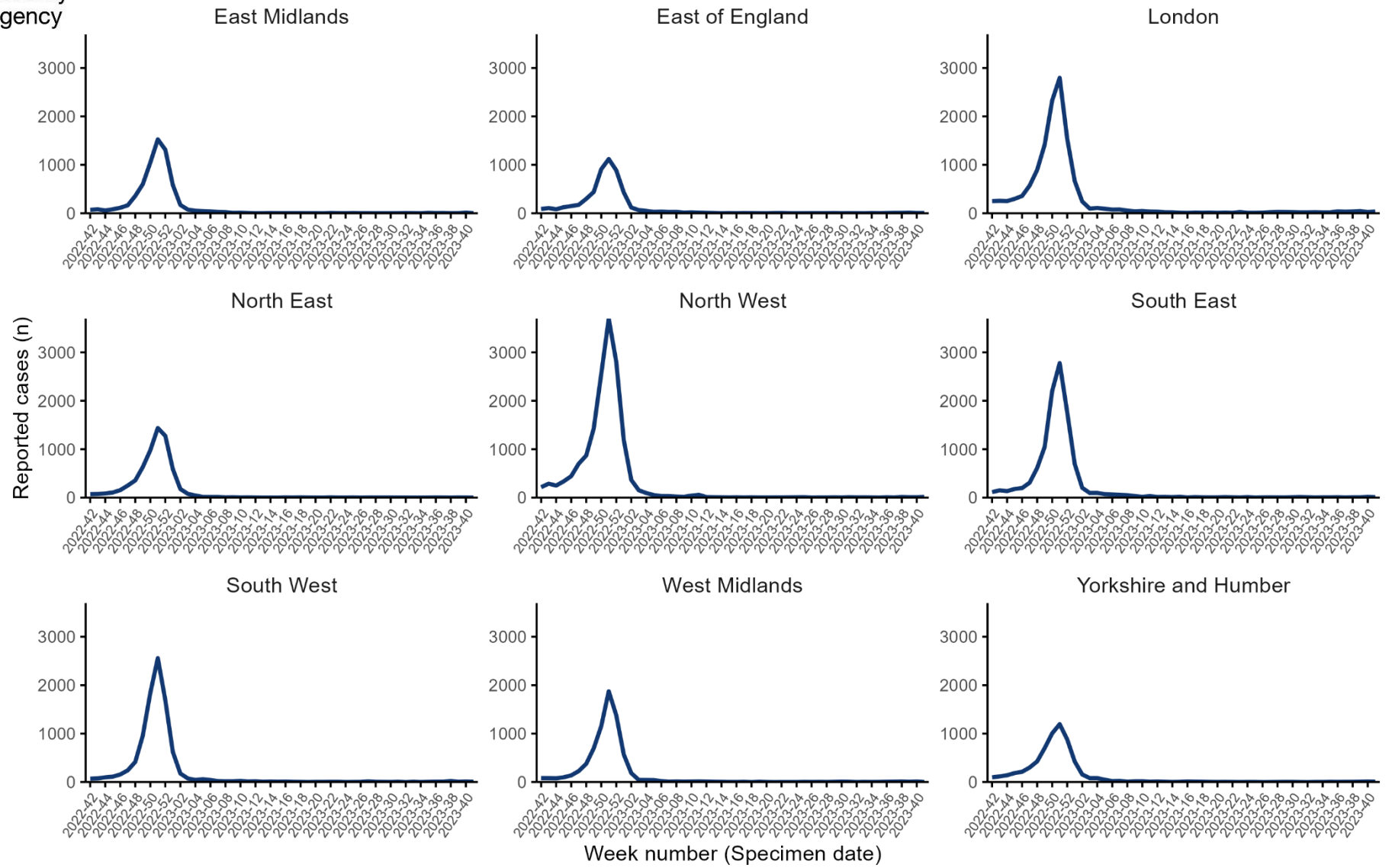


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# Second generation surveillance system (SGSS)

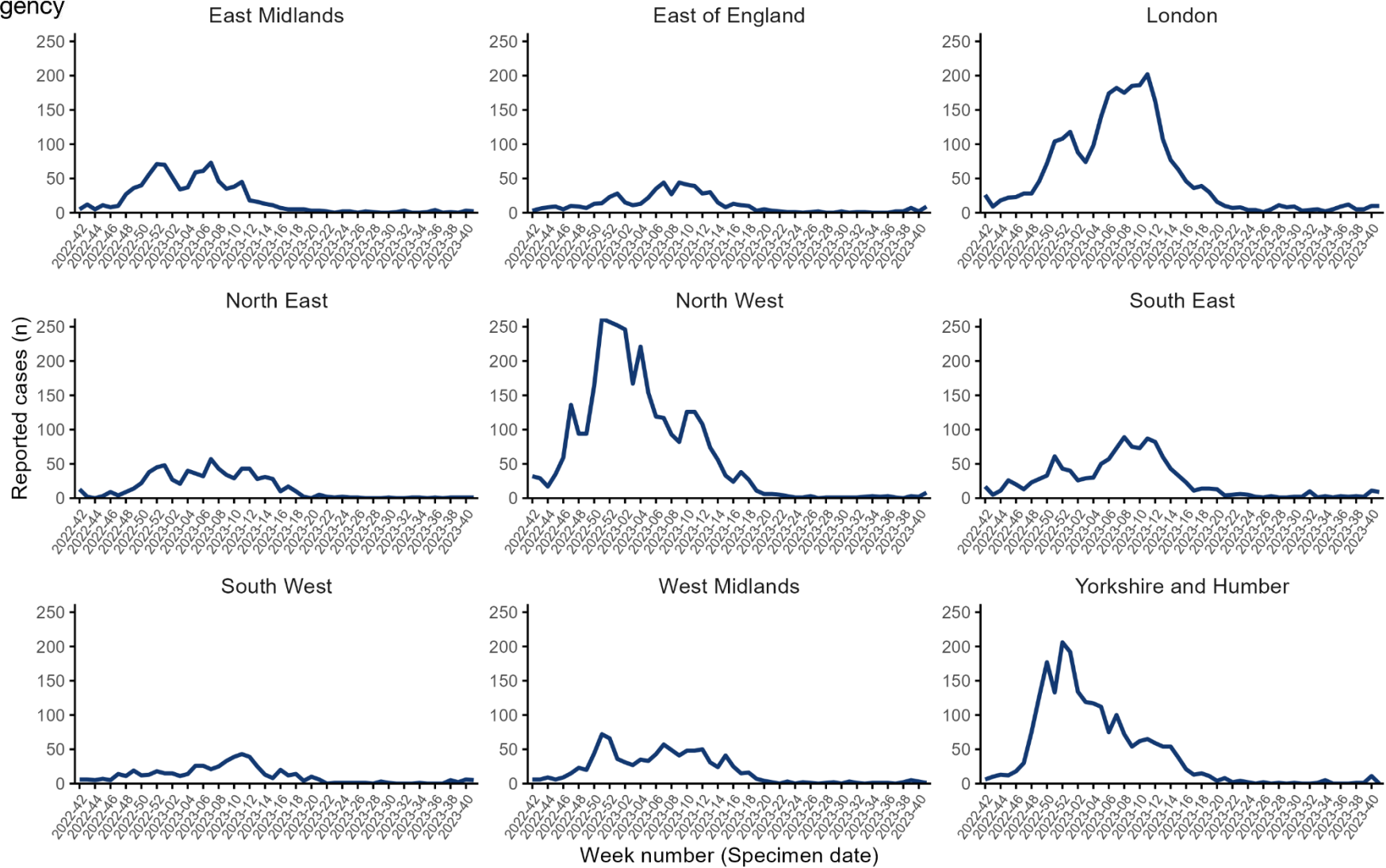


# SGSS reported Influenza A cases by UKHSA region (all ages)





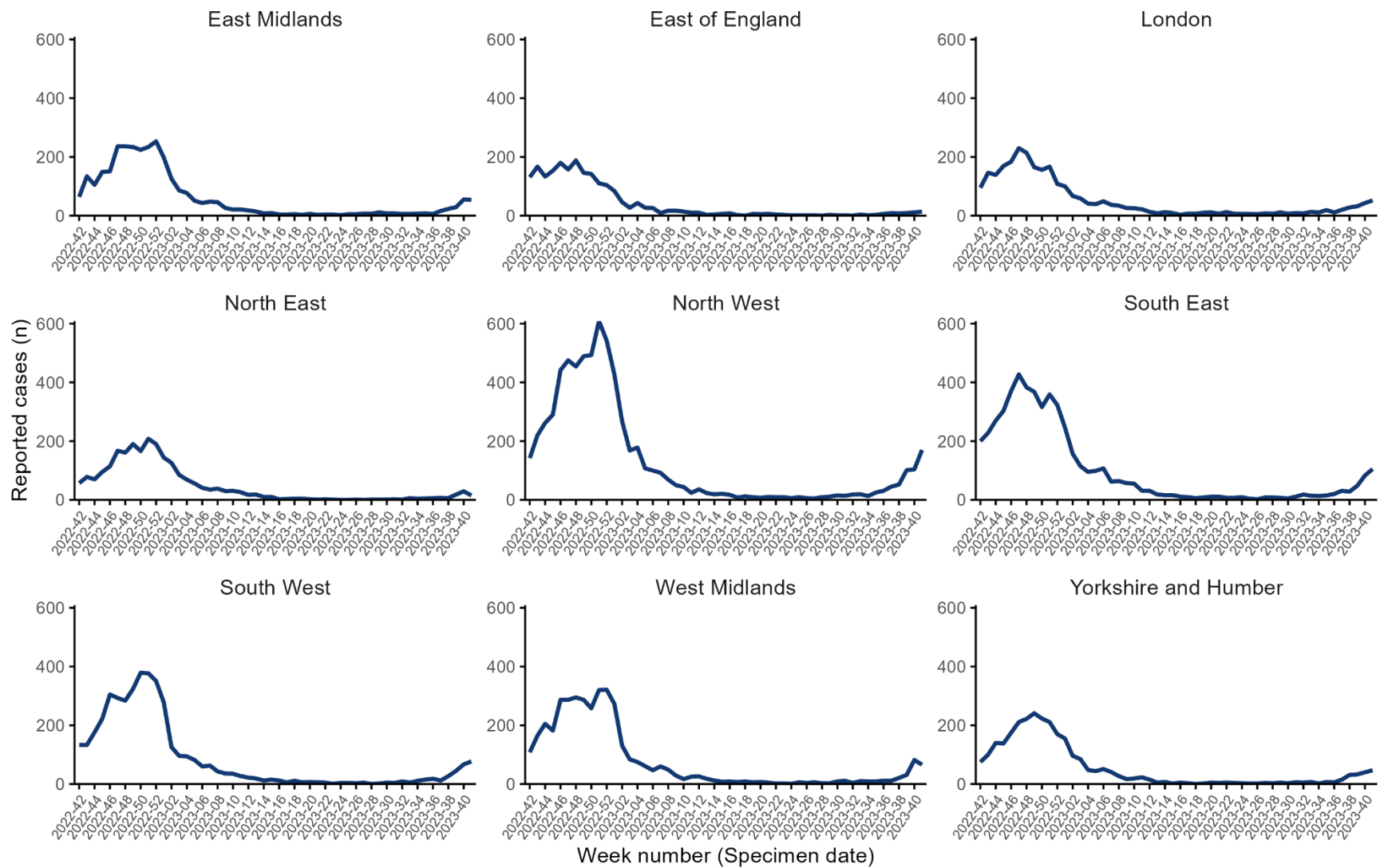
# SGSS reported Influenza B cases by UKHSA region (all ages)



The presented figures are based on laboratory reports through SGSS. Testing and reporting procedures vary by virus, UKHSA regions and over time, including short-term trends in testing. Therefore comparisons should be done with caution.



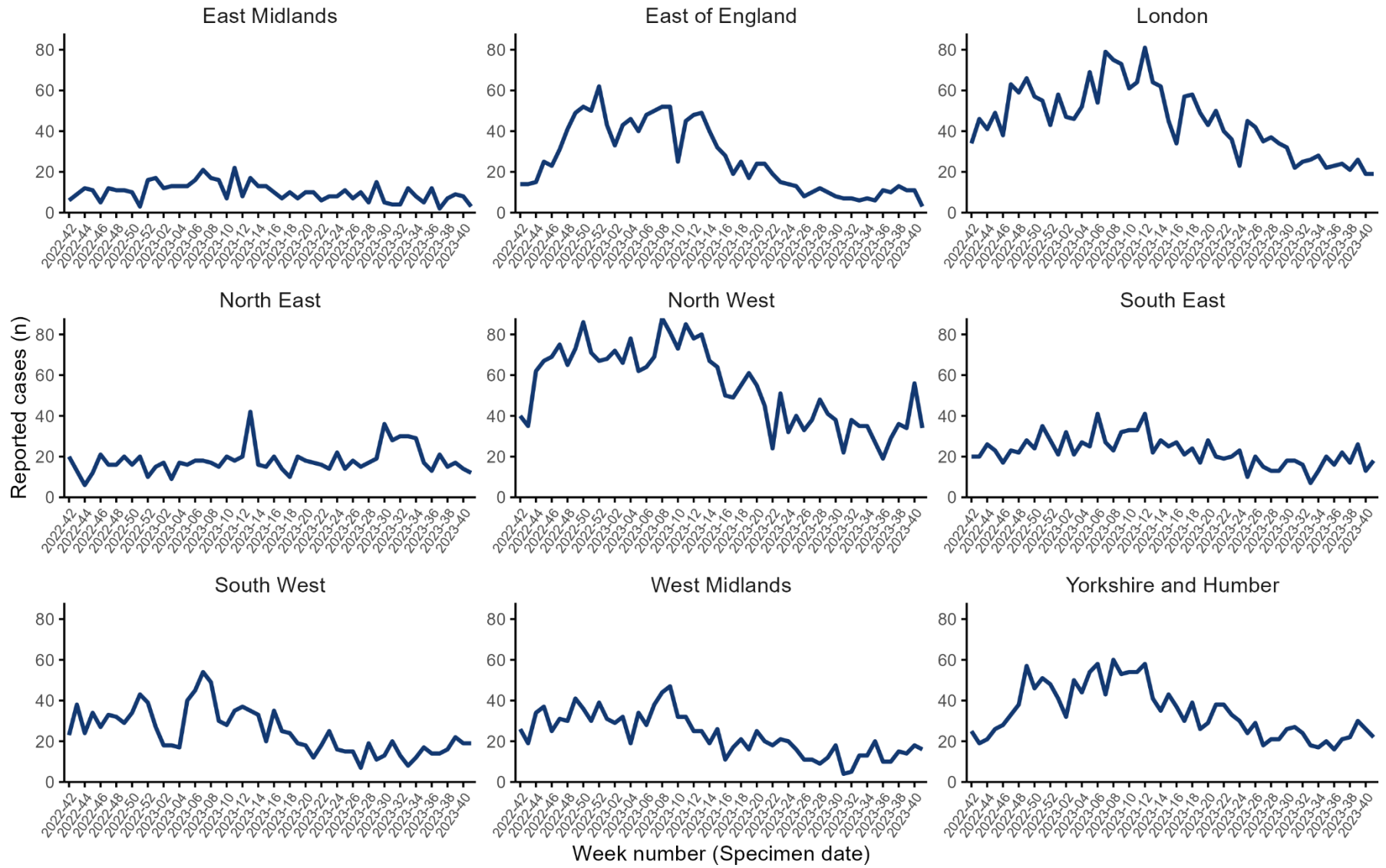
# SGSS reported RSV cases by UKHSA region (all ages)



The presented figures are based on laboratory reports through SGSS. Testing and reporting procedures vary by virus, UKHSA region and over time, including short-term trends in testing. Therefore comparisons should be done with caution.



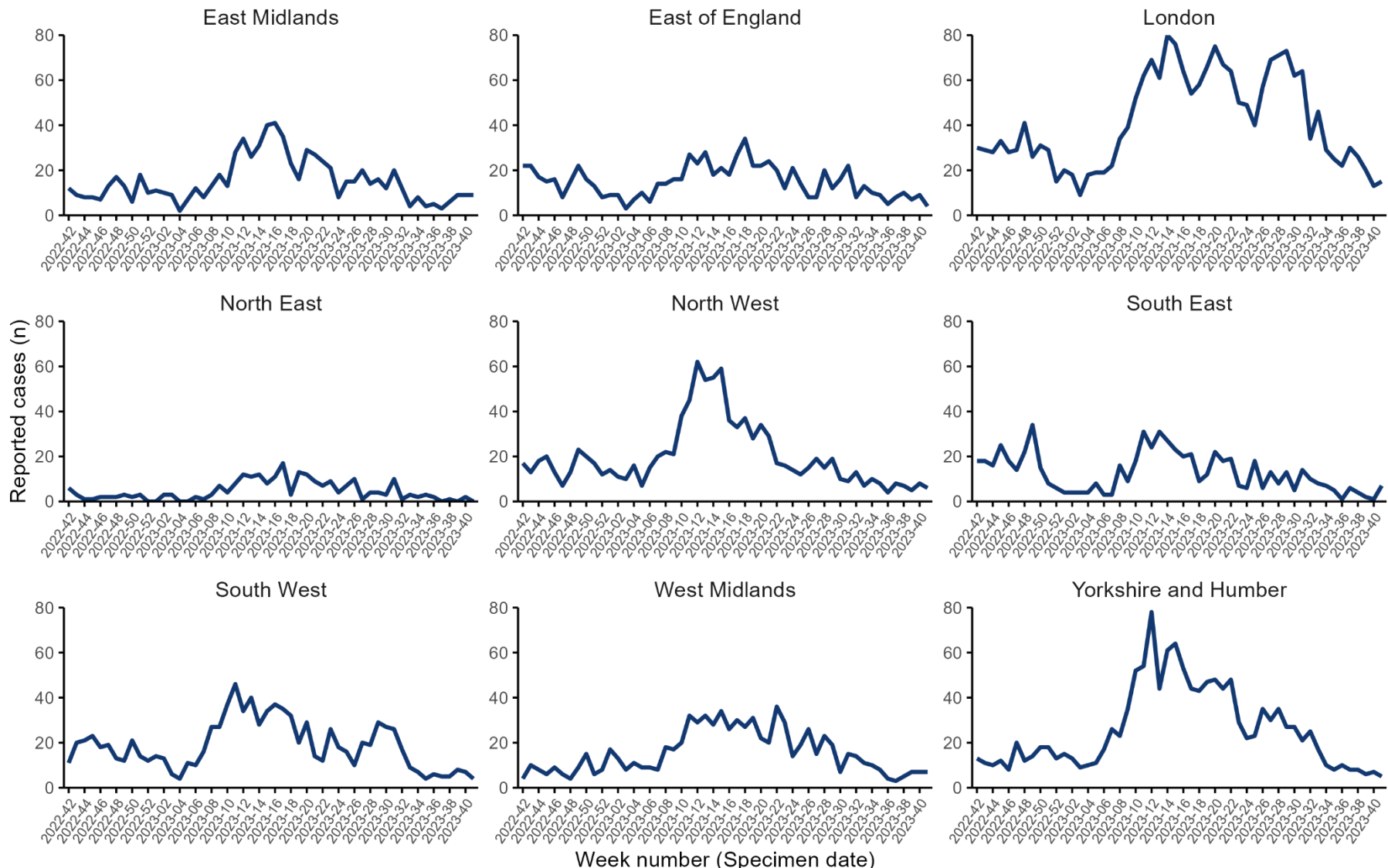
# SGSS reported Adenovirus cases by UKHSA region (all ages)



The presented figures are based on laboratory reports through SGSS. Testing and reporting procedures vary by virus, UKHSA region and over time, including short-term trends in testing. Therefore comparisons should be done with caution. 21



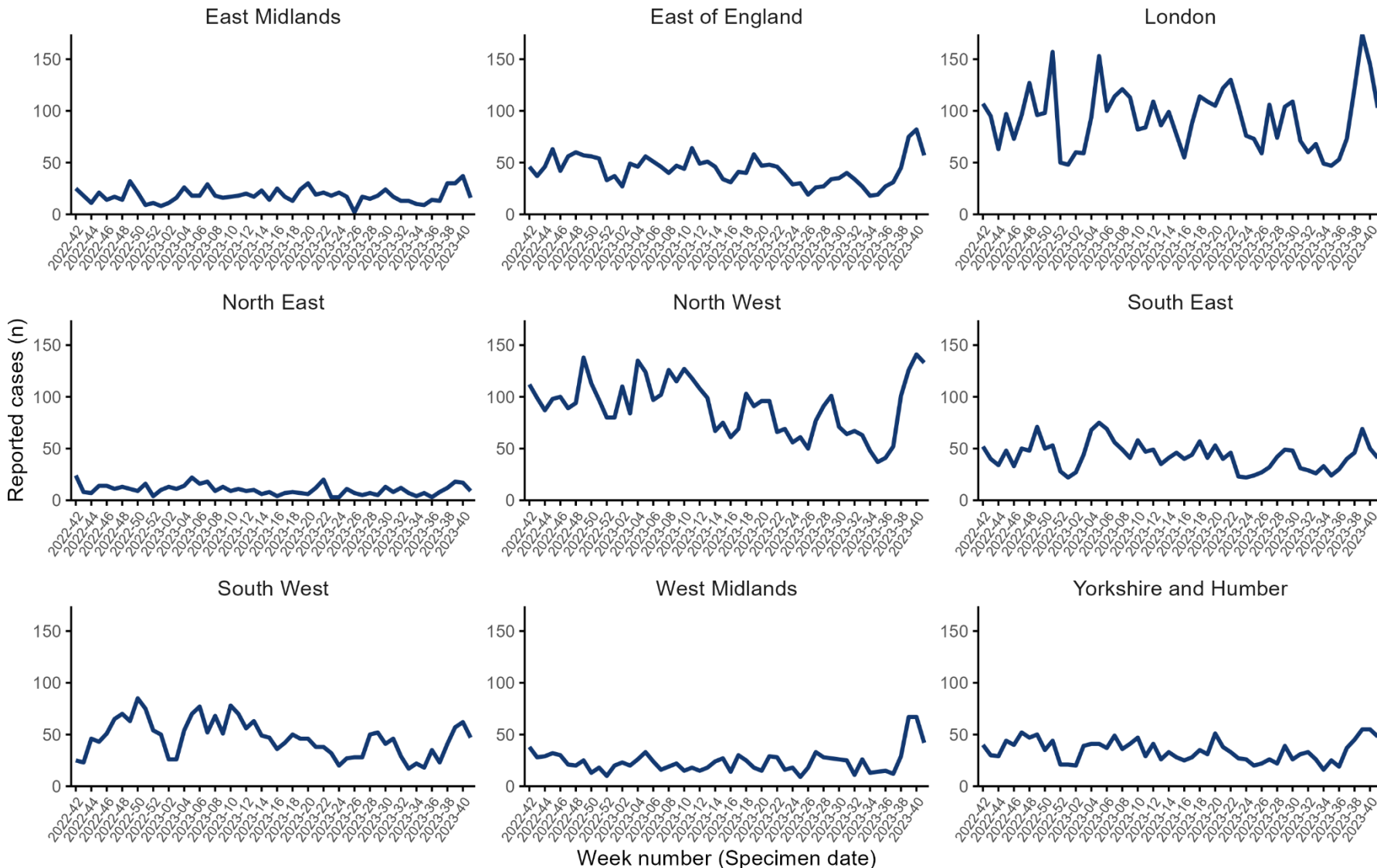
# SGSS reported Parainfluenza cases by UKHSA region (all ages)



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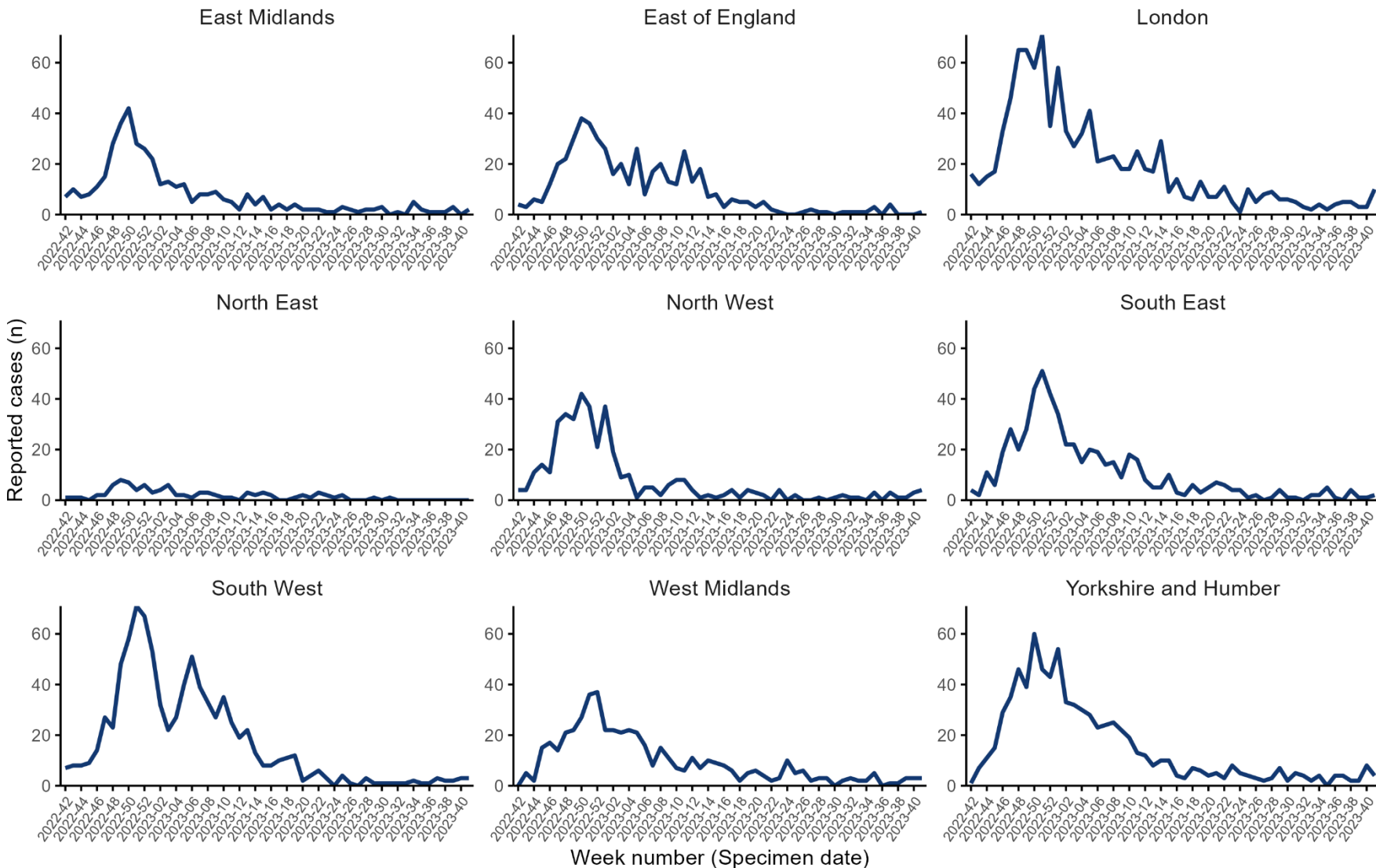
# SGSS reported Rhinovirus cases by UKHSA region (all ages)



The presented figures are based on laboratory reports through SGSS. Testing and reporting procedures vary by virus, UKHSA region and over time, including short-term trends in testing. Therefore comparisons should be done with caution.



# SGSS reported hMPV cases by UKHSA region (all ages)



The presented figures are based on laboratory reports through SGSS. Testing and reporting procedures vary by virus, UKHSA region and over time, including short-term trends in testing. Therefore comparisons should be done with caution. 24



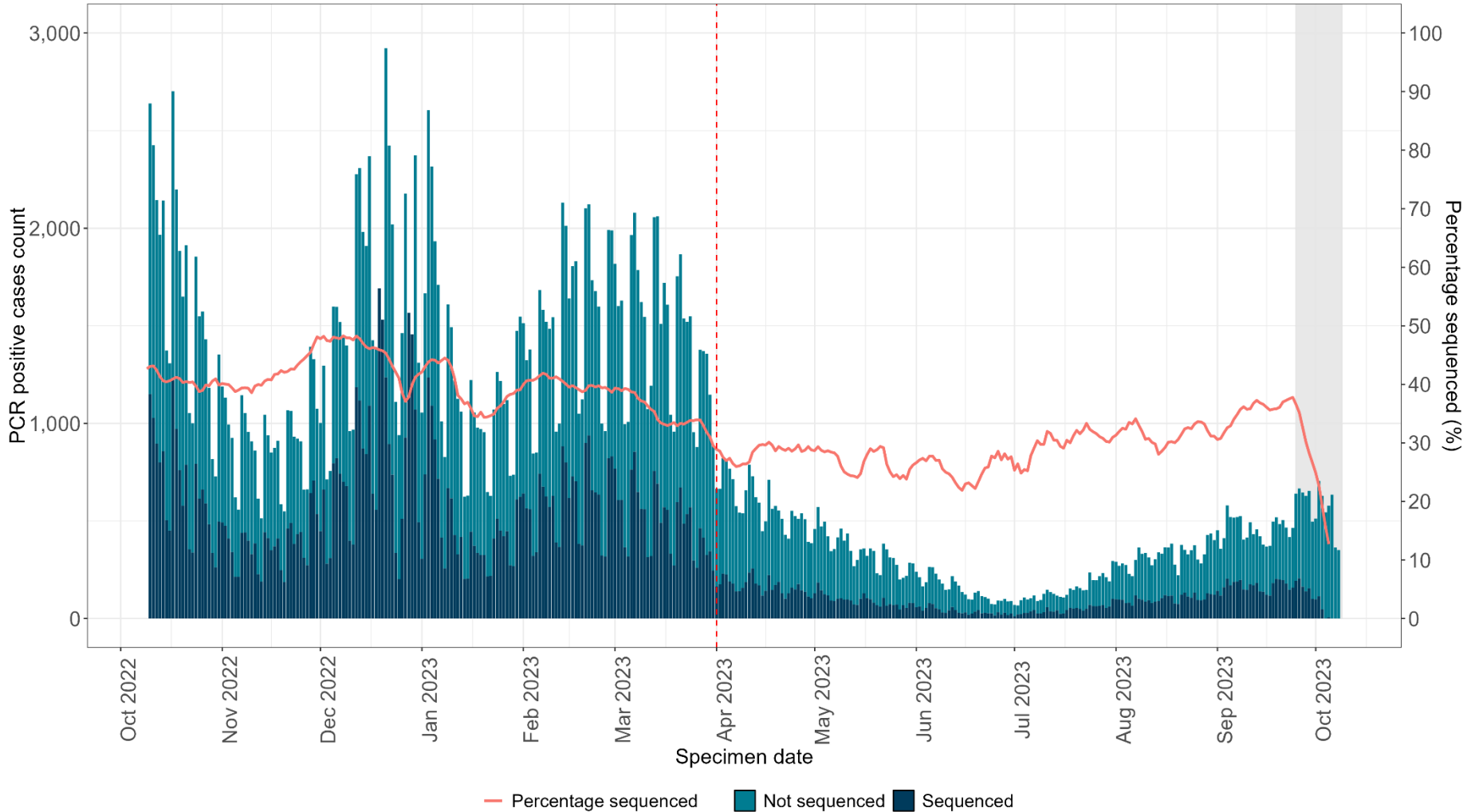


# SARS-CoV-2 Whole Genome Sequencing (WGS) coverage, England



# SARS-CoV-2 coverage of sequencing with a valid result and genotyping over time

Sequencing coverage of PCR positive tests



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.

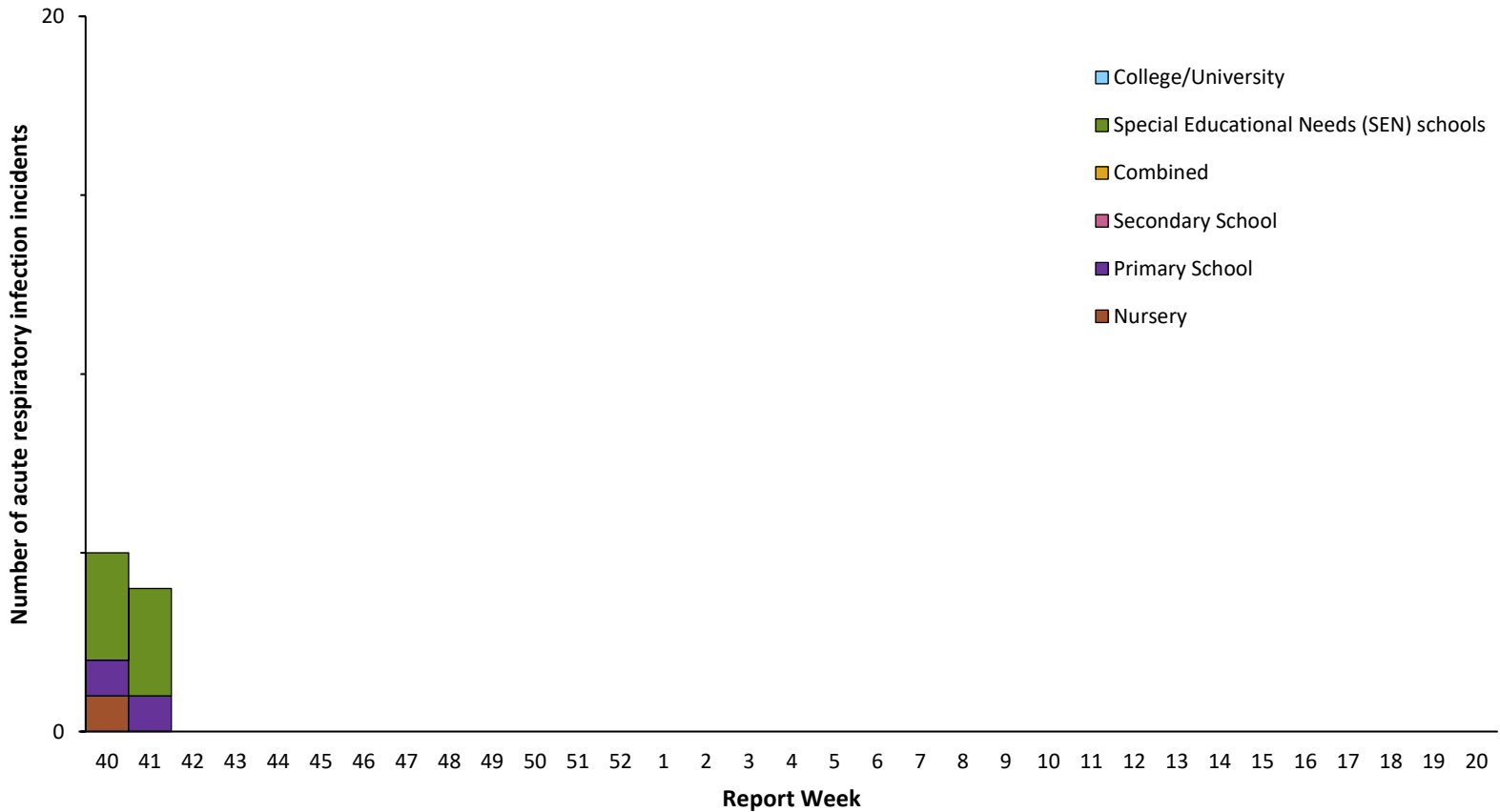


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# Community surveillance



# Number of acute respiratory infection outbreaks reported to UKHSA by type of educational setting, England



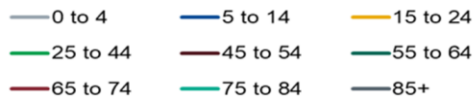
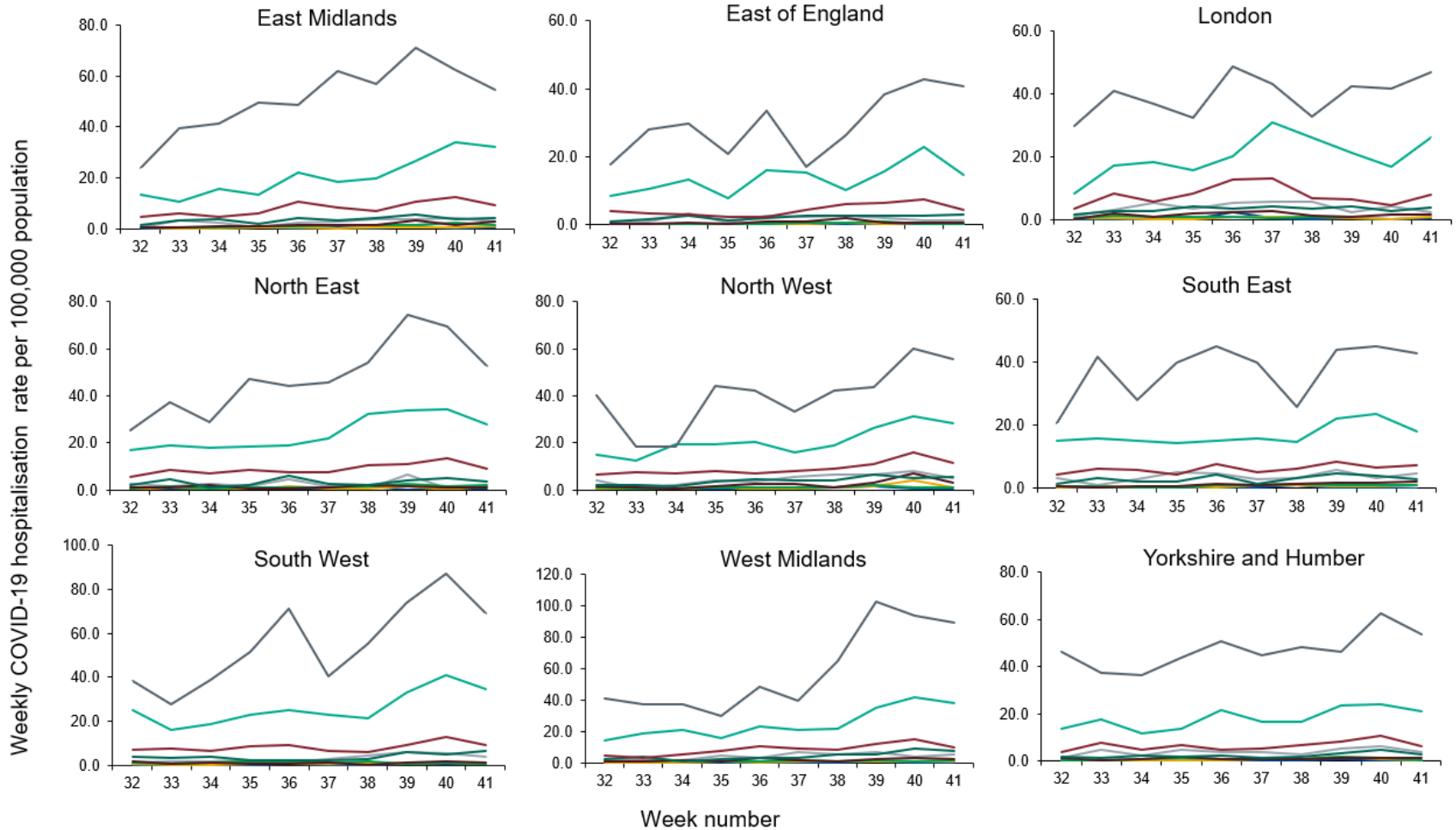


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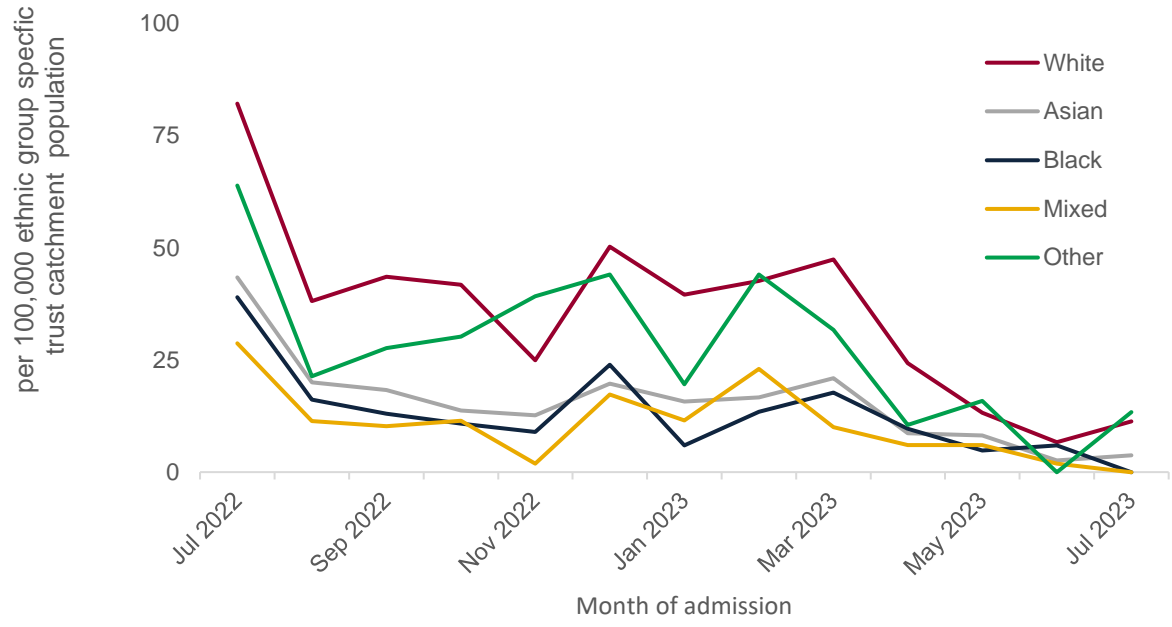
# Secondary Care surveillance



# Weekly COVID-19 hospitalisation rate per 100,000 trust catchment population by age group and region, weeks 32 to 41



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





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# Preceding, co- and secondary infections in persons with COVID-19 and influenza in England, Jul 2022 – Oct 2023

HCAI, Fungal, AMR, AMU & Sepsis Division



# Preceding/co-/secondary infections with COVID-19

## Background

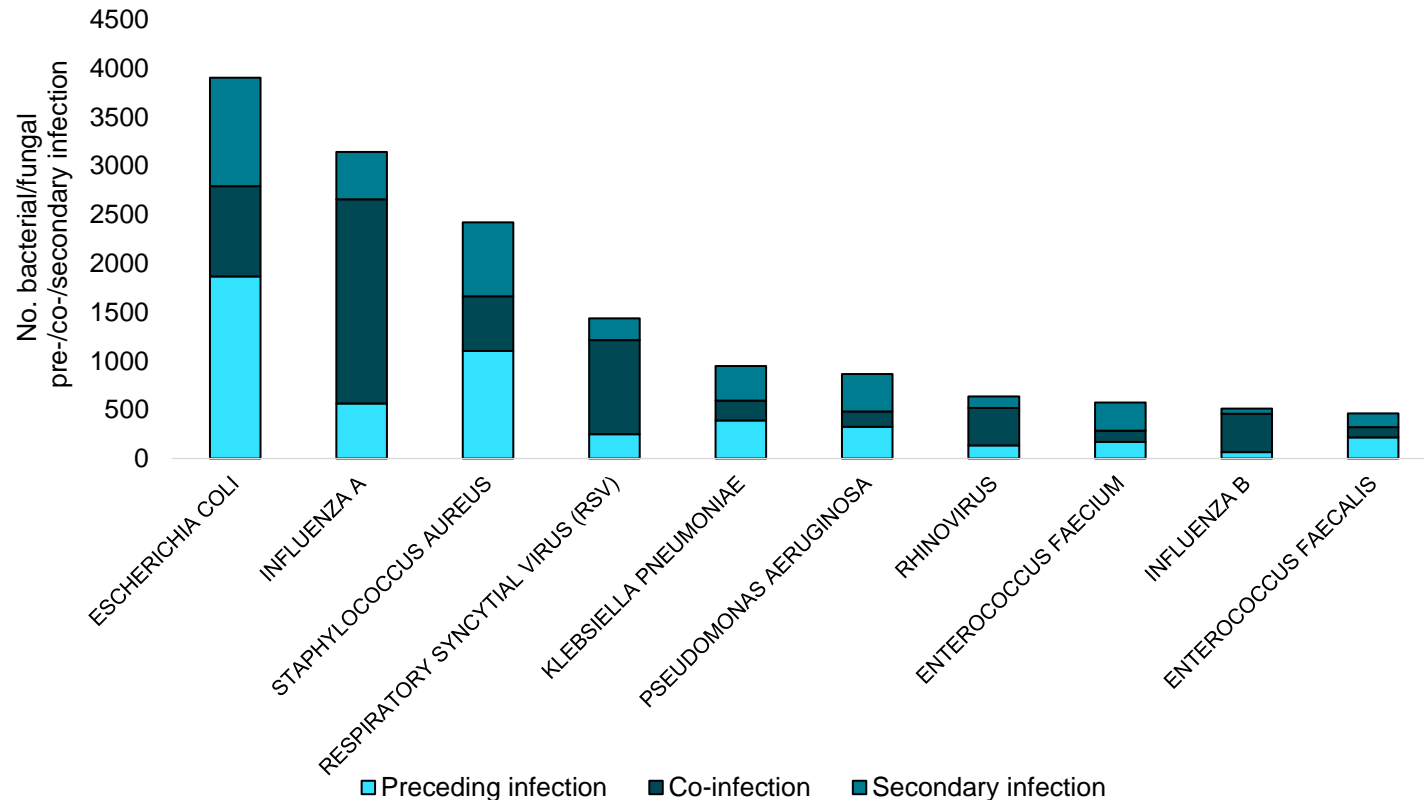
- Numbers of preceding/co-/secondary infection remain low across UKHSA surveillance systems.
- Free community testing ended 31 March 2022 as part of the government's Living with COVID-19 plan, with asymptomatic testing continuing in some settings. As of 31 August 2022, asymptomatic testing in all settings, including hospitals, has been paused. Please use caution when comparing incidence of bacterial, fungal and viral preceding/co-/secondary infections with COVID-19 over time due to these differences in testing strategies.
- Published data analyses from pandemic wave 1 indicates increased mortality associated with COVID-19 and [influenza](#), [key bacterial and fungal infections](#) and [invasive pneumococcal disease \(IPD\)](#) in comparison to persons without co/secondary infection.
- [Data analysis](#) from wave 1 indicates that *Aspergillus* and *candidemia* cases had increased risk of mortality in comparison to patients without co/secondary infection.

# Surveillance of bacterial, fungal and respiratory viral infections in persons with COVID-19 in England

## Data information

- Data are provisional and subject to change due to possible delayed reporting of microbiological samples
- Relative undertesting for other pathogens may result in an underestimate of preceding/co-/secondary infection cases. In addition, testing varies between pathogens therefore caution should be used in comparing preceding/co-/secondary infection rates between different pathogens
- Preceding/co-/secondary infections refers to when a person has a COVID-19 infection with one or more other pathogen (Please see Appendix 1 – Preceding/co-/secondary infection definitions.)
  - Preceding infection: SARS-CoV-2 detected after another pathogen
  - Co-infection: SARS-CoV-2 and other pathogen detected at the same time
  - Secondary infection: SARS-CoV-2 detected before another pathogen
- The following outputs included in this section have been produced via the Unified Infection Dataset (UID)
- Bacterial, fungal and respiratory viral infection data sources:
  - Fungal, bacterial and respiratory viral data (excluding *Clostridioides difficile*): Second Generation Surveillance System (SGSS)
  - Respiratory viral data: Respiratory Datamart
  - *Clostridioides difficile*: HCAI Data Capture System

## Most frequent bacterial, fungal, and viral specimens, by timing of diagnosis, in persons with COVID-19 in England from ISO week 27 of 2022



### Key findings:

From ISO week 27 of 2022, the most frequent organisms identified were *Escherichia coli*, Influenza A, and *Staphylococcus aureus*.

## Appendix 1: Pre-/co-/secondary infection definitions

The day pertains to the date of the sample collection that yielded a positive result. These definitions do not apply to persistent COVID-19 patients. Patients with persistent COVID-19 require independent clinical assessment.

Organism	Definition co-infection with SARS-CoV-2†	Definition of infection pre-SARS-CoV-2 infection (other pathogen is primary infection) or Definition of post SARS-CoV-2 secondary infection (SARS-CoV-2 is primary infection)
Influenza A	+/- 1d	2-28d^
Influenza B	+/- 1d	2-28d^
RSV	+/- 1d	2-28d
Adenovirus	+/- 1d	2-28d
Enterovirus	+/- 1d	2-28d
Human metapneumovirus	+/- 1d	2-28d
Parainfluenza (any subtype)	+/- 1d	2-28d
Seasonal coronavirus	+/- 1d *	2-28d
Rhinovirus	+/- 1d	2-28d
Co-infections in ECMO patient (patients with most severe clinical respiratory signs)		
ECMO patients	Individual case review	Individual case review
Blood stream and respiratory infections (bacterial and fungal)		
<i>Achromobacter xylosoxidans</i>	+/- 1d	2-28d
<i>Acinetobacter</i> spp.,	+/- 1d	2-28d
<i>Aspergillus</i>	+/- 1d	2-28d (pre) 2-60d (post, continually hospitalised patients only)
<i>Bordetella pertussis</i>	+/- 28 d Culture/PCR (based on pertussis sample date) +/- 28 Serology/Oral fluid (anti-pertussis toxin Ig) (based on pertussis symptom onset date, excluding cases without onset date)	N/A (Pertussis presentation is often delayed)
<i>Burkholderia cepacia</i>	+/- 1d	2-28d
<i>Candida</i> spp	+/- 1d	2-28d (pre) 2-60d (post, continually hospitalised patients only)
<i>Chlamydia pneumoniae</i>	0-7d PCR	PCR within 14-28 d (8-13d PCR*)
<i>Enterobacter</i> spp.,	+/- 1d	2-28d
<i>Enterococcus</i> spp.	+/- 1d	2-28d
<i>E. coli</i>	+/- 1d	2-28d
<i>Haemophilus influenzae</i>	+/- 2d	3-28d

Continued overleaf

## Appendix 1 continued: Pre-/co-/secondary infection definitions

Organism	Definition co-infection with SARS-CoV-2†	Definition of infection pre-SARS-CoV-2 infection (other pathogen is primary infection) or Definition of post SARS-CoV-2 secondary infection (SARS-CoV-2 is primary infection)
Blood stream and respiratory infections (bacterial and fungal)		
<i>Klebsiella</i> spp.	+/- 1d	2-28d
<i>Legionella pneumophila/species</i>	Individual case review	Individual case review
<i>Mycoplasma pneumoniae</i>	0-7d PCR, IgM serology 0-21d <16y	PCR within 14-28 d (8-13d PCR*)
<i>Neisseria meningitidis</i>	+/- 2d	3-28d
<i>Pseudomonas</i> spp.,	+/- 1d	2-28d
<i>Serratia</i> spp.,	+/- 1d	2-28d
<i>Staphylococcus aureus</i>	+/- 1d	2-28d
Coag-neg <i>Staphylococcus</i> ( <i>S. haemolyticus</i> )	+/- 1d	2-28d
<i>Stenotrophomonas</i> spp., ( <i>S. maltophilia</i> )	+/- 1d	2-28d
<i>Streptococcus</i> spp. ‡	+/- 1d	2-28d
<i>Streptococcus pneumoniae</i>	+/- 2d	3-28d
Tuberculosis		
<i>Mycobacterium tuberculosis</i>	Individual case review	Individual case review
Pathogens of the immunocompromised (eg HIV)		
HIV	Individual case review	Individual case review
Gastrointestinal infections		
Listeria	0-5d *	Individual case review
Campylobacter	0-5d *	Individual case review
Shiga toxin-producing <i>E. coli</i> (STEC)	0-5d *	Individual case review
Norovirus	0-5d *	Individual case review
Salmonella	0-5d *	Individual case review
Shigella	0-5d *	Individual case review
Anaerobes		
<i>C. difficile</i>	+/- 1d	2-28d
<i>Bacteroides</i> sp. ( <i>B. fragilis</i> and non-fragilis <i>Bacteroides</i> )	+/- 1d	2-28d

See next slides for notes

## Appendix 1 continued: Pre-/co-/secondary infection definitions

### Notes

† From the first specimen date of a SARS-CoV-2 infection episode.

\* Additional data check required. (Resistance is not detailed, data for MERS is not currently available).

^ Definition post- SARS-CoV-2 secondary infection (SARS-CoV-2 is primary infection). This has been extended from prior 14d secondary infection definition for influenza used by UKHSA to account for disparities in testing throughout the 28d period after SARS-CoV-2 detection.

‡ Streptococcus species includes the following groups and species:

Group	Species/other names
Anginosus Group	<i>Streptococcus anginosus</i> ; <i>Streptococcus constellatus</i> ( <i>Streptococcus constellatus</i> subspecies <i>constellatus</i> <i>Streptococcus constellatus</i> subspecies <i>pharynges</i> ); <i>Streptococcus</i> Group F; <i>Streptococcus intermedius</i> ; <i>Streptococcus milleri</i> group; <i>Streptococcus sinensis</i>
Bovis Group	<i>Streptococcus alactolyticus</i> ; <i>Streptococcus bovis</i> untyped; <i>Streptococcus equinus</i> ; <i>Streptococcus gallolyticus</i> subspecies <i>gallolyticus</i> ( <i>Streptococcus bovis</i> biotype I); <i>Streptococcus infantarius</i> ( <i>Streptococcus infantarius</i> sp <i>infantarius</i> ; <i>Streptococcus bovis</i> biotype II); <i>Streptococcus lutetiensis</i> ; <i>Streptococcus infantarius</i> subspecies <i>coli</i> ( <i>Streptococcus bovis</i> biotype II); <i>Streptococcus pasteurianus</i> ( <i>Streptococcus bovis</i> biotype II)
Closely Related Genera	<i>Abiotrophia</i> spp.; <i>Aerococcus</i> spp.; <i>Faklamia</i> spp.; <i>Gemella</i> spp.; <i>Globicatella sanguinis</i> ; <i>Granulicatella</i> spp.; <i>Leuconostoc</i> spp.; <i>Pedicoccus</i> spp.; <i>Peptostreptococcus</i> spp.
Mitis Group	<i>Streptococcus cristatus</i> ; <i>Streptococcus mitior</i> ; <i>Streptococcus mitis</i> ; <i>Streptococcus oralis</i> ; <i>Streptococcus pseudopneumoniae</i> ; <i>Streptococcus infantis</i> ; <i>Streptococcus peroris</i>
Mutans Group	<i>Streptococcus mutans</i> ; <i>Streptococcus sobrinus</i>
Other streptococci (including but not limited to)	Anaerobic streptococcus; <i>Streptococcus acidominimus</i> ; <i>Streptococcus</i> spp., other named/not fully identified; <i>Streptococcus suis</i> ; <i>Streptococcus uberis</i>
Salivarius Group	<i>Streptococcus vestibularis</i> ; <i>Streptococcus thermophilus</i>
Sanguinis Group	<i>Streptococcus gordonii</i> ; <i>Streptococcus massiliensis</i> ; <i>Streptococcus parasanguinis</i> ; <i>Streptococcus sanguinis</i>
<i>Streptococcus</i> Group A	Group A; <i>Streptococcus pyogenes</i> ; <i>Streptococcus dysgalactiae</i> subspecies <i>equisimilis</i>
<i>Streptococcus</i> Group B	Group B; <i>Streptococcus agalactiae</i>
<i>Streptococcus</i> Group C	Group C; <i>Streptococcus dysgalactiae</i> subspecies <i>equisimilis</i> ; <i>Streptococcus equi</i> subspecies <i>zoepidemicus</i>
<i>Streptococcus</i> Group G	Group G; <i>Streptococcus canis</i> ; <i>Streptococcus dysgalactiae</i> subspecies <i>equisimilis</i>