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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 42 (between 16 October and 22 October 2023).

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Respiratory Datamart system (England)

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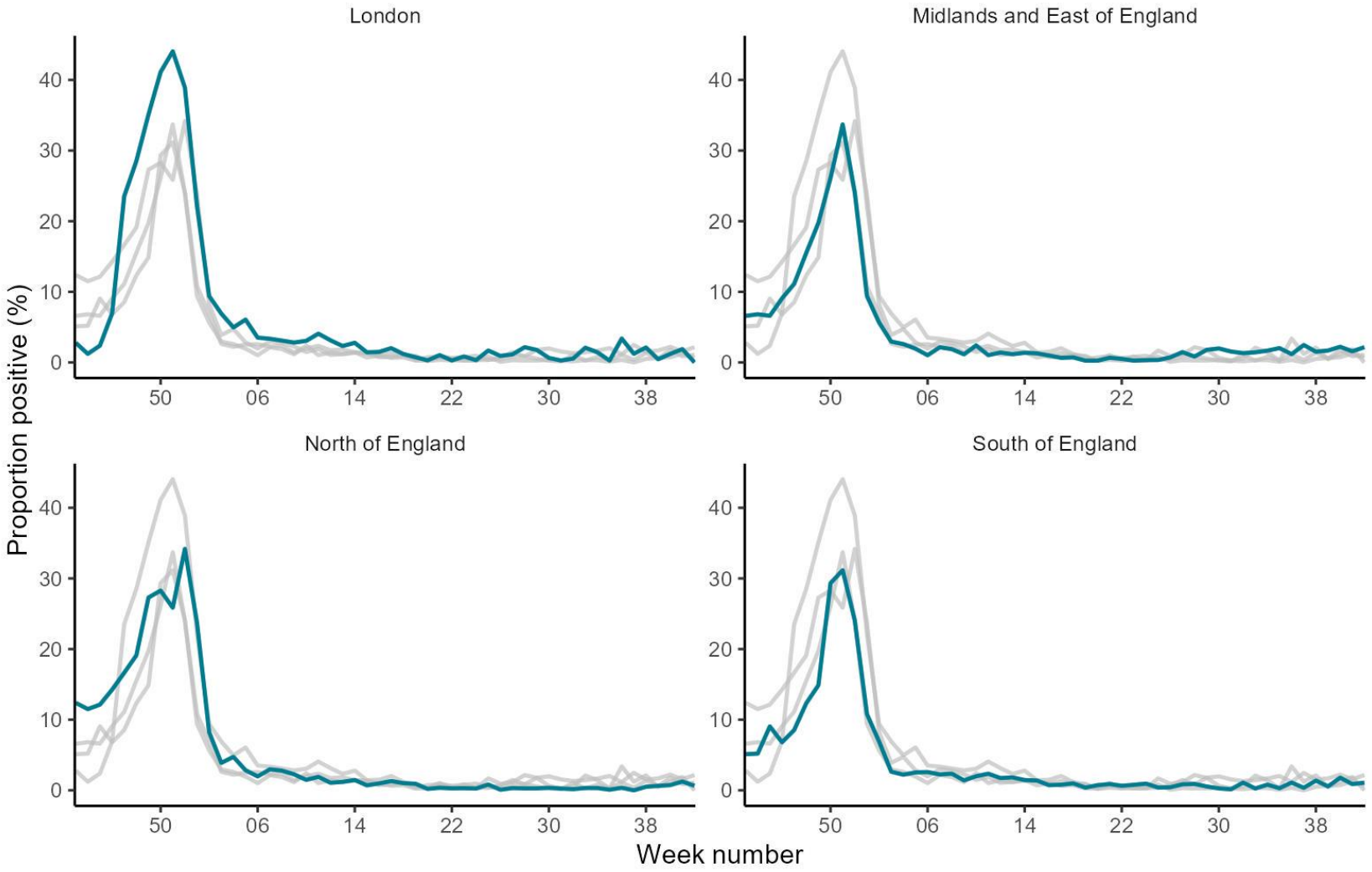
Respiratory DataMart – Influenza weekly positivity by UKHSA region



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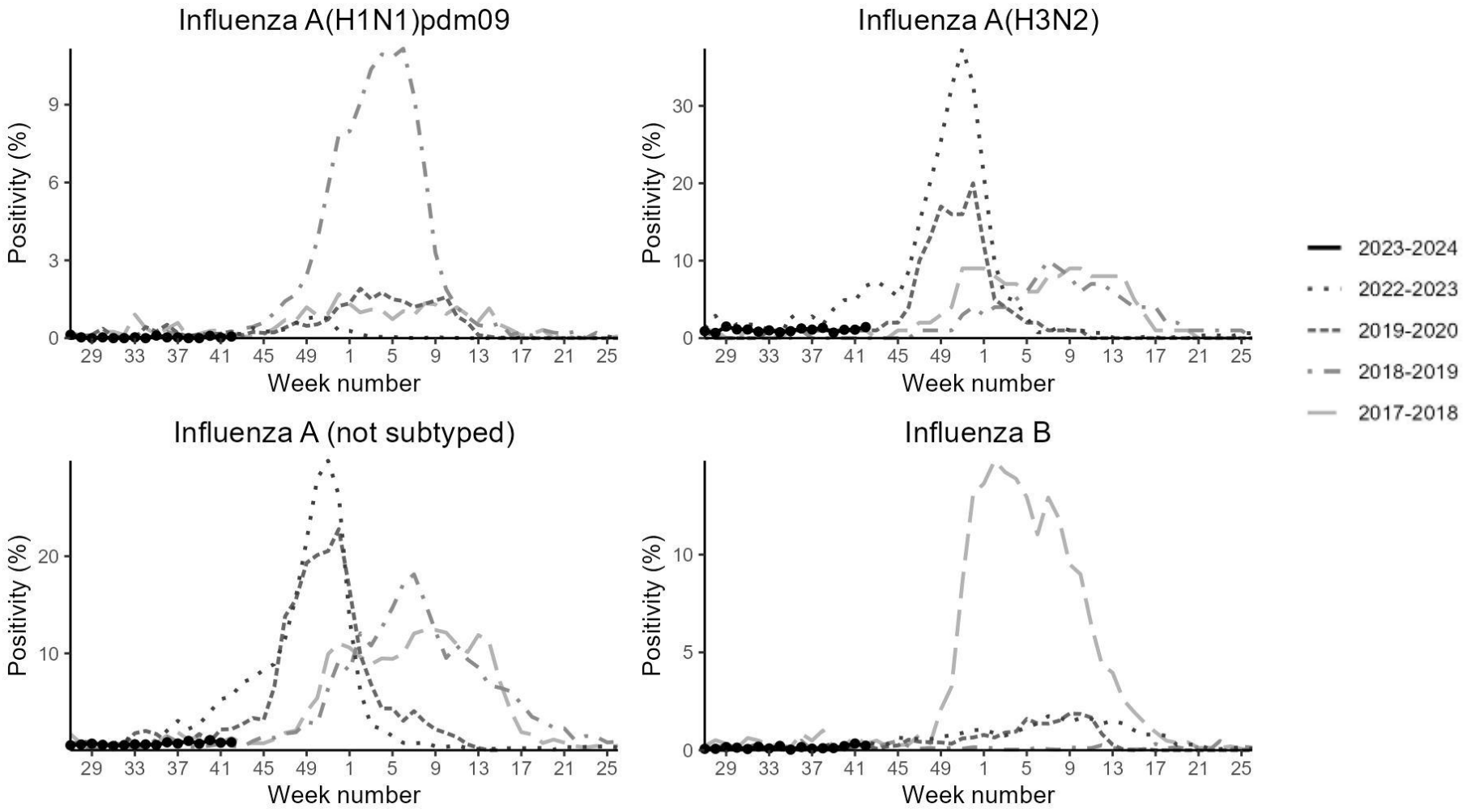
Respiratory DataMart – Influenza subtypes



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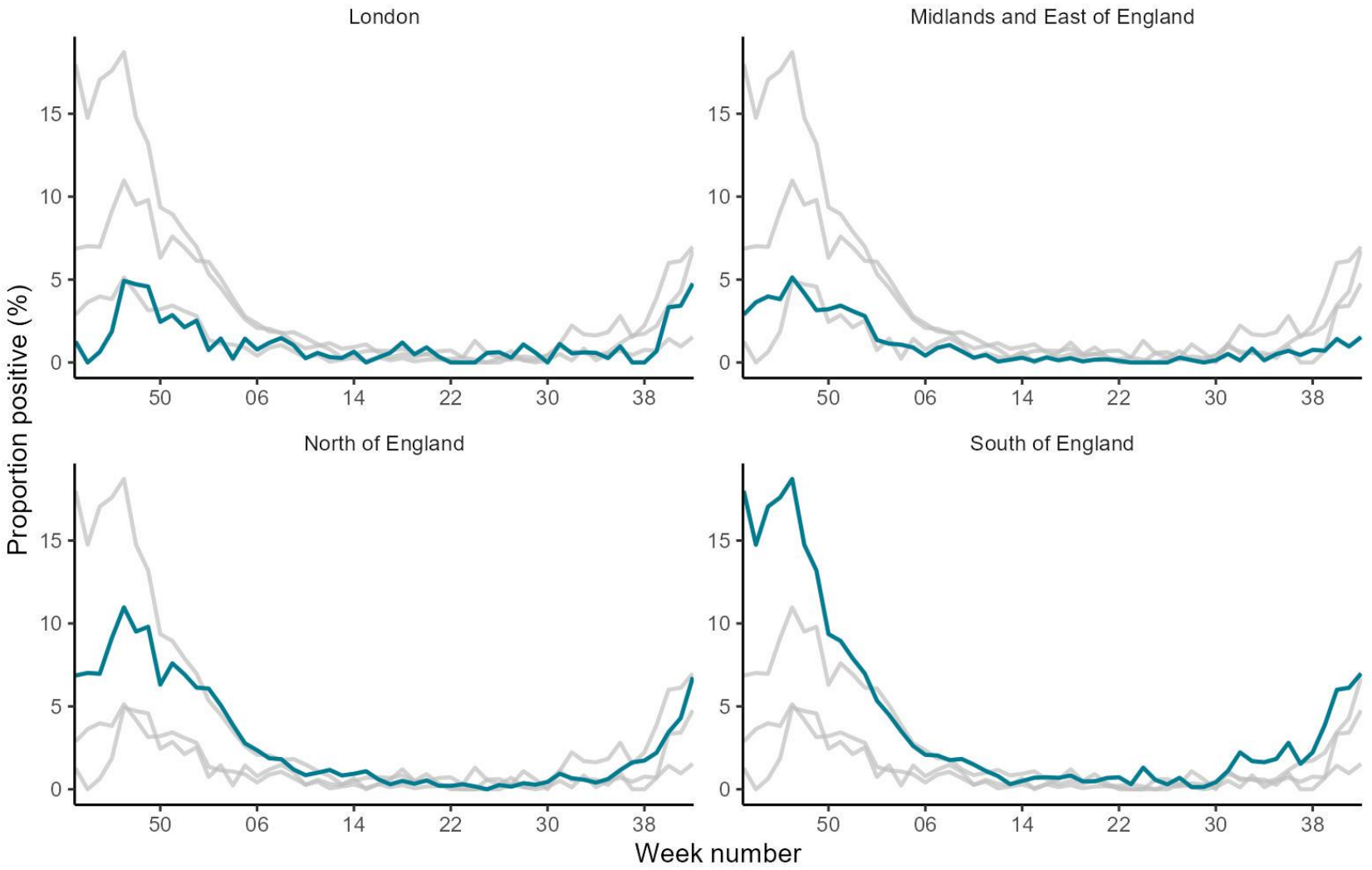
Respiratory DataMart – Respiratory syncytial virus (RSV) weekly positivity by UKHSA region



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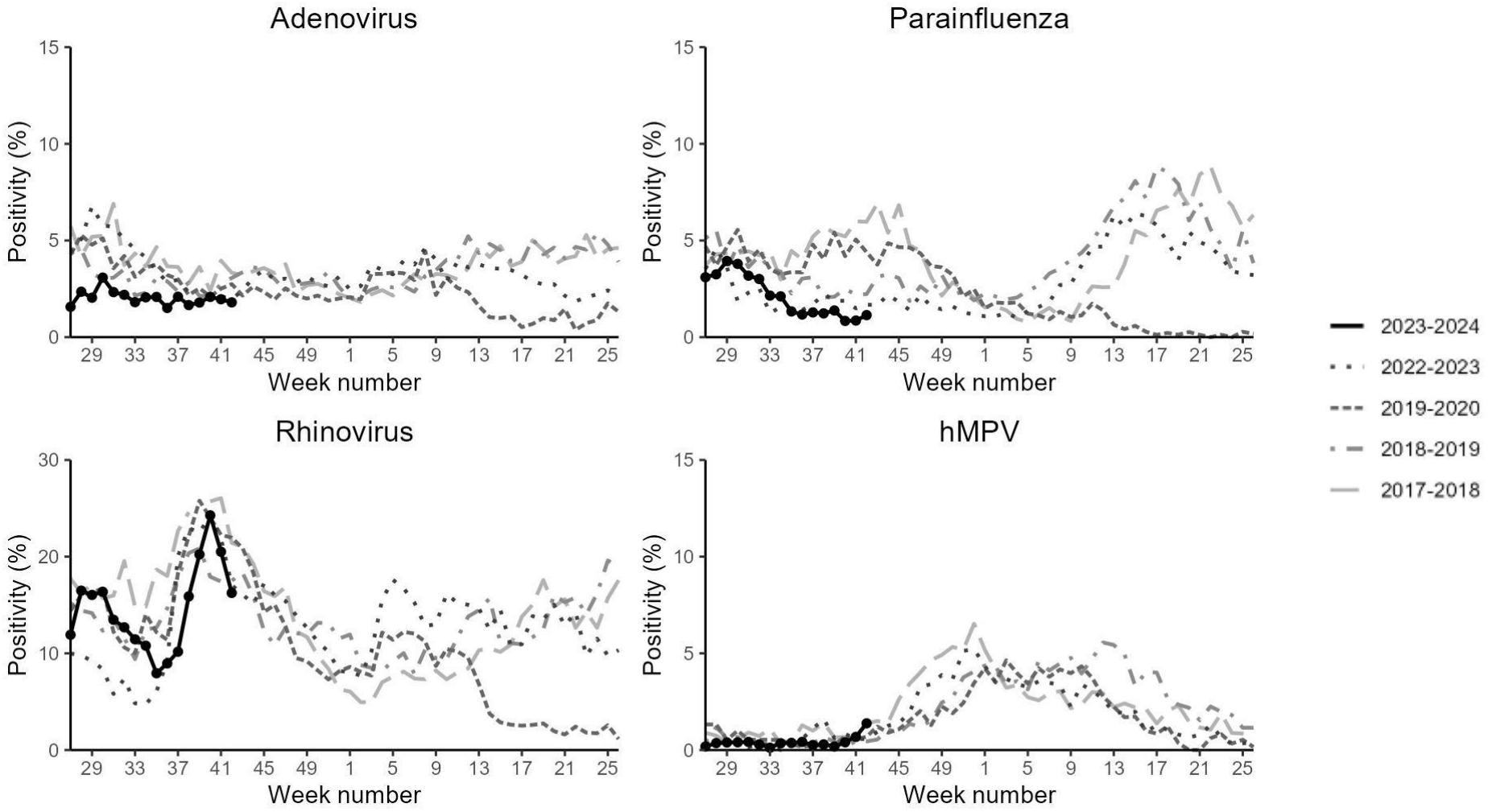
Respiratory DataMart – other respiratory viruses



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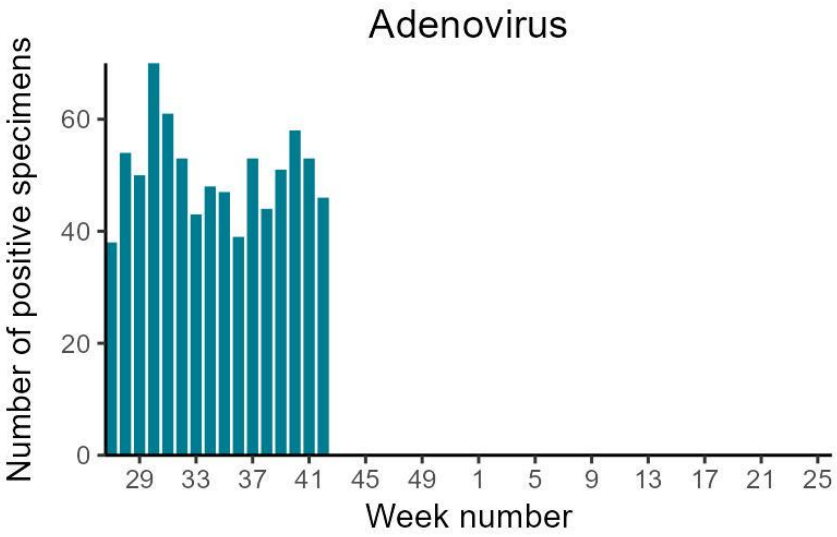
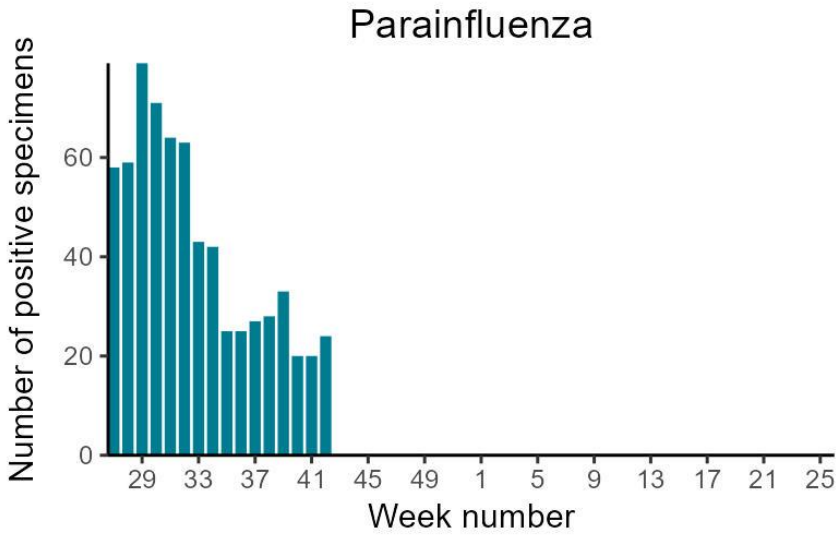
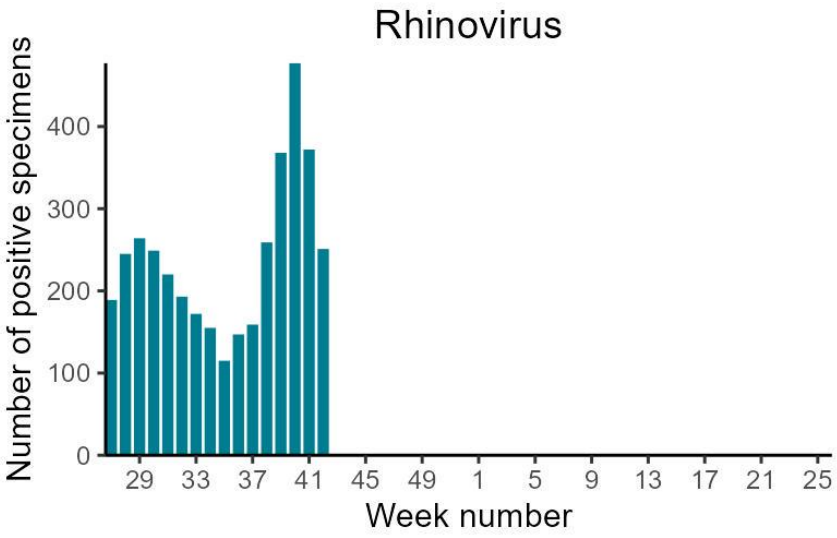
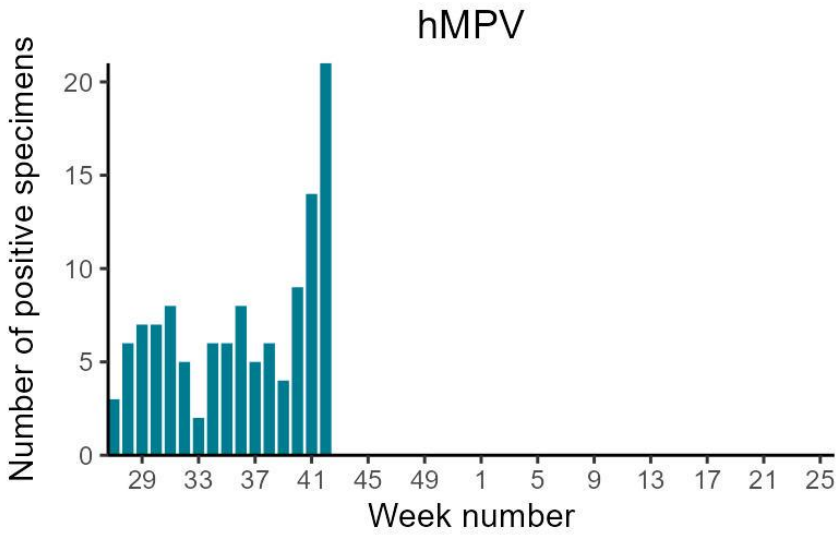
Respiratory DataMart – other respiratory viruses









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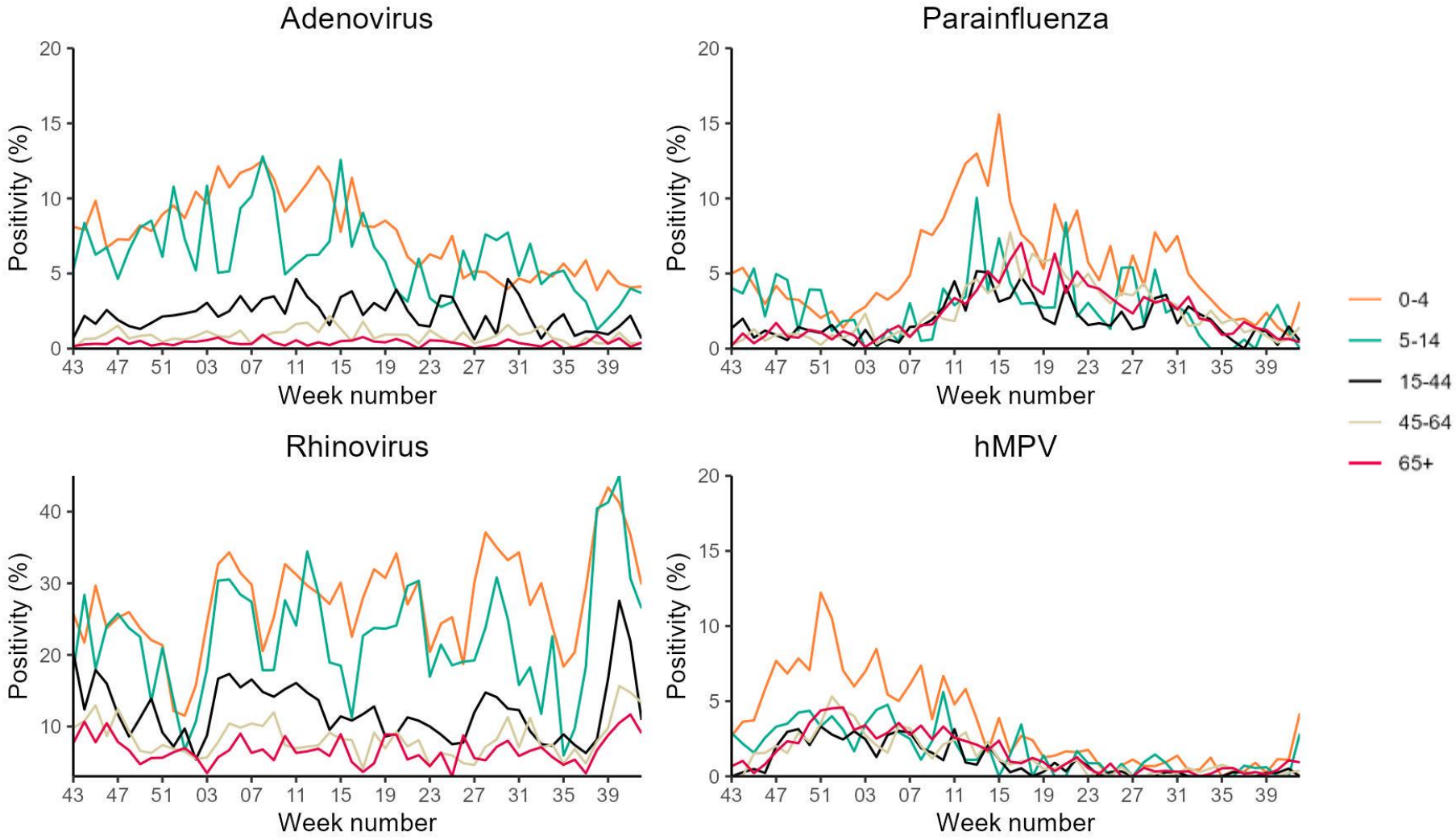
Respiratory DataMart – other respiratory viruses



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Confirmed COVID-19 episodes in England

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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.

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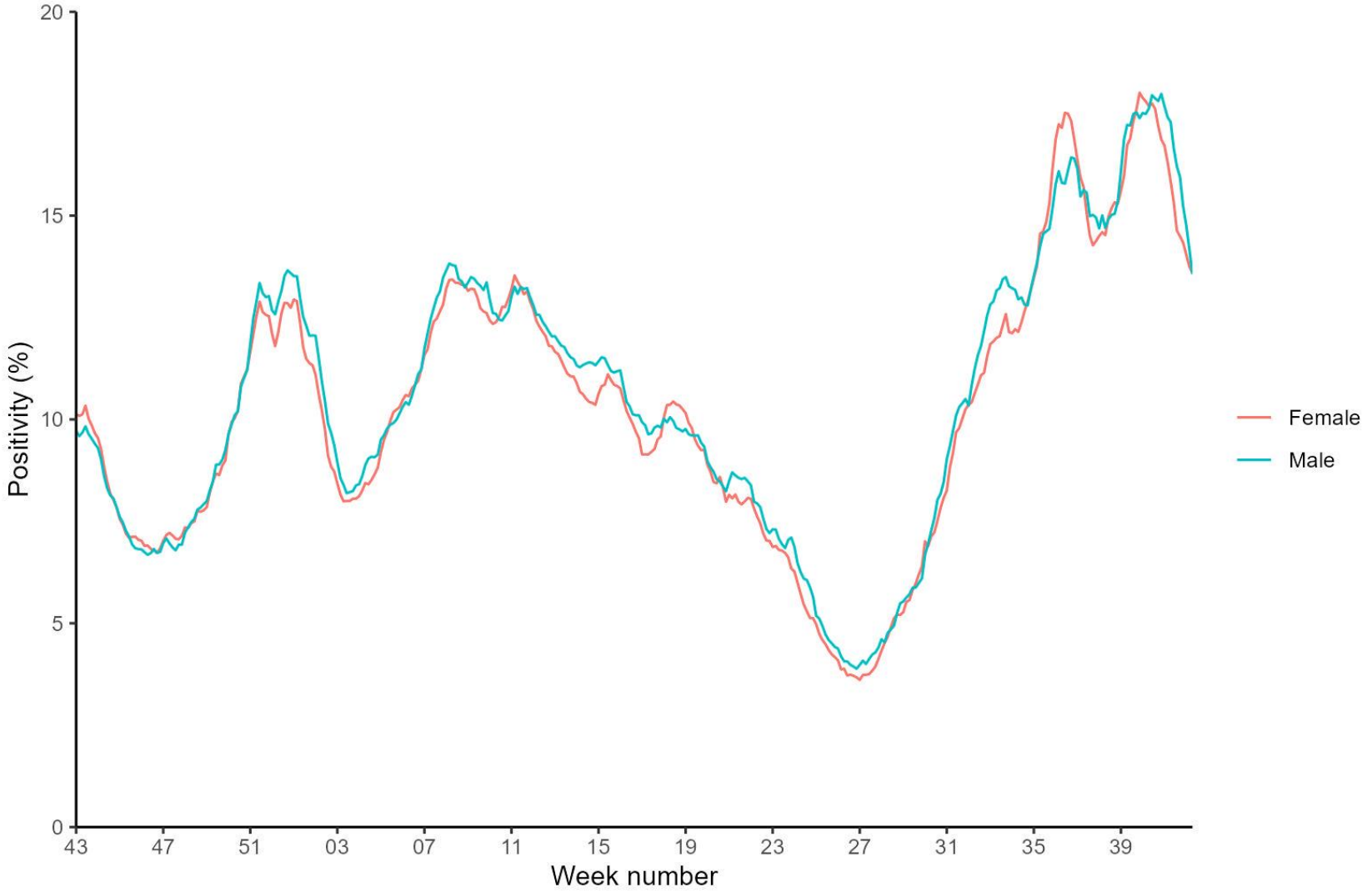
Seven-day rolling average PCR positivity (%) of confirmed COVID-19 cases tested by sex under Pillar 1



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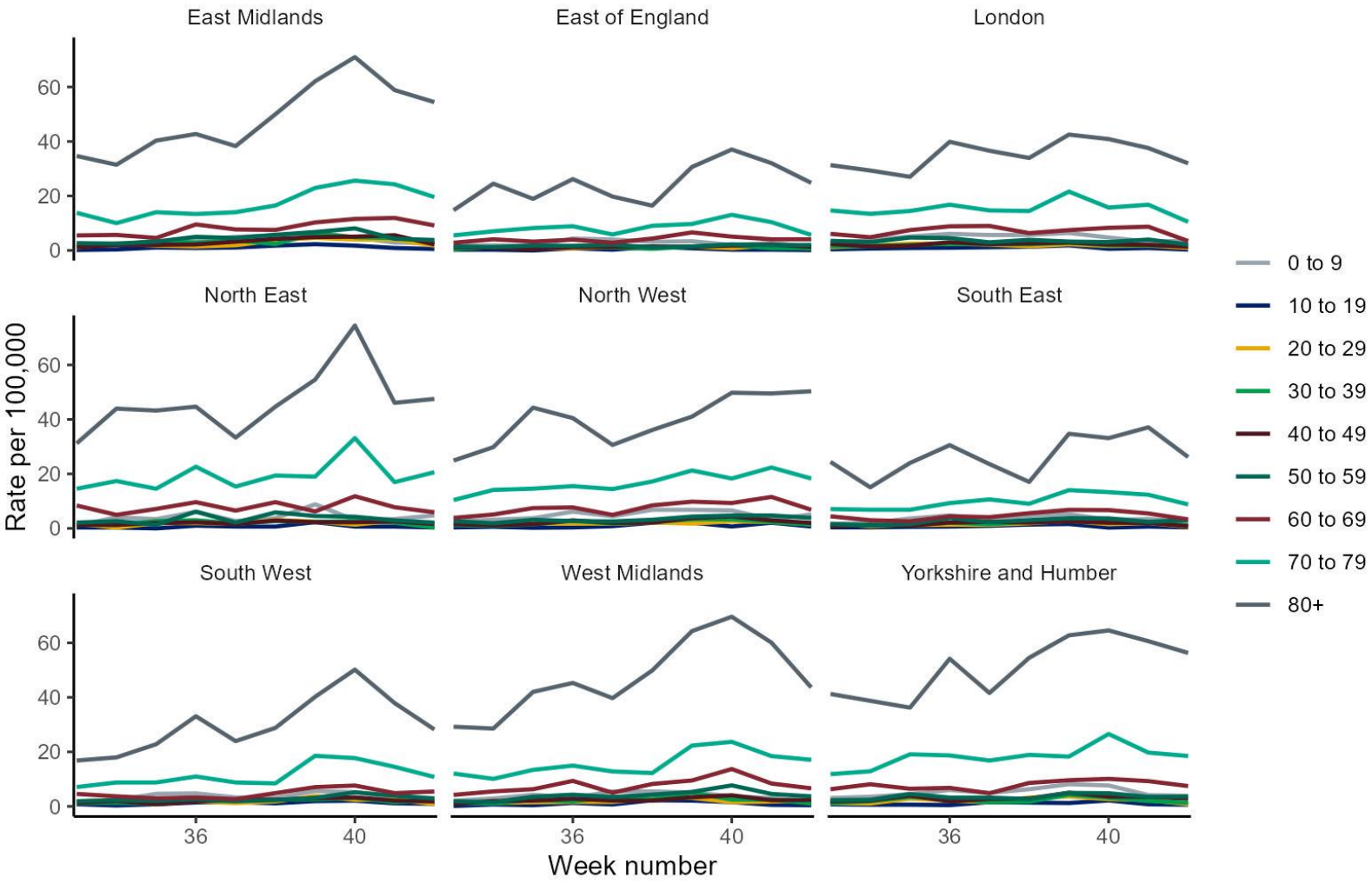
Weekly COVID-19 episodes tested under Pillar 1, per 100,000 population by age group and region, weeks 33 to 42



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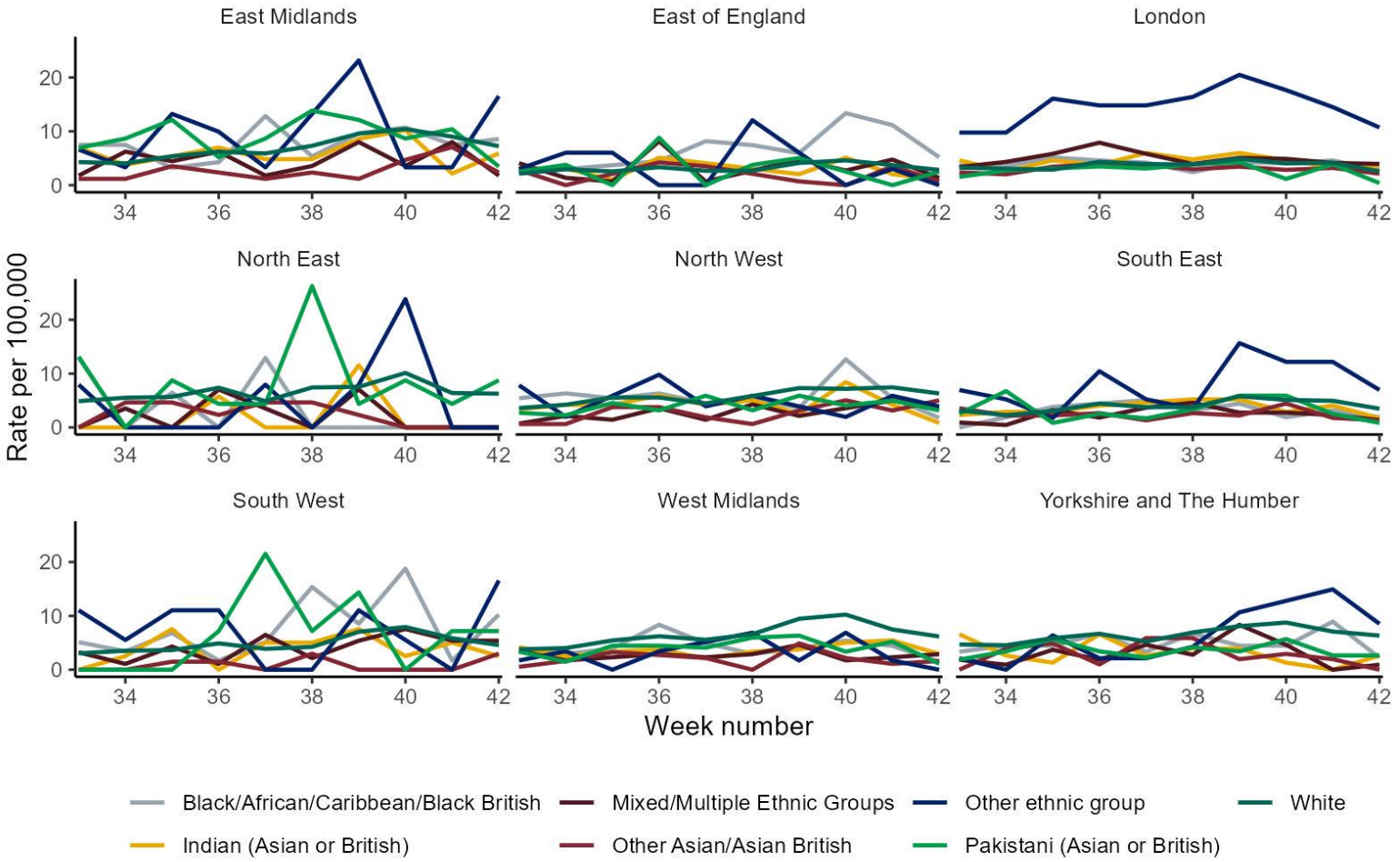
Weekly COVID-19 episodes tested under Pillar 1, per 100,000 population by ethnicity and region, weeks 33 to 42



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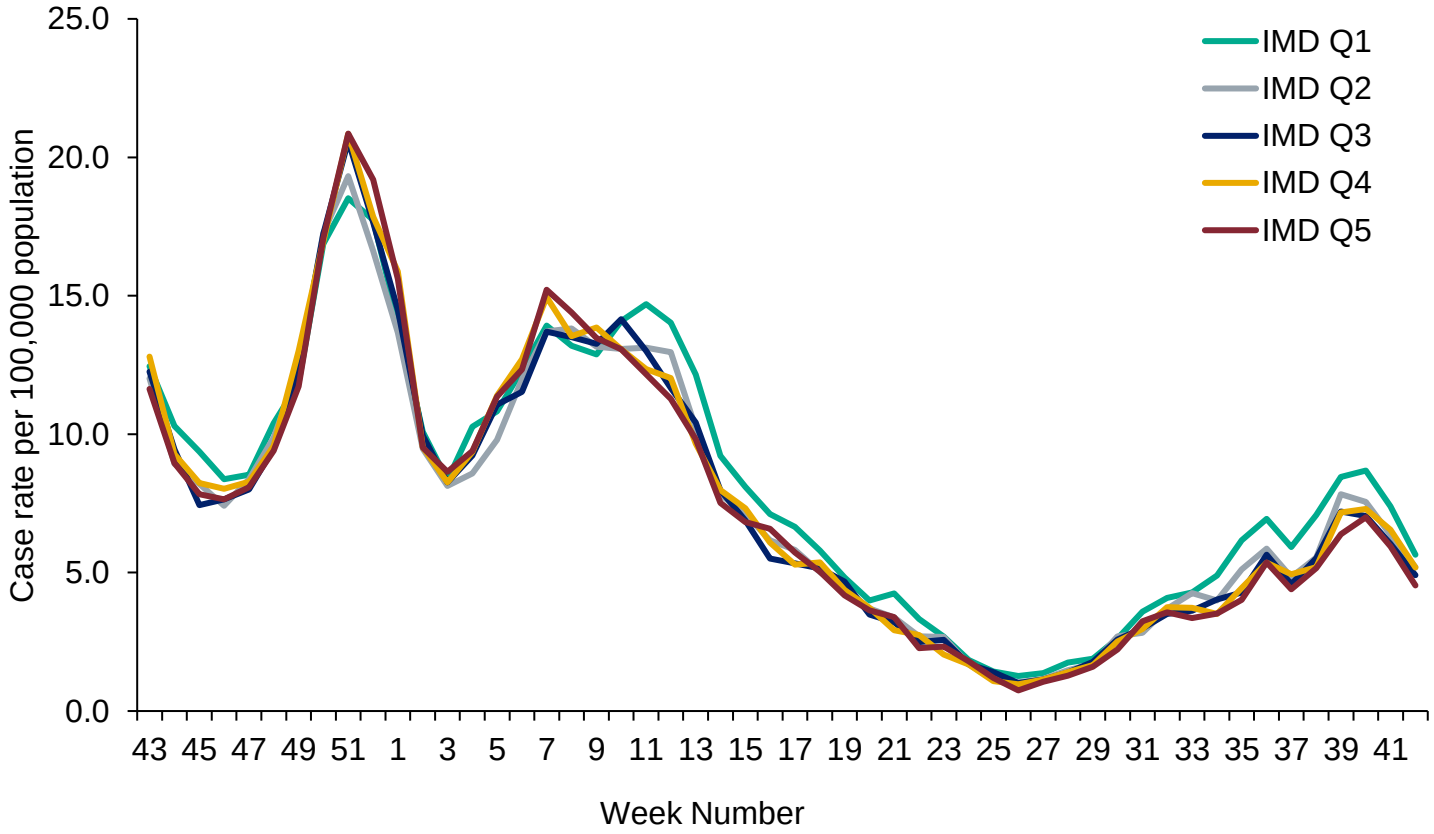
Weekly COVID-19 rate tested under Pillar 1, per 100,000 population by IMD quintile (1 being the most deprived and 5 being the least deprived)



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

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Second generation surveillance system (SGSS)

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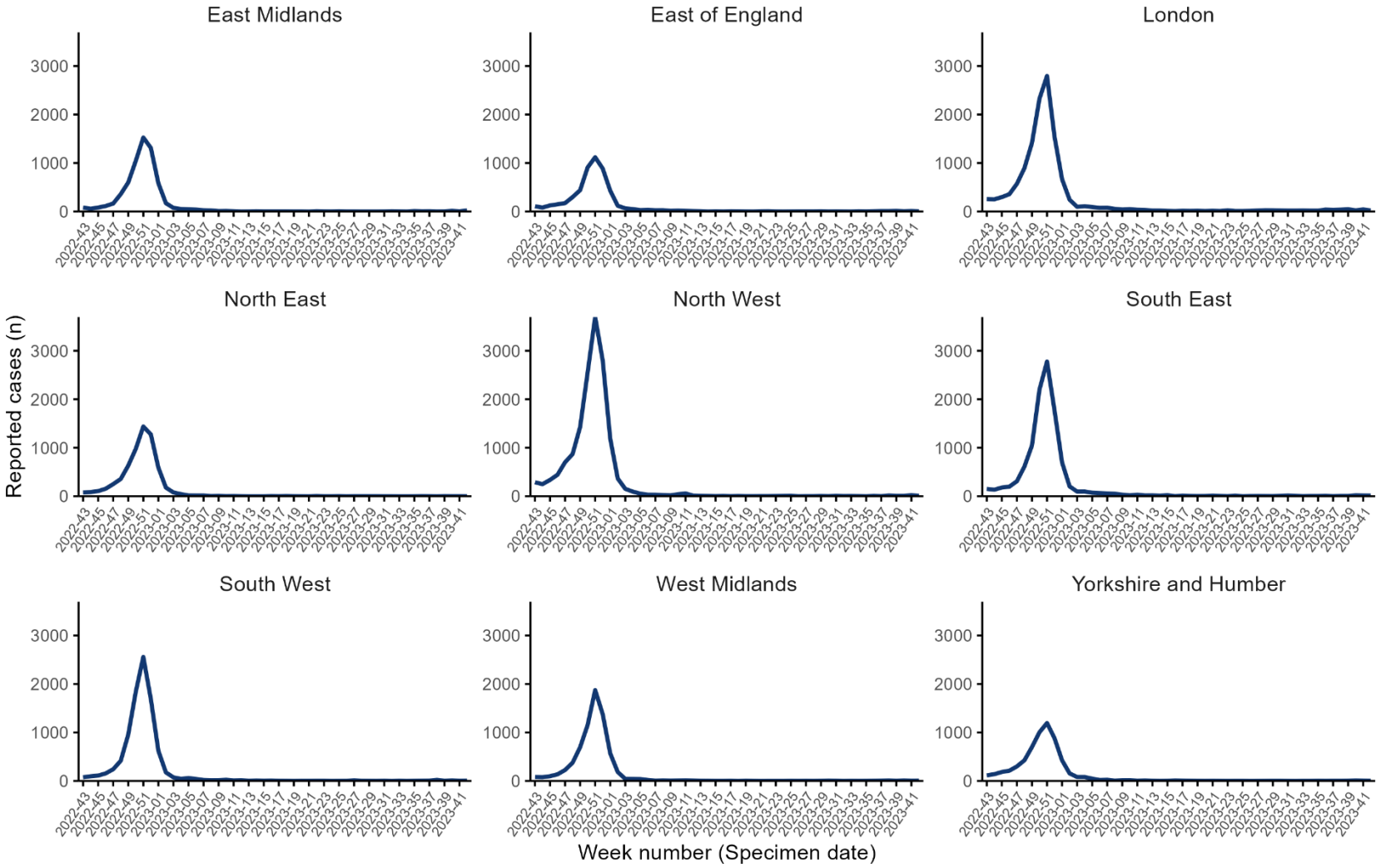
SGSS reported Influenza A cases by UKHSA region (all ages)



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.

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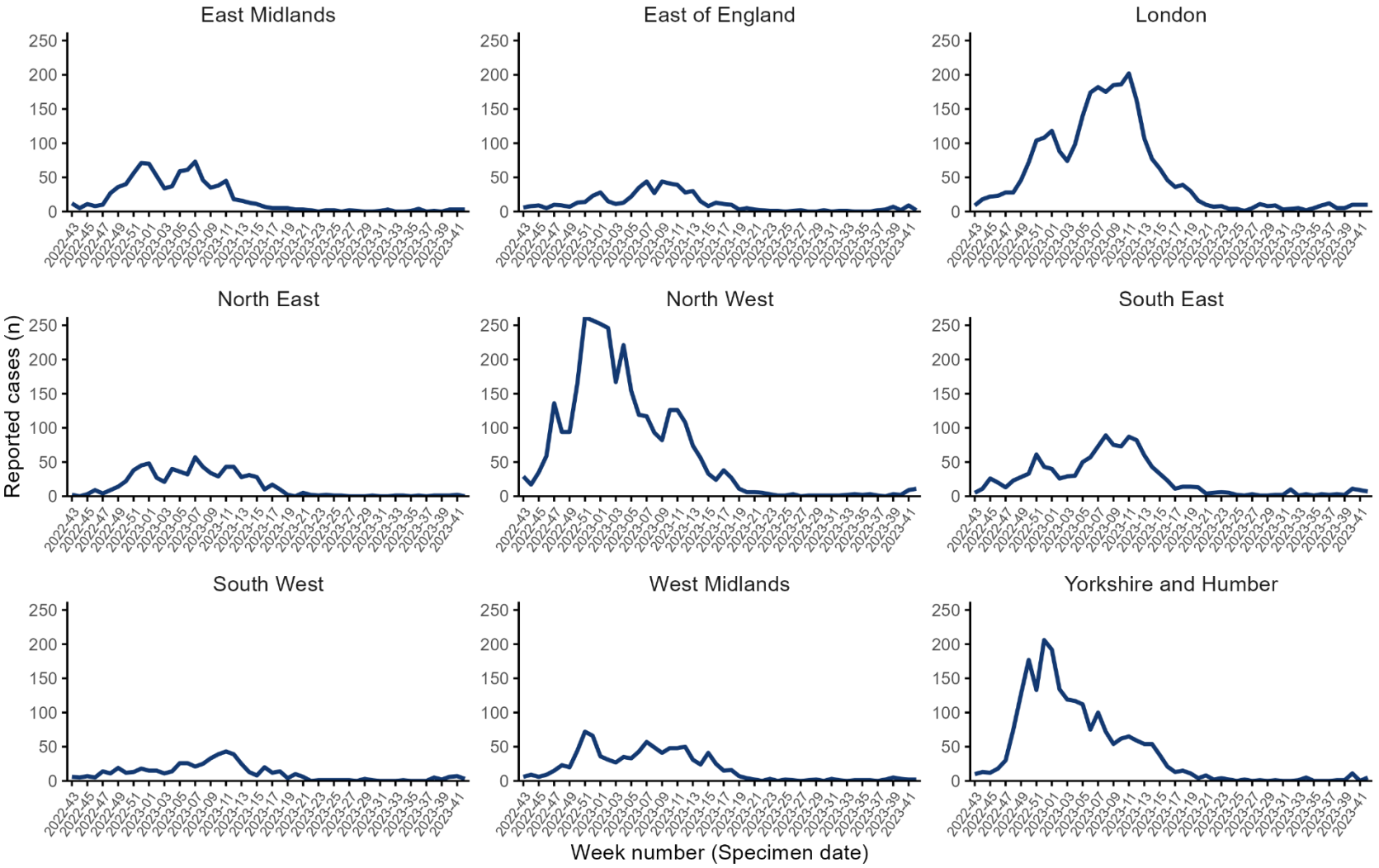
SGSS reported Influenza B cases by UKHSA region (all ages)



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.

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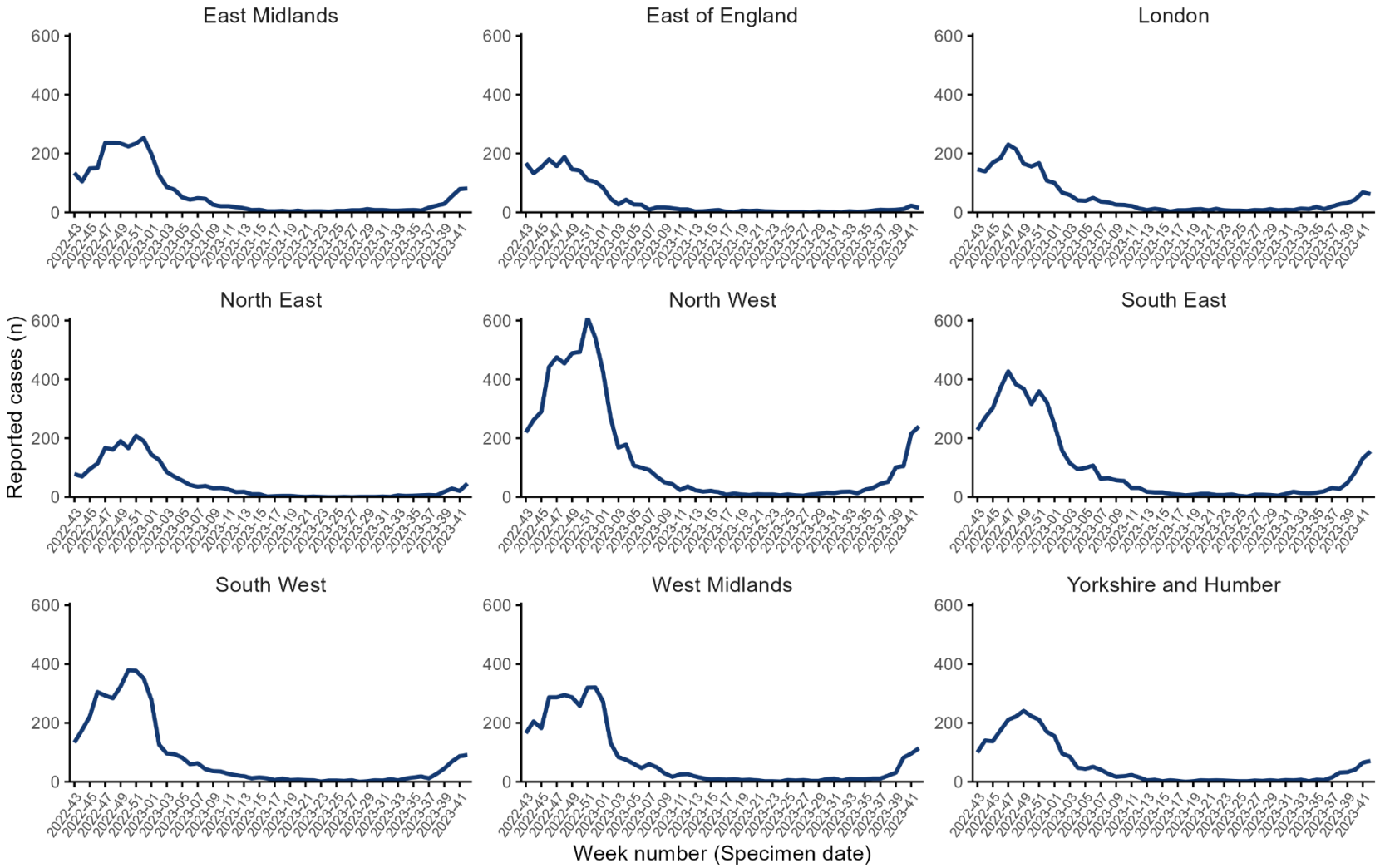
SGSS reported RSV cases by UKHSA region (all ages)



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.

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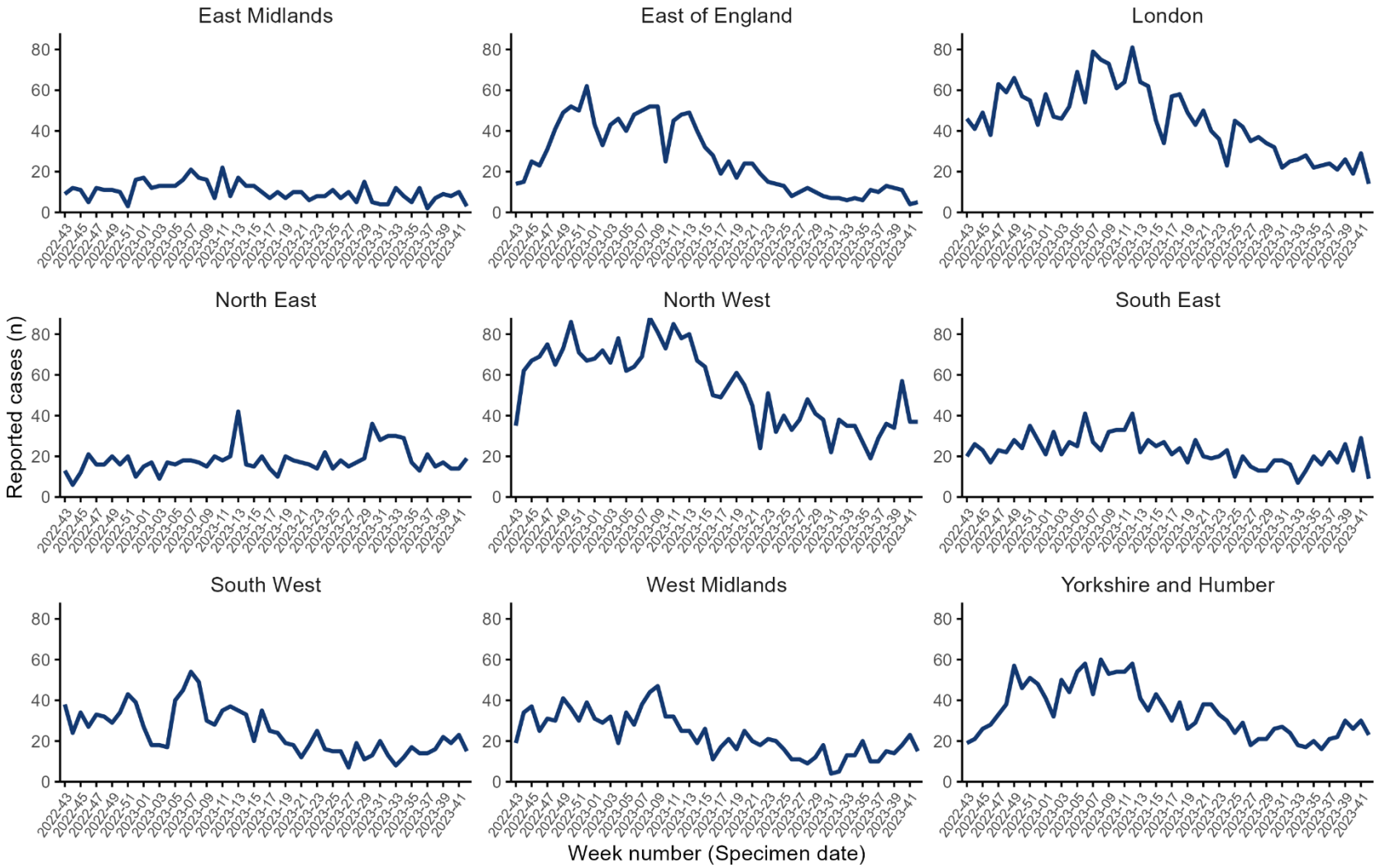
SGSS reported Adenovirus cases by UKHSA region (all ages)



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.

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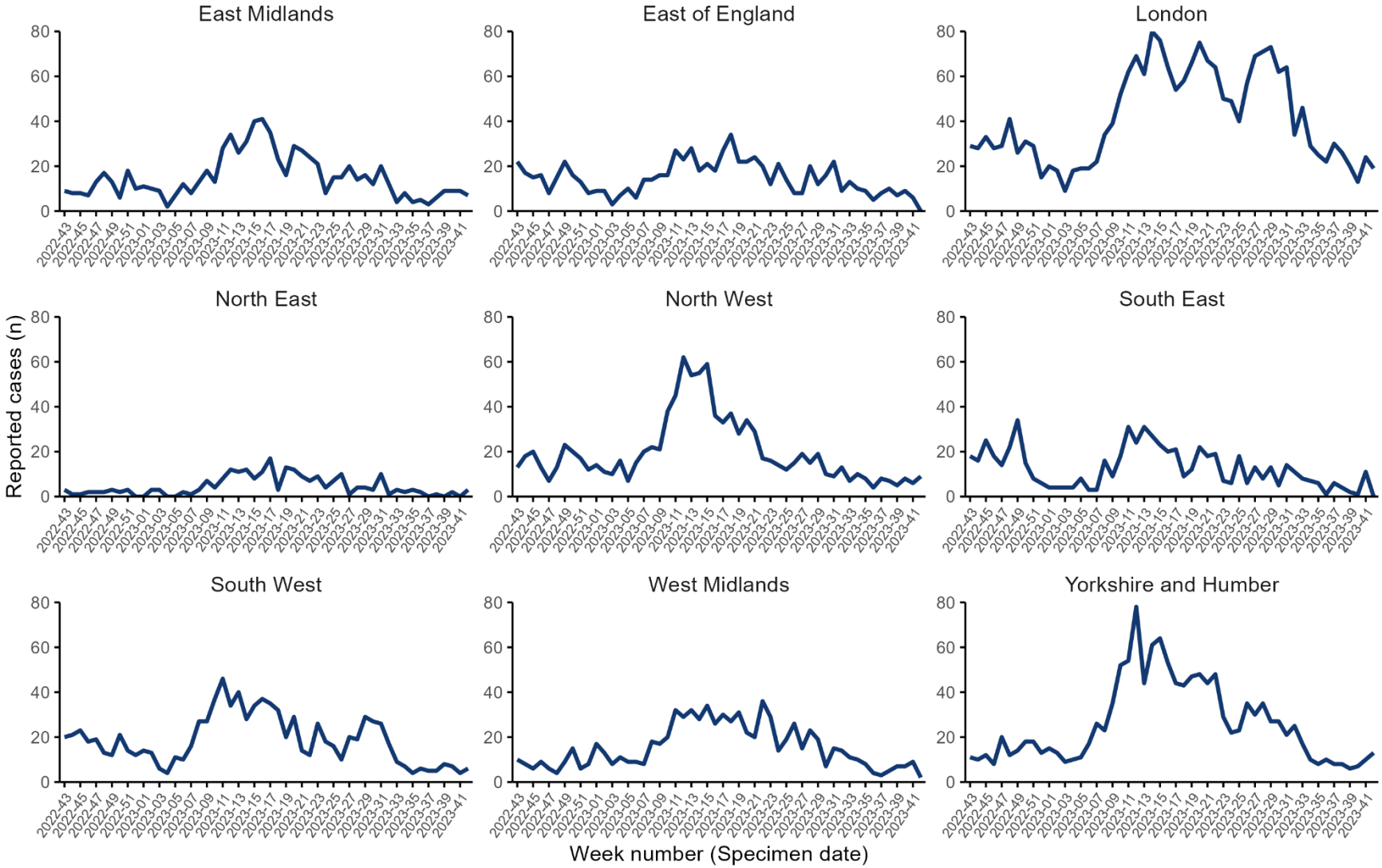
SGSS reported Parainfluenza cases by UKHSA region (all ages)



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.

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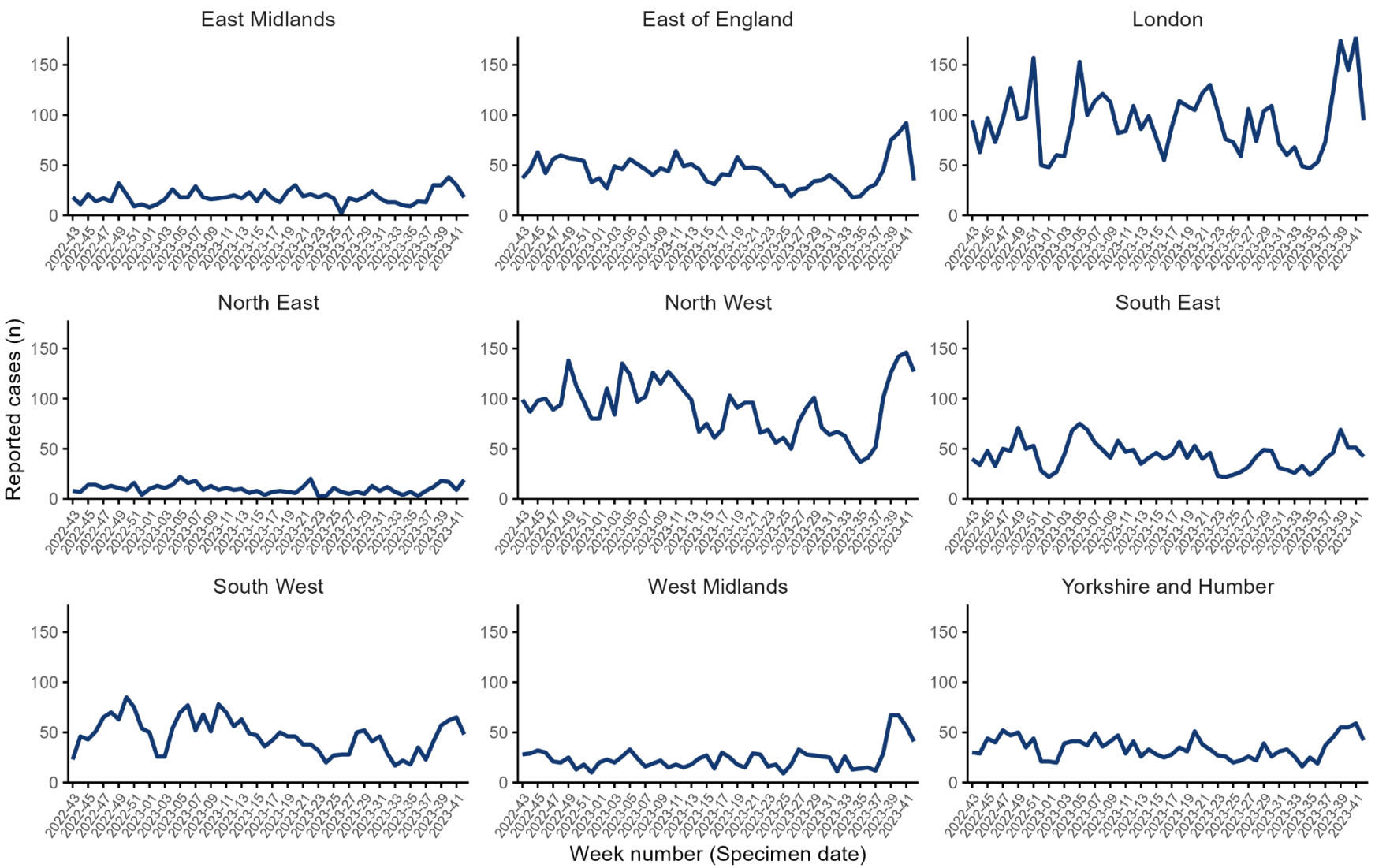
SGSS reported Rhinovirus cases by UKHSA region (all ages)



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.

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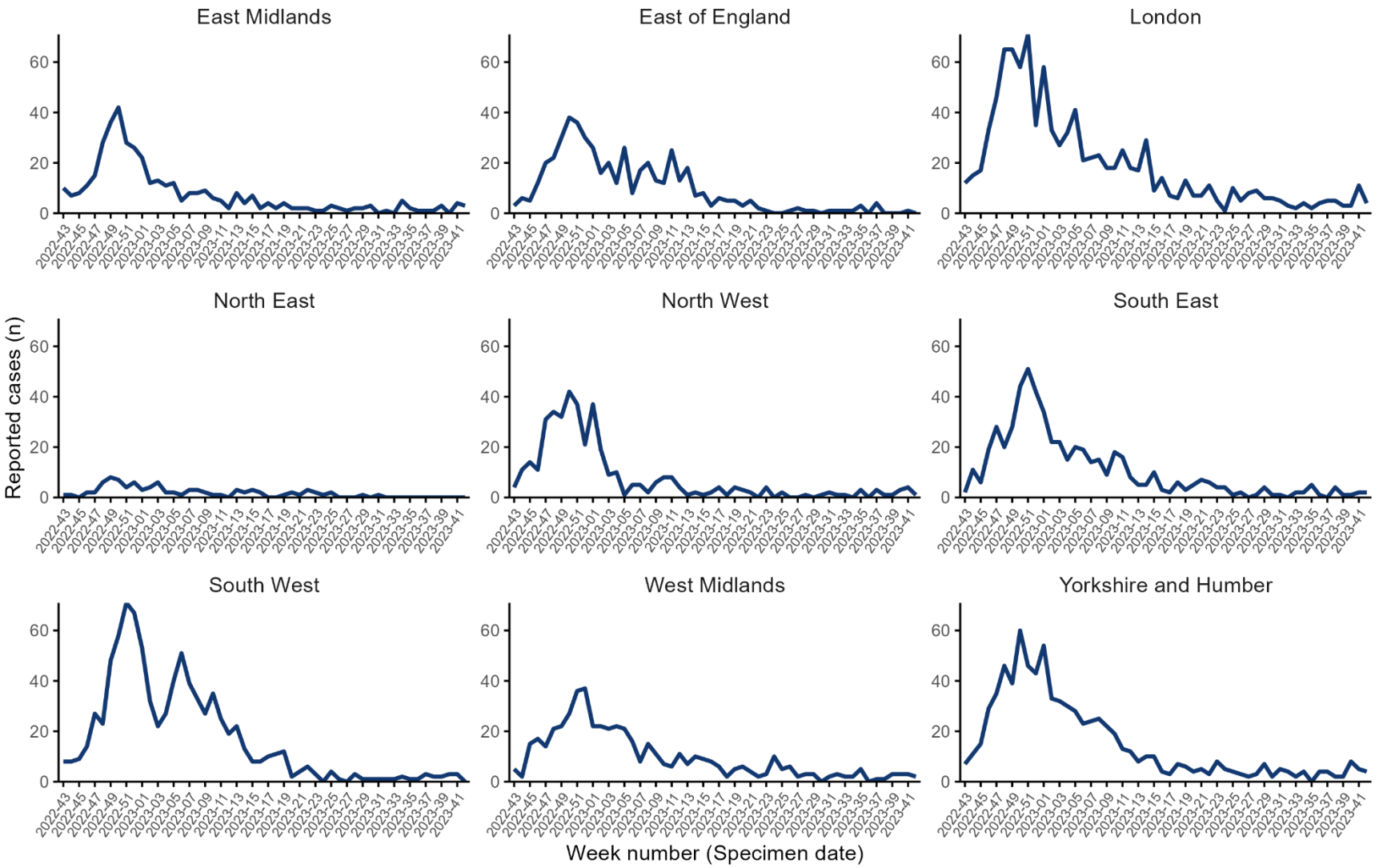
SGSS reported hMPV cases by UKHSA region (all ages)



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.

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

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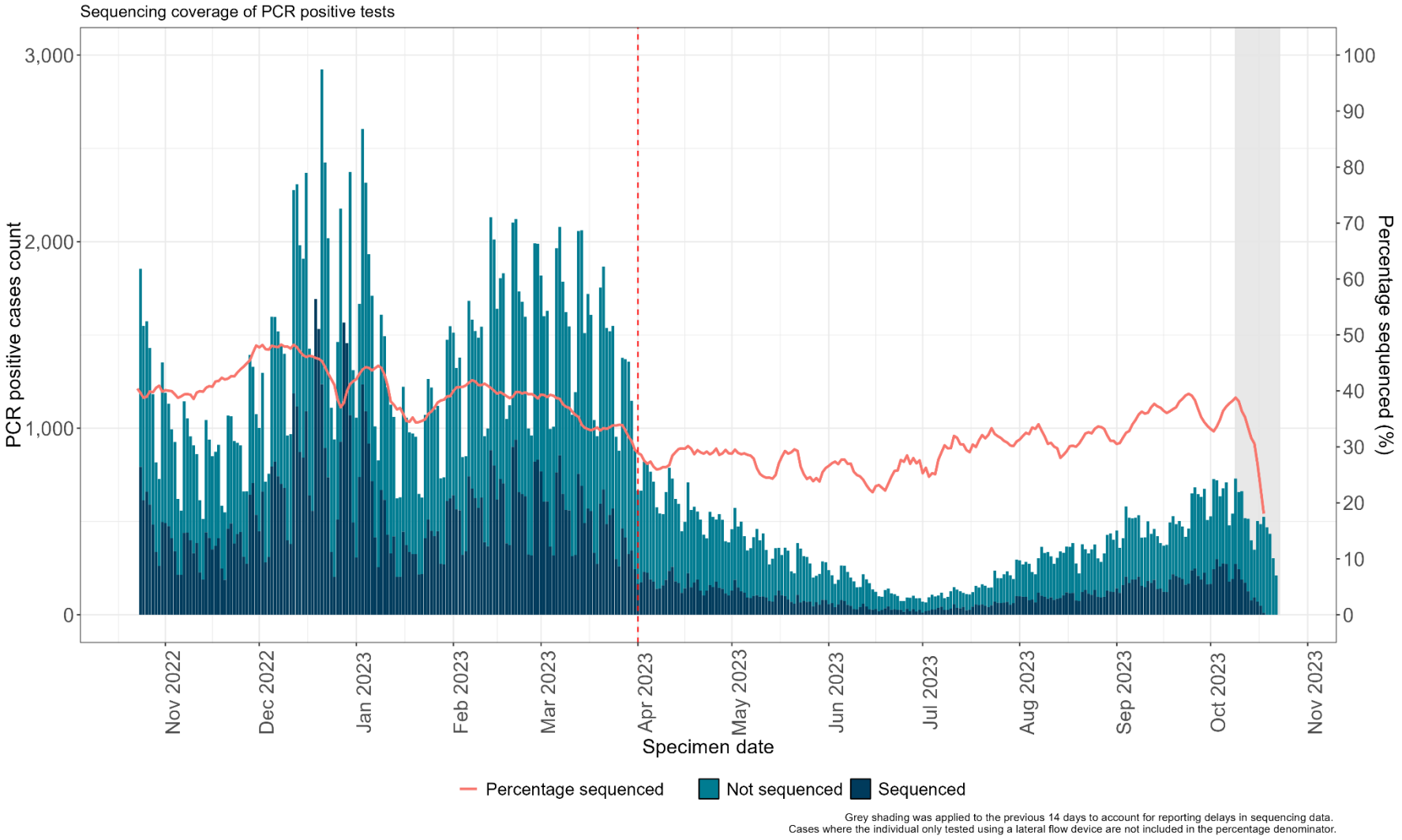
SARS-CoV-2 coverage of sequencing with a valid result and genotyping over time



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Community surveillance

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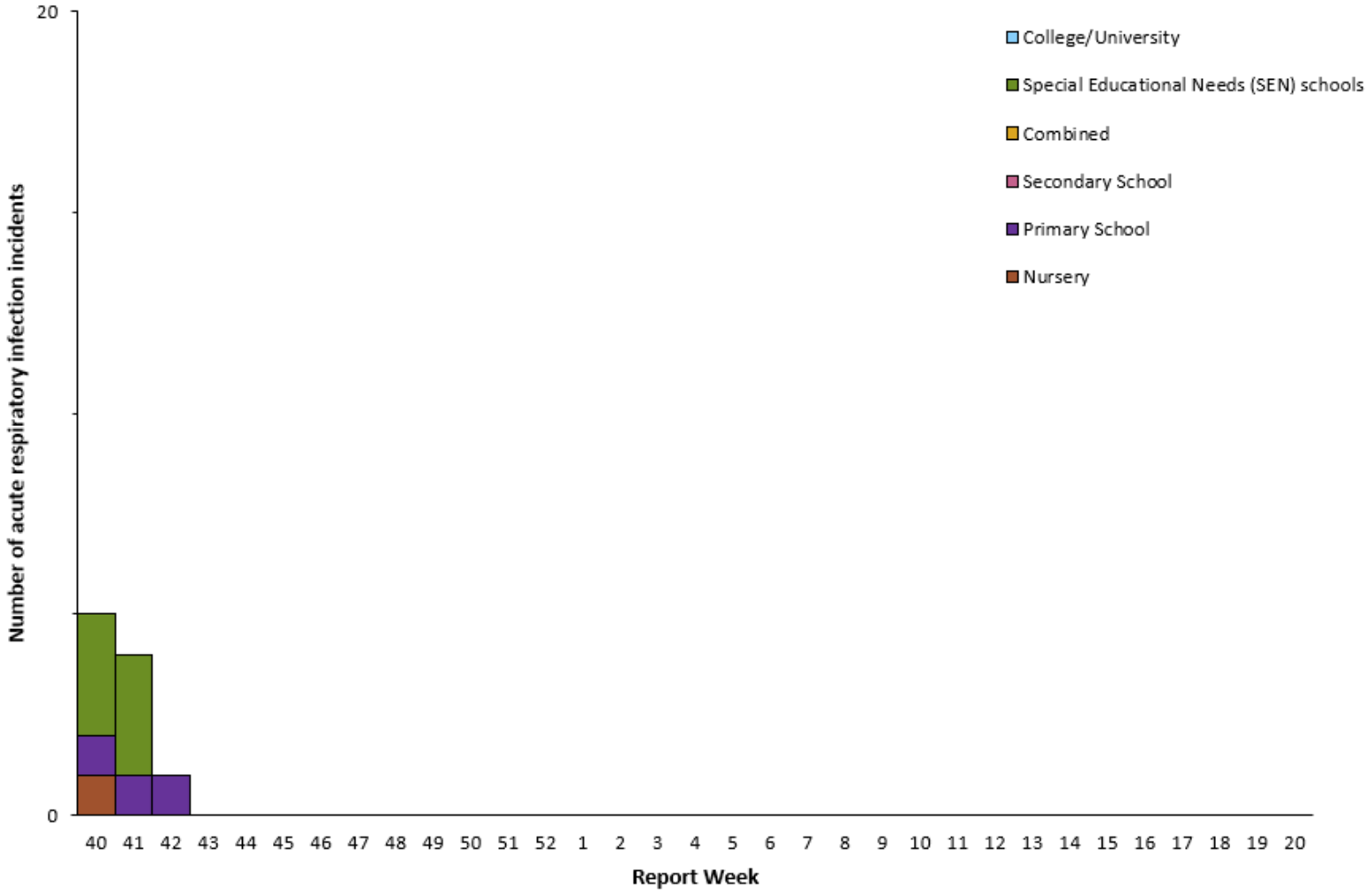
Number of acute respiratory infection outbreaks reported to UKHSA by type of educational setting, England



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Secondary Care surveillance

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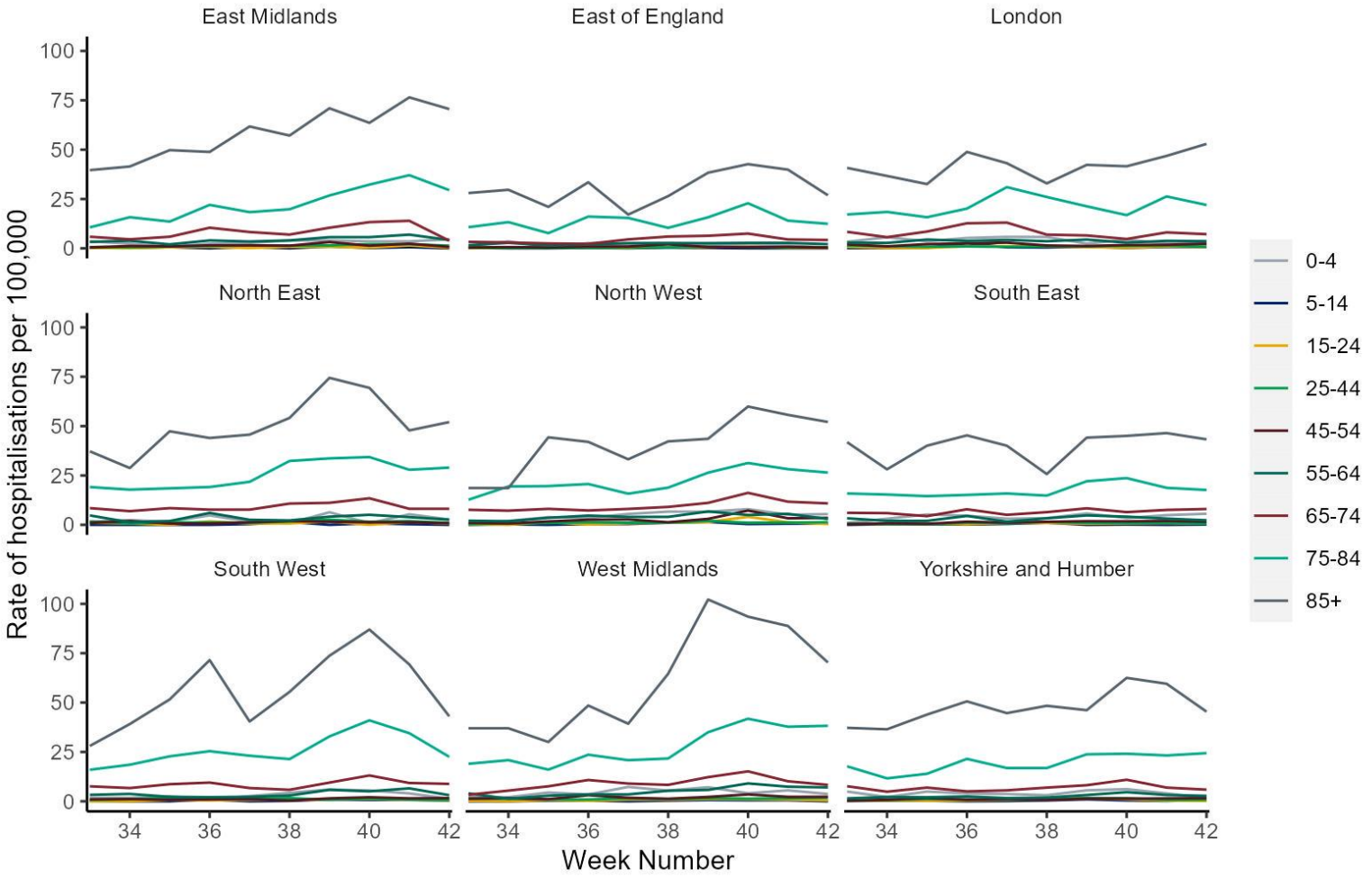
Weekly COVID-19 hospitalisation rate per 100,000 trust catchment population by age group and region, weeks 33 to 42



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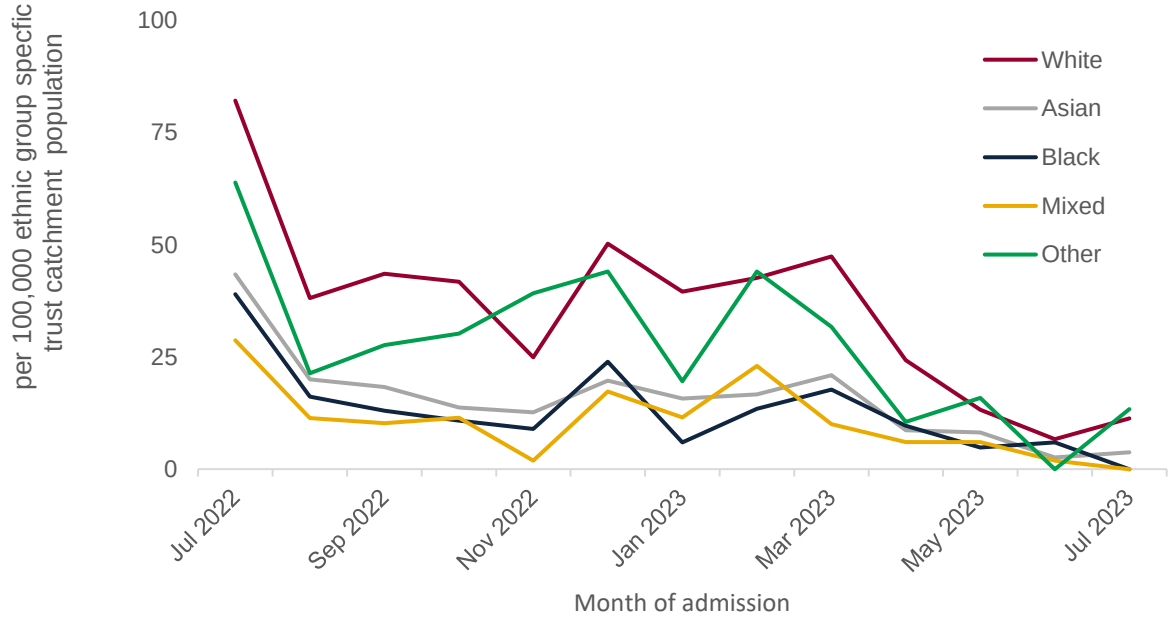
Rate of COVID-19 hospitalisation (to all levels of care including ICU-HDU) by ethnic group, per 100,000 ethnic group specific trust catchment population, England

Data extracted on 23 August 2023



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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

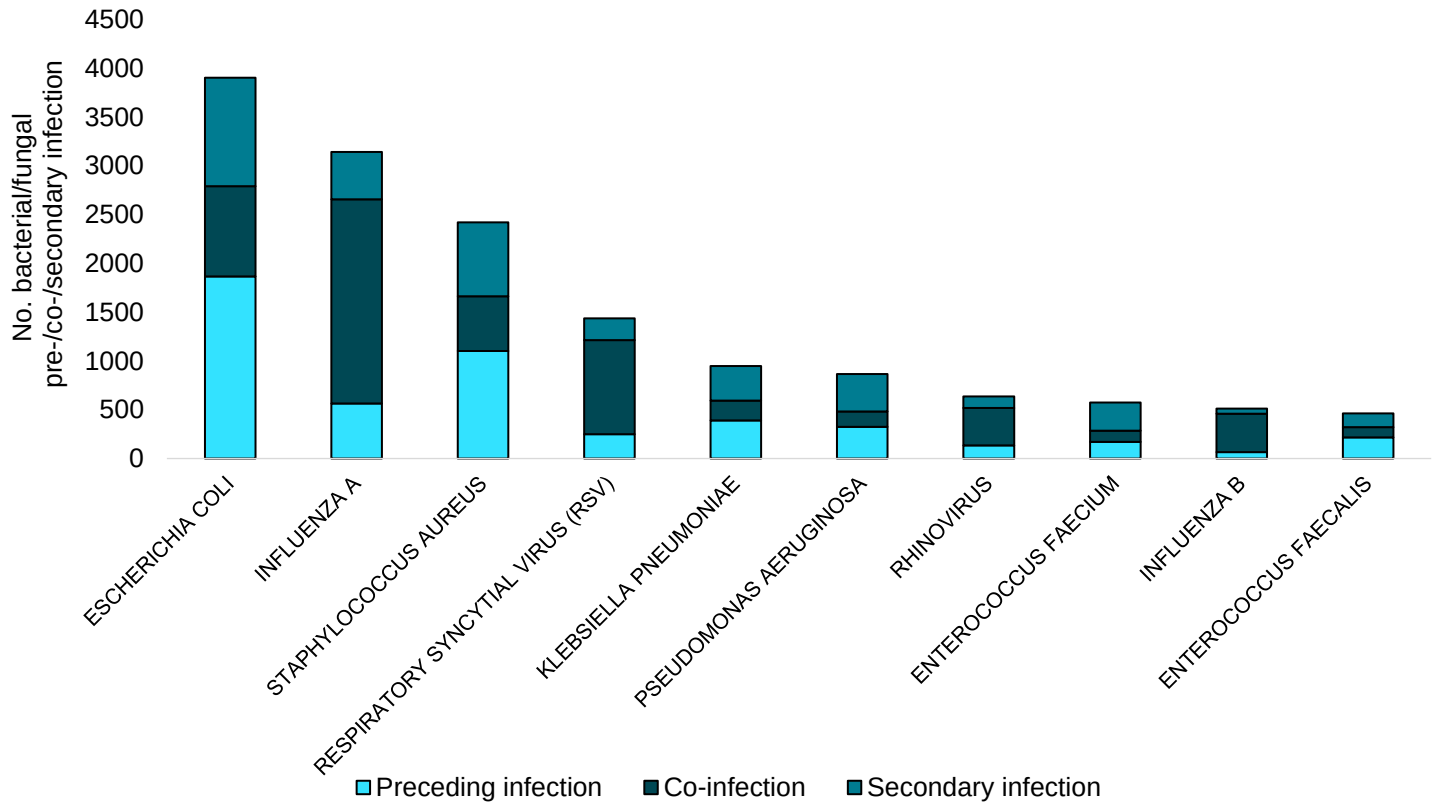
- Numbers of preceding/co-/secondary infection remain low across UKHSA surveillance systems.
- Free community testing ended 31 March 2022 as part of the government's Living with COVID-19 plan, with asymptomatic testing continuing in some settings. As of 31 August 2022, asymptomatic testing in all settings, 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)		
Achromobacter xylosoxidans	+/- 1d	2-28d
Acinetobacter spp.,	+/- 1d	2-28d
Aspergillus	+/- 1d	2-28d (pre) 2-60d (post, continually hospitalised patients only)
Bordetella pertussis	+/- 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)
Burkholderia cepacia	+/- 1d	2-28d
Candida spp	+/- 1d	2-28d (pre) 2-60d (post, continually hospitalised patients only)
Chlamydia pneumoniae	0-7d PCR	PCR within 14-28 d (8-13d PCR*)
Enterobacter spp.,	+/- 1d	2-28d
Enterococcus spp.	+/- 1d	2-28d
E. coli	+/- 1d	2-28d
Haemophilus influenzae	+/- 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)		
Klebsiella spp.	+/- 1d	2-28d
Legionella pneumophila/species	Individual case review	Individual case review
Mycoplasma pneumoniae	0-7d PCR, IgM serology 0-21d <16y	PCR within 14-28 d (8-13d PCR*)
Neisseria meningitidis	+/- 2d	3-28d
Pseudomonas spp.,	+/- 1d	2-28d
Serratia spp.,	+/- 1d	2-28d
Staphylococcus aureus	+/- 1d	2-28d
Coag-neg Staphylococcus (*S. haemolyticus*)	+/- 1d	2-28d
Stenotrophomonas spp., (*S. maltophilia)*	+/- 1d	2-28d
Streptococcus spp. ‡	+/- 1d	2-28d
Streptococcus pneumoniae	+/- 2d	3-28d
Tuberculosis		
Mycobacterium tuberculosis	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 *E. coli* (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		
C. difficile	+/- 1d	2-28d
Bacteroides sp. (*B. fragilis* and non-fragilis Bacteroides)	+/- 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	*Streptococcus anginosus; Streptococcus constellatus (Streptococcus constellatus subspecies constellatus Streptococcus constellatus subspecies pharynges); Streptococcus* Group F; *Streptococcus intermedius; Streptococcus milleri* group; *Streptococcus sinensis*
Bovis Group	*Streptococcus alactolyticus; Streptococcus bovis* untyped; *Streptococcus equinus; Streptococcus gallolyticus subspecies gallolyticus (Streptococcus bovis* biotype I); *Streptococcus infantarius (Streptococcus infantarius sp infantarius; Streptococcus bovis* biotype II); *Streptococcus lutetiensis; Streptococcus infantarius subspecies coli (Streptococcus bovis* biotype II); *Streptococcus pasteurianus (Streptococcus bovis* biotype II)
Closely Related Genera	*Abiotrophia spp.; Aerococcus spp.; Faklamia spp.; Gemella* spp.; *Globicatella sanguinis; Granulicatella* spp.; *Leuconostoc* spp.; *Pedicoccus* spp.; *Peptostreptococcus* spp.
Mitis Group	*Streptococcus cristatus; Streptococcus mitior; Streptococcus mitis; Streptococcus oralis; Streptococcus pseudopneumoniae; Streptococcus infantis; Streptococcus peroris*
Mutans Group	*Streptococcus mutans; Streptococcus sobrinus*
Other streptococci (including but not limited to)	Anaerobic streptococcus; *Streptococcus acidominimus; Streptococcus* spp., other named/not fully identified; *Streptococcus suis; Streptococcus uberis*
Salivarius Group	*Streptococcus vestibularis; Streptococcus thermophilus*
Sanguinis Group	*Streptococcus gordonii; Streptococcus massiliensis; Streptococcus parasanguinis; Streptococcus sanguinis*
Streptococcus Group A	Group A; *Streptococcus pyogenes; Streptococcus dysgalactiae* subspecies *equisimilis*
Streptococcus Group B	Group B; *Streptococcus agalactiae*
Streptococcus Group C	Group C; *Streptococcus dysgalactiae* subspecies *equisimilis; Streptococcus equi* subspecies *zooepidemicus*
Streptococcus Group G	Group G; *Streptococcus canis; Streptococcus dysgalactiae* subspecies *equisimilis*