



UK Health  
Security  
Agency

# SARS-CoV-2 variant data update, England

## Version 16

29 October 2021

This briefing provides an update on previous data located in technical and variant data update [briefings and updates](#) up to 22 October 2021.

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## Surveillance data overview

This document includes routine data on variants of concern and under investigation. Delta (VOC-21APR-02, B.1.617.2) is detailed in the technical [briefing](#).

Table 1 and Table 2 show the current VOC, VUI, and variants in monitoring detected and not detected in the UK as of 25 October 2021.

**Table 1. SARS-CoV-2 variants of public health interest: variants detected in the UK**

WHO nomenclature	Lineage	Designation	Status
Alpha	B.1.1.7	VOC-20DEC-01	VOC
Beta	B.1.351	VOC-20DEC-02	VOC
Gamma	P.1	VOC-21JAN-02	VOC
Delta	B.1.617.2, AY.1, AY.2, AY.3, AY.33, AY.34	VOC-21APR-02	VOC
Delta	AY.4.2*	VUI-21OCT-01	VUI
Eta	B.1.525	VUI-21FEB-03	VUI
	B.1.1.318	VUI-21FEB-04	VUI
Kappa	B.1.617.1	VUI-21APR-01	VUI
Mu	B.1.621	VUI-21JUL-01	VUI
	C.36.3**		Monitoring
Epsilon	B.1.427/B.1.429		Monitoring
	B.1.620		Monitoring
	R.1		Monitoring
	C.1.2		Monitoring

\* AY.4.2 is a sub-lineage within Delta that has been assigned as a distinct VUI

\*\* Previously VUI-21MAY-02, de-escalated on 20 October 2021

**Table 2. SARS-CoV-2 variants of public health interest: variants present in GISAID but not detected in the UK**

WHO nomenclature	Lineage	Designation	Status
	P.3	VUI-21MAR-02	VUI
	B.1.617.3	VUI-21APR-03	VUI
	AV.1	VUI-21MAY-01	VUI
	P.2	VUI-21JAN-01	VUI

WHO nomenclature	Lineage	Designation	Status
Lambda	C.37*		Monitoring
	A.27		Monitoring
Iota	B.1.526		Monitoring
	B.1.1.7 with Q677H		Monitoring
	B.1 with 214insQAS		Monitoring
	AT.1		Monitoring
	B.1.629		Monitoring
	B.1.619		Monitoring
	B.1.630, B.1.631/B.1.628		Monitoring
	P.1.8		Monitoring
	P.5		Monitoring
	<a href="#">B.1.1.7 + B.1.617.2</a>		Monitoring

\* Previously VUI-21JUN-01, de-escalated on 20 October 2021.  
Provisionally extinct variants are excluded from this table.

VOCs and VUIs are monitored weekly for observations within the last 12 weeks. If variants have not been detected in the UK within this period, they are moved to international status with continued monitoring. If a VOC or VUI has not been observed in the UK or international datasets within the preceding 12 weeks, it is designated as provisionally extinct, but monitoring remains in place.

^ Zeta and Theta were de-escalated by WHO and are no longer WHO variants under monitoring. Kappa, Iota, Eta and Epsilon were de-escalated by WHO to WHO variants under monitoring.

# Data on individual variants

## Alpha

This variant was designated VUI 202012/01 (B.1.1.7) on detection and on review re-designated as VOC-20DEC-01 (202012/01, B.1.1.7) on 18 December 2020. This was named Alpha by the World Health Organization (WHO) on 31 May 2021.

### International epidemiology

GISAID includes data on sequences available internationally. As of 26 October 2021, 848,392 of Alpha are listed from 181 countries or territories on GISAID, excluding the UK.

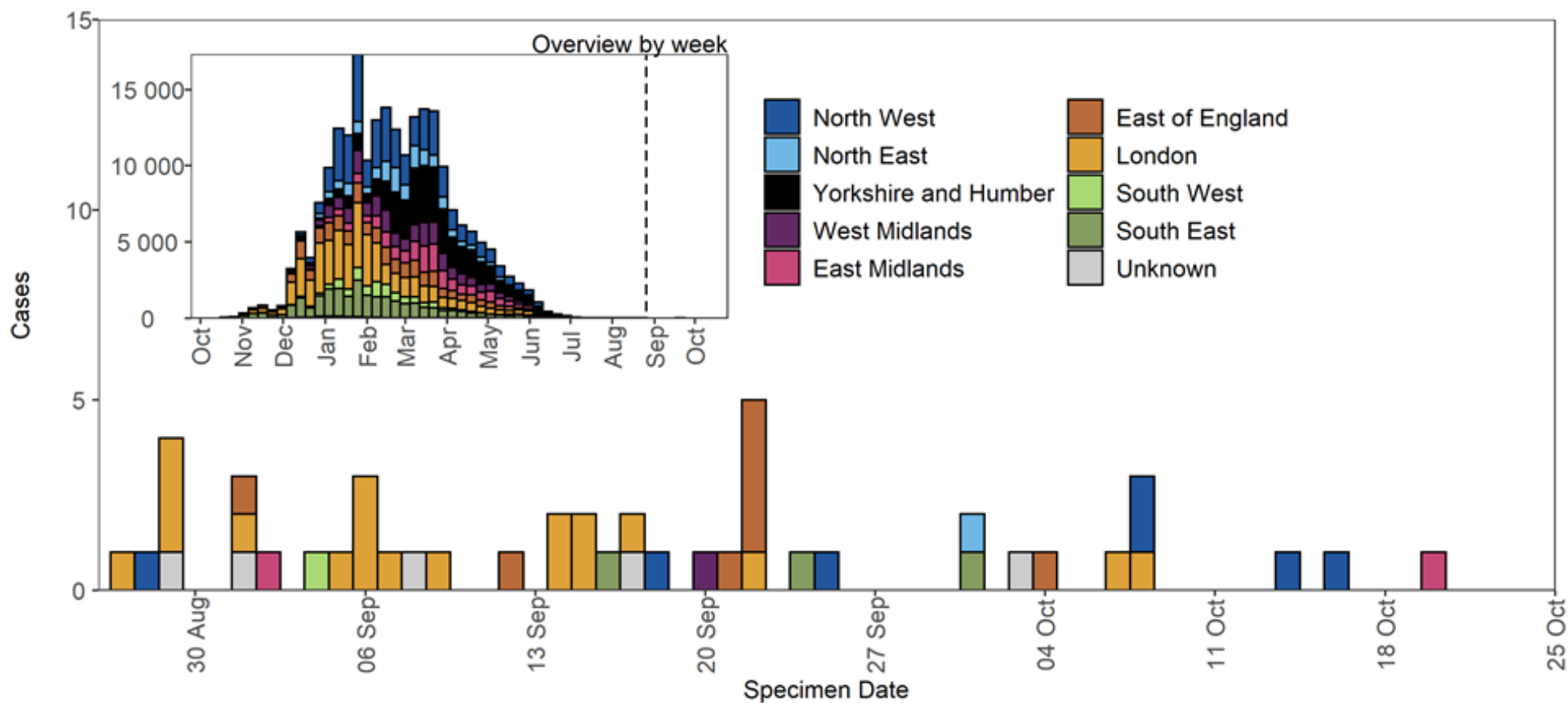
### Epidemiology

**Table 3. Number of confirmed and provisional Alpha cases, by region of residence as of 25 October 2021**

Region	Confirmed case number	Provisional case number	Total case number	Case proportion
East Midlands	16,225	488	16,713	7.4%
East of England	19,760	179	19,939	8.8%
London	40,528	774	41,302	18.2%
North East	14,766	113	14,879	6.6%
North West	42,011	1,746	43,757	19.3%
South East	24,059	122	24,181	10.7%
South West	8,197	52	8,249	3.6%
West Midlands	18,355	1,300	19,655	8.7%
Yorkshire and Humber	35,975	886	36,861	16.3%
Unknown region	1,263	20	1,283	0.6%
Total	221,139	5,680	226,819	-

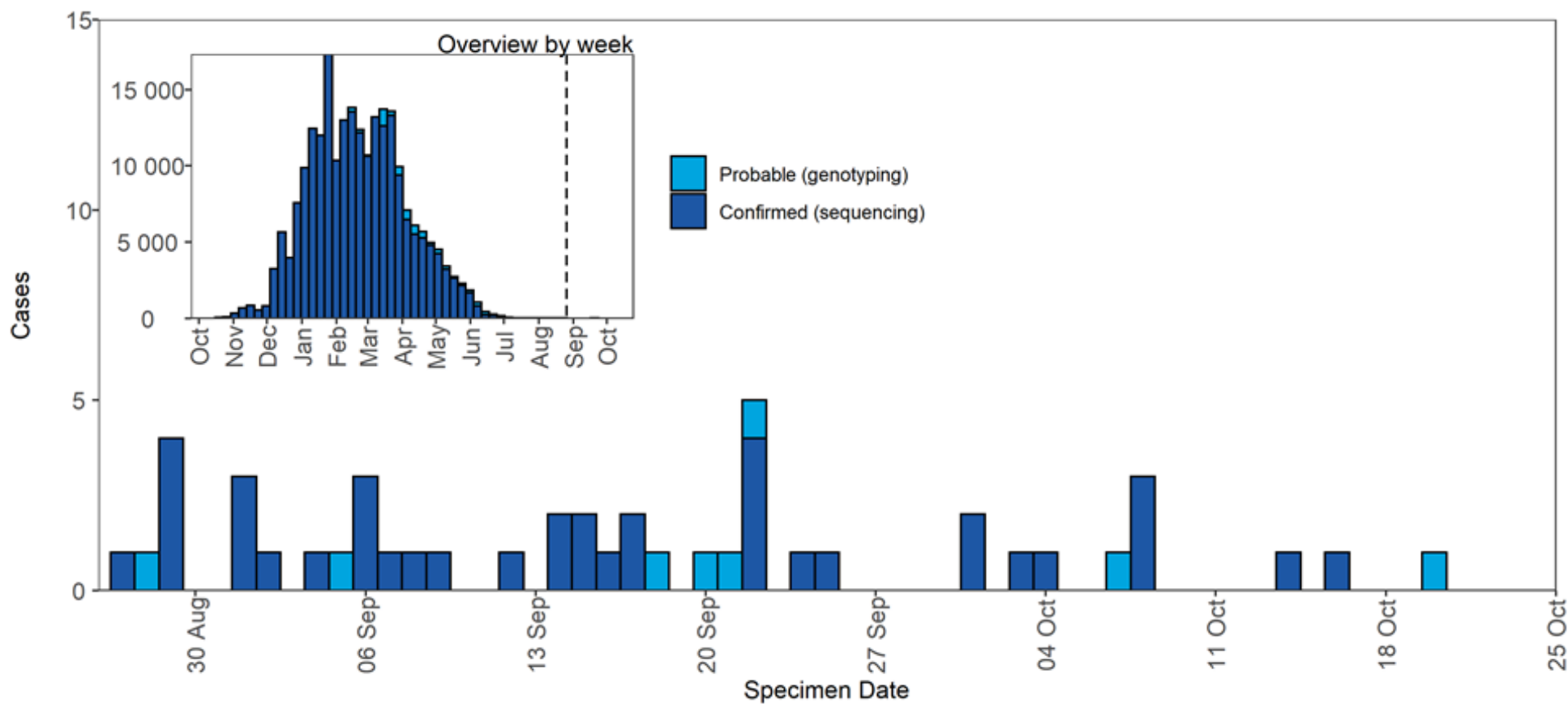
**Figure 1. Confirmed and provisional Alpha cases by specimen date and region of residence as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



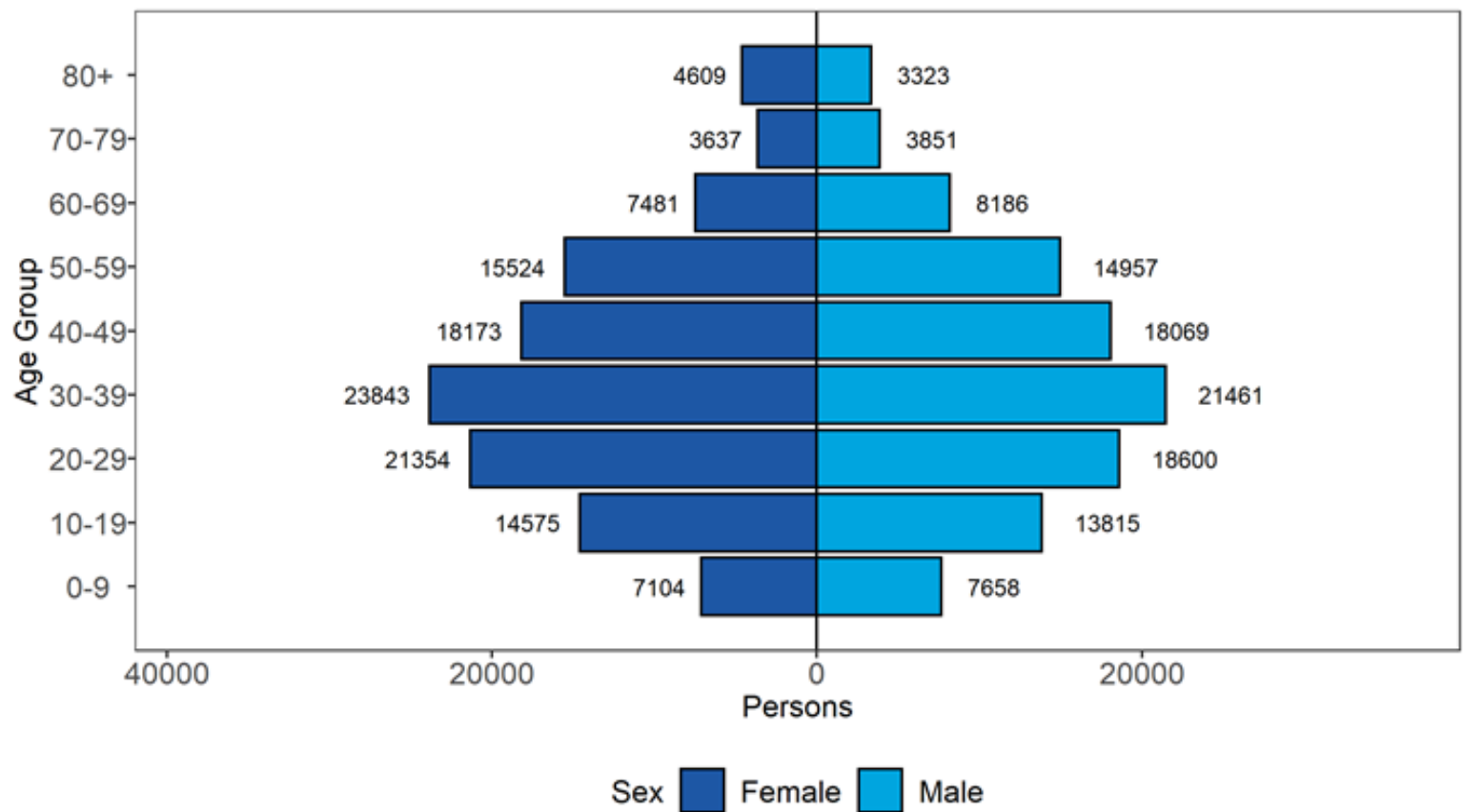
**Figure 2. Confirmed and provisional Alpha cases by specimen date and detection method as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



**Figure 3. Age-sex pyramid of Alpha cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



599 cases excluded where sex or age not reported



## Beta

B.1.351 was initially detected in South Africa. This variant was designated variant under investigation on detection and on review re-designated as VOC-20DEC-02 (B.1.351) on 24 December 2020. It was named Beta by WHO on 31 May 2021.

### International epidemiology

GISAID includes data on sequences available internationally. As of 26 October 2021, 32,358 sequences of Beta, are listed from 112 countries or territories, excluding the UK

### Epidemiology

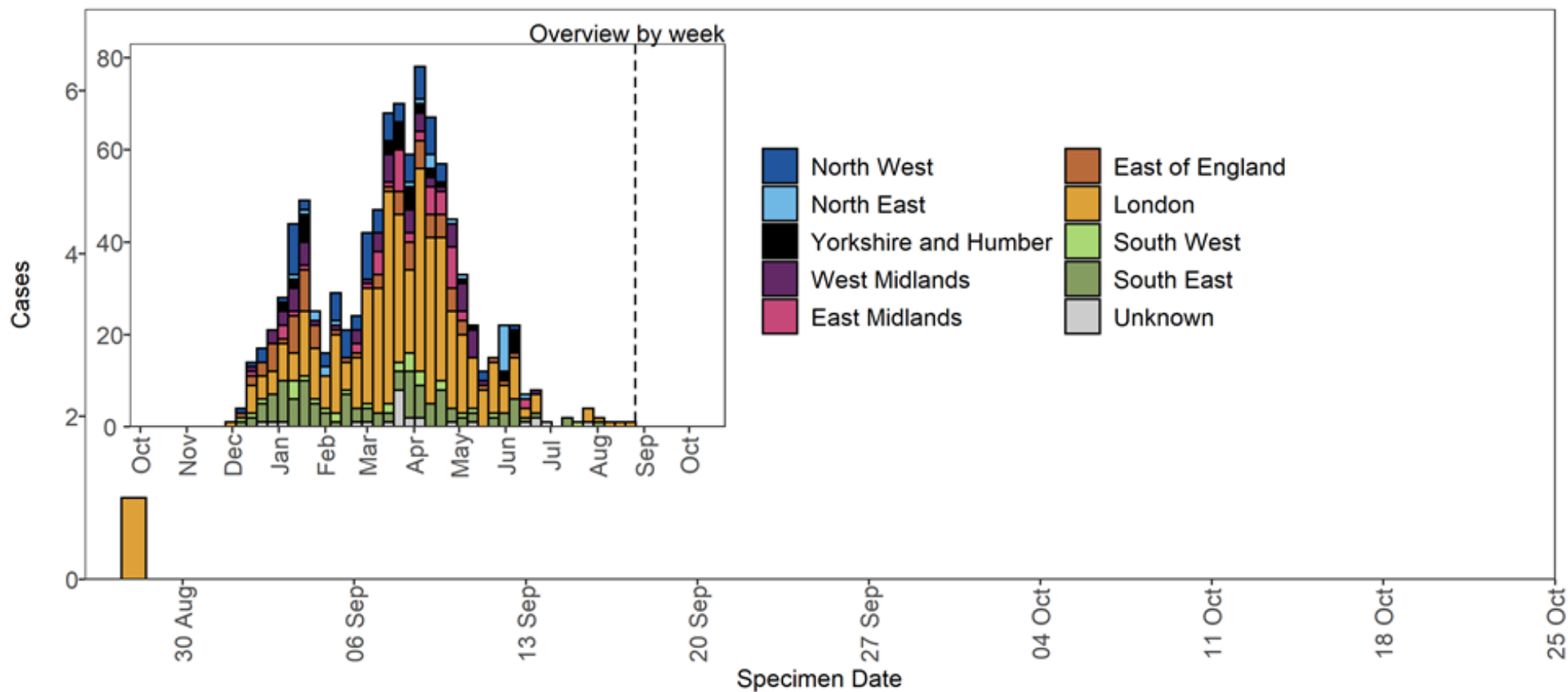
**Table 4. Number of confirmed and provisional Beta cases, by region of residence as of 25 October 2021**

Region	Confirmed case number*	Provisional case number	Total case number	Case proportion
East Midlands	49	3	52	5.3%
East of England	82	2	84	8.5%
London	430	25	455	46.0%
North East	19	6	25	2.5%
North West	81	9	90	9.1%
South East	118	4	122	12.3%
South West	31	1	32	3.2%
West Midlands	66	1	67	6.8%
Yorkshire and Humber	32	6	38	3.8%
Unknown region	21	4	25	2.5%
<b>Total</b>	<b>929</b>	<b>61</b>	<b>990</b>	<b>-</b>

\* Excludes 12 genotyped cases that cannot be definitely identified as either Beta or Mu.

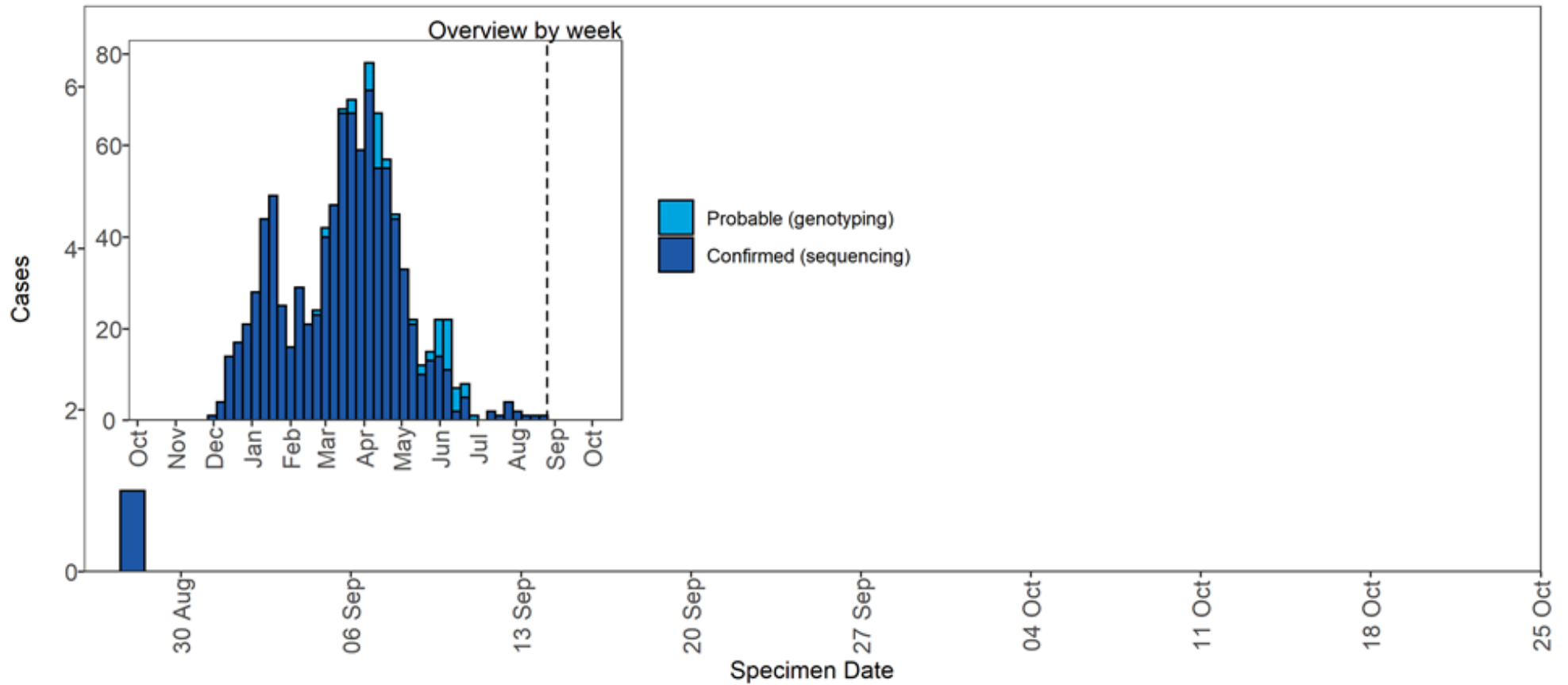
**Figure 4. Confirmed and provisional Beta cases by specimen date and region of residence as of 25 October 2021**

Larger plot includes last 60 days only. (Find accessible data used in this graph in [underlying data](#).)



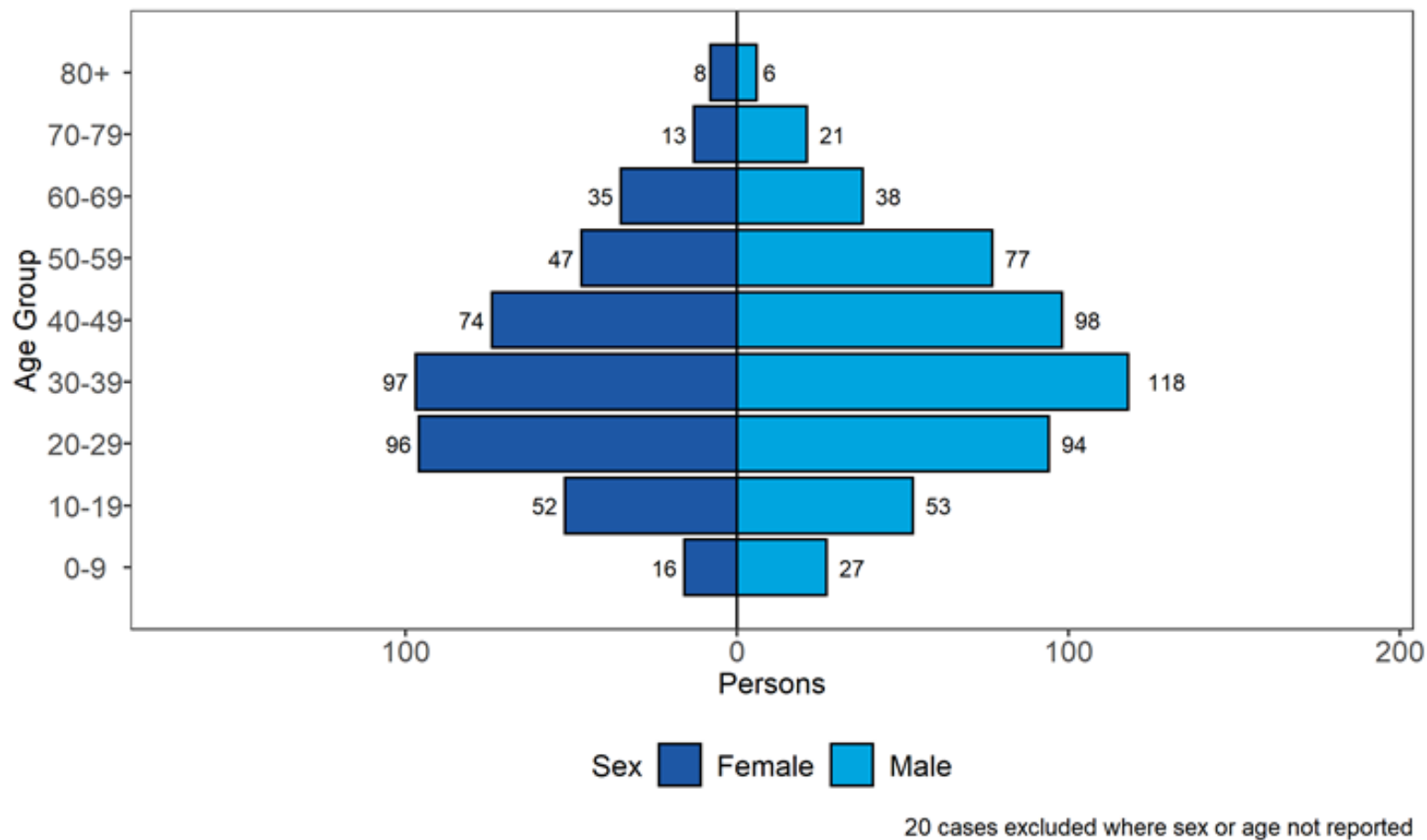
**Figure 5. Confirmed and provisional Beta cases by specimen date and detection method as of 25 October 2021**

Larger plot includes last 60 days only. (Find accessible data used in this graph in [underlying data](#).)



**Figure 6. Age and sex pyramid of Beta cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



## Gamma

First identified in Japan amongst travellers from Brazil. The P.1 lineage is a descendant of B.1.1.28. This variant was designated variant under investigation on detection and on review re-designated as VOC-21JAN-02 (P.1) on 13 January 2021. This was named Gamma by WHO on 31 May 2021.

### International epidemiology

GISAID includes data on sequences available internationally. As of 26 October 2021, 89,871 sequences (excluding the UK) of Gamma from 82 countries.

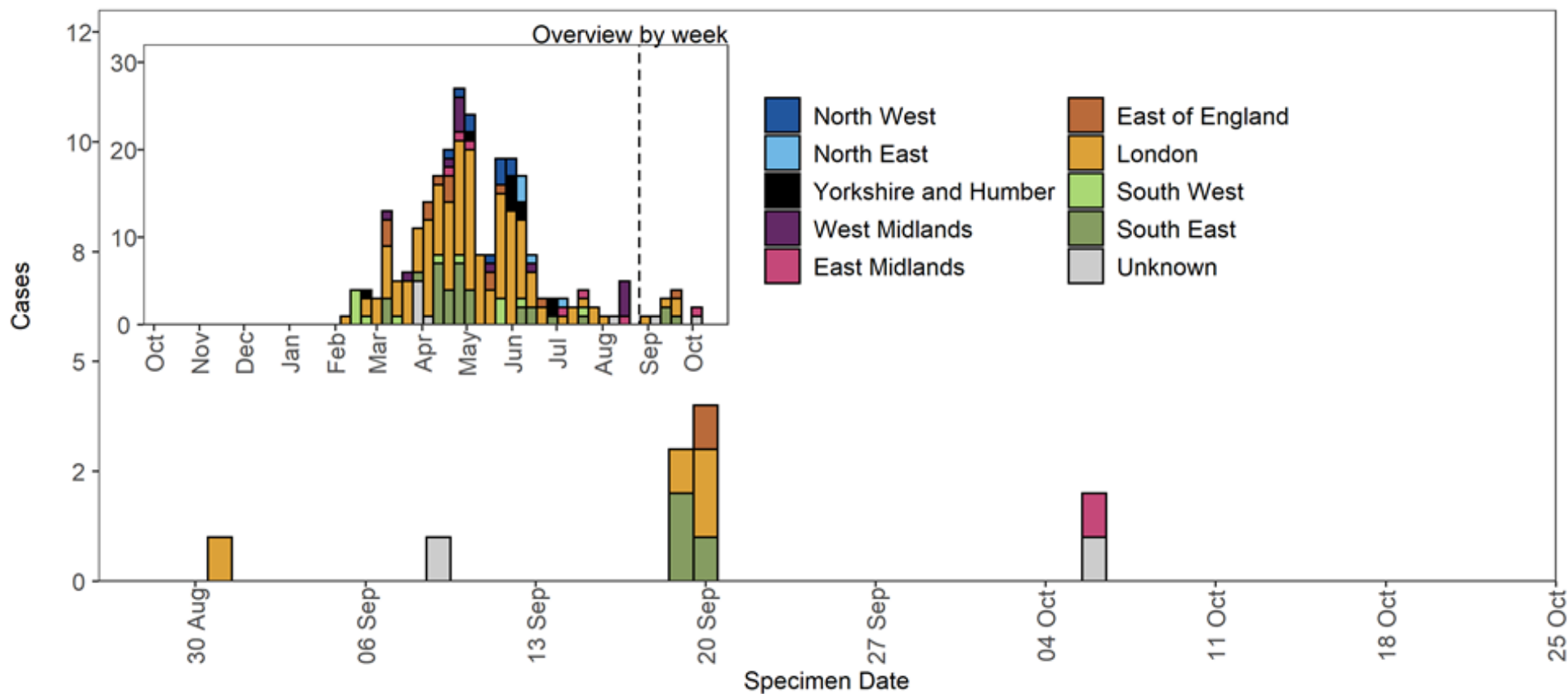
### Epidemiology

**Table 5. Number of confirmed and provisional Gamma cases, by region of residence as of 25 October 2021**

Region	Confirmed case number	Provisional case number	Total case number	Case proportion
East Midlands	7	1	8	3.0%
East of England	13	1	14	5.3%
London	122	26	148	55.6%
North East	1	4	5	1.9%
North West	9	1	10	3.8%
South East	29	7	36	13.5%
South West	11	2	13	4.9%
West Midlands	8	5	13	4.9%
Yorkshire and Humber	2	8	10	3.8%
Unknown region	9	0	9	3.4%
Total	211	55	266	-

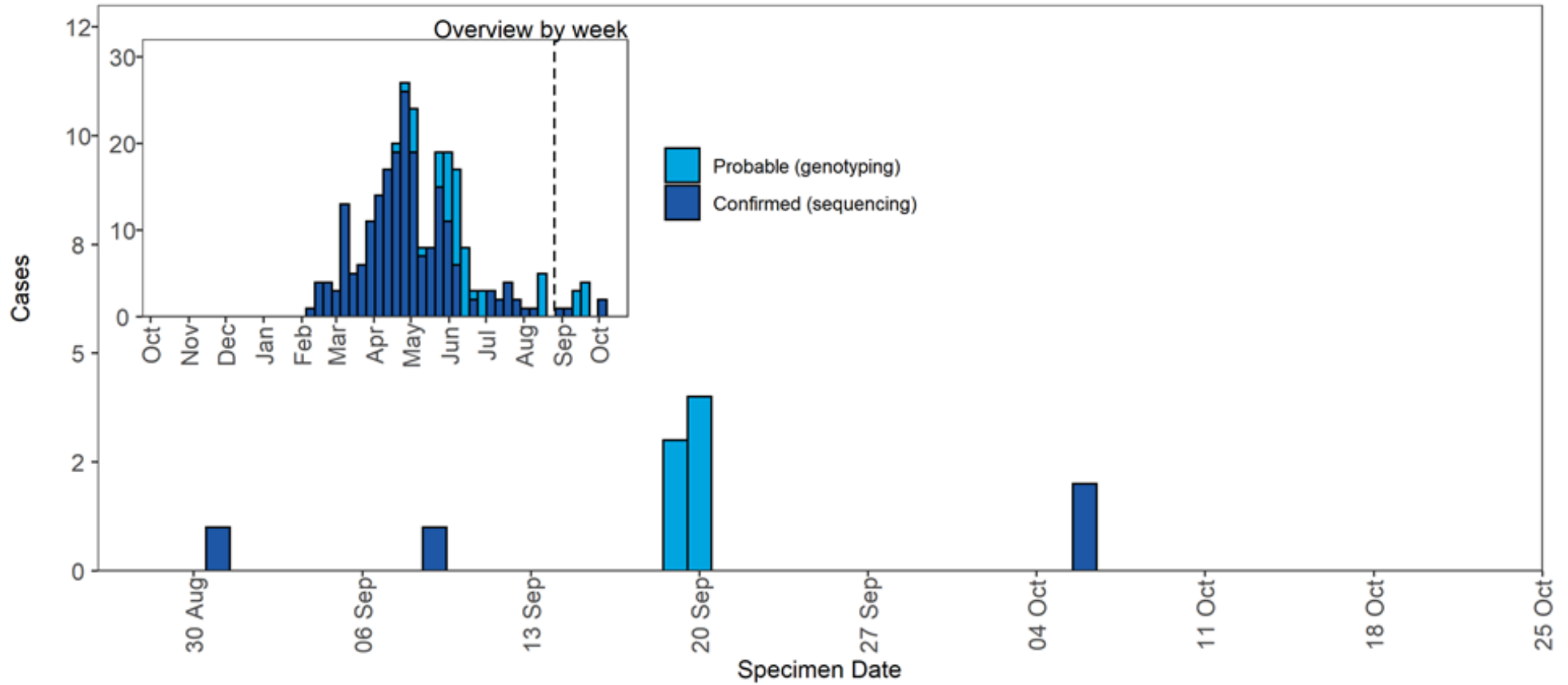
**Figure 7. Confirmed and provisional Gamma cases by specimen date and region of residence as of 25 October 2021**

Larger plot includes last 60 days only. (Find accessible data used in this graph in [underlying data](#).)



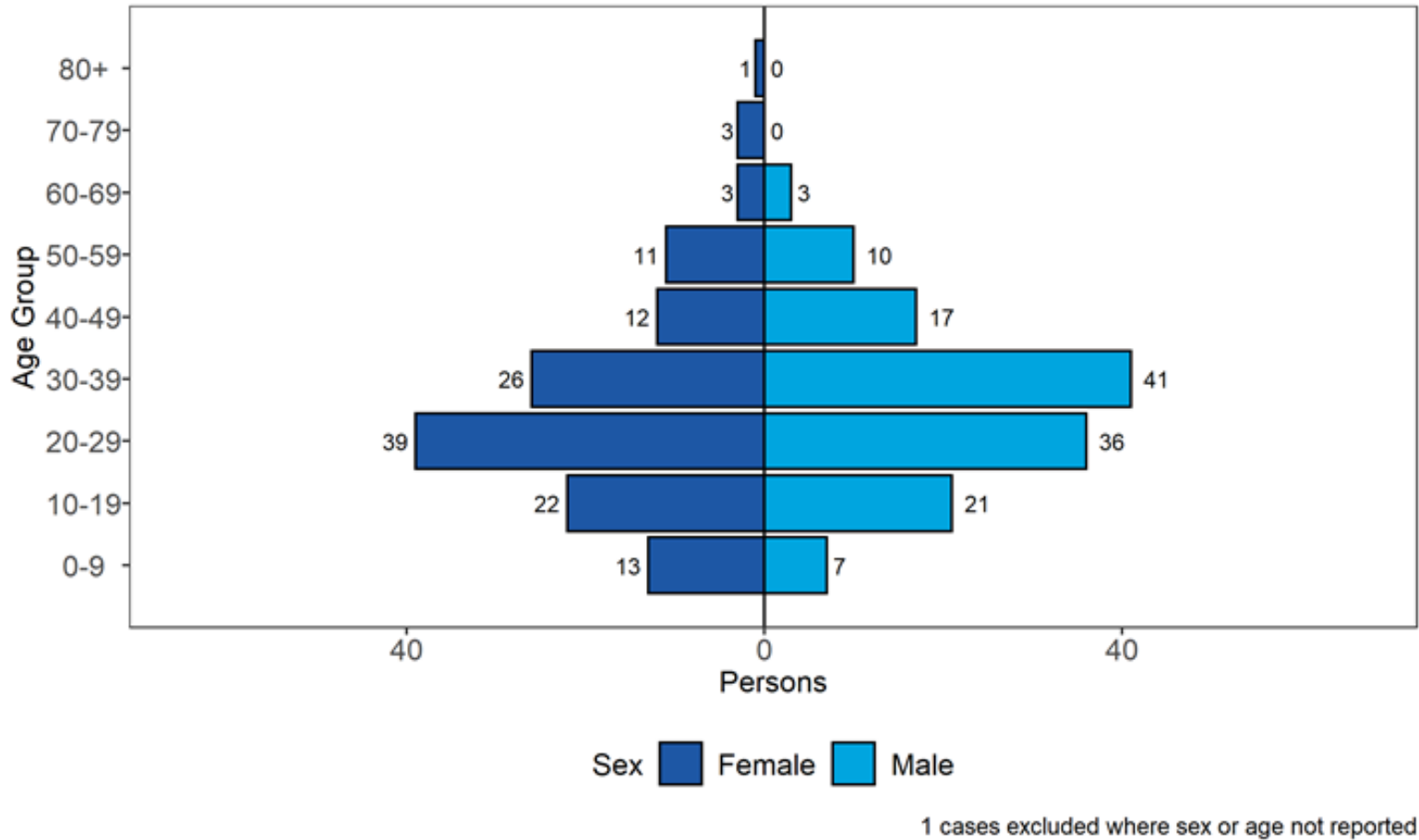
**Figure 8. Confirmed and provisional Gamma cases by specimen date and detection method as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



**Figure 9. Age and sex pyramid of Gamma cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)





## Eta

B.1.525 was identified as a geographically dispersed cluster in UK on 2 February 2021. This variant was designated VUI-21FEB-03 (B.1.525) on 12 February 2021. The earliest sample date for VUI-21FEB-03 (B.1.525) in England was 15 December 2020. This was named Eta by WHO on 31 May 2021. Genotyping data is not collected for this variant.

### International epidemiology

GISAID includes data on sequences available internationally. As of 26 October 2021, 7,446 sequences of Eta are listed, from 82 countries or territories, excluding the UK.

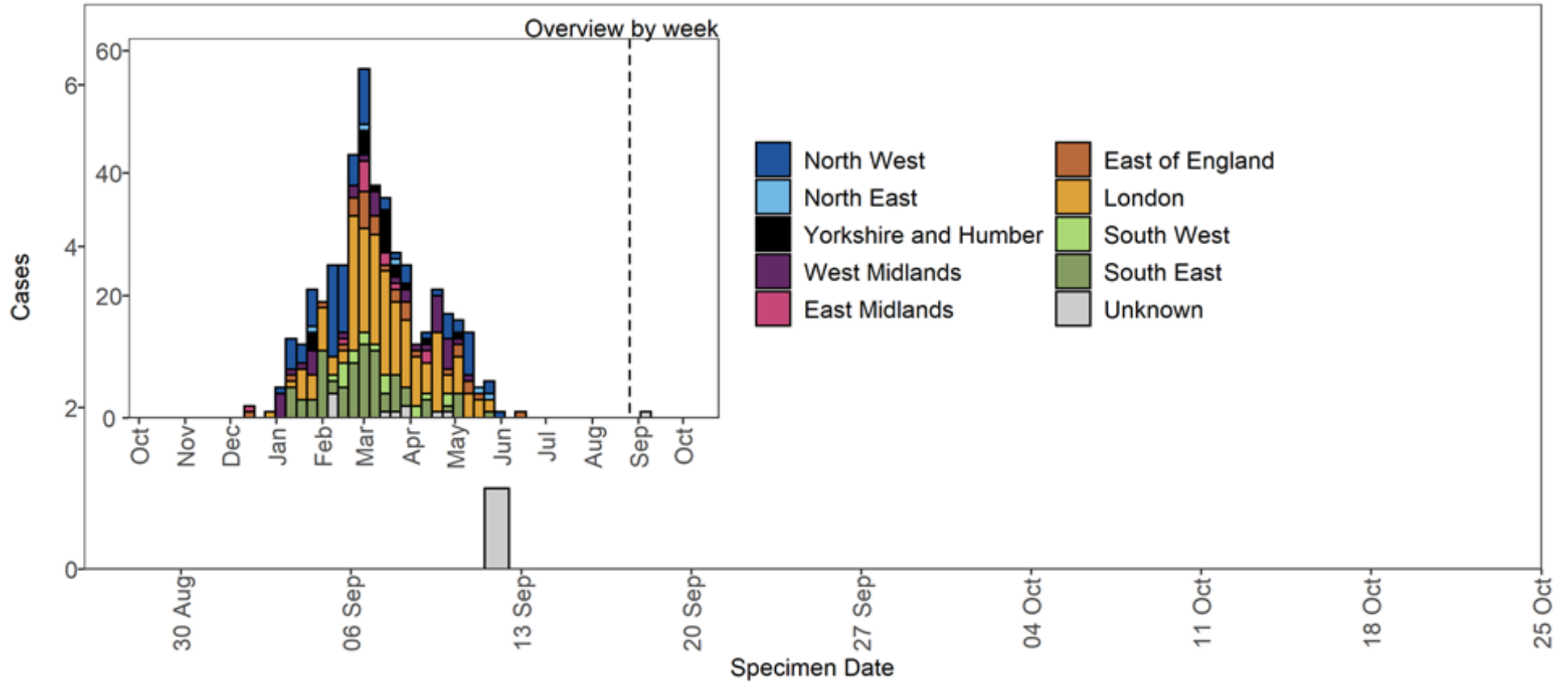
### Epidemiology

**Table 6. Number of confirmed and provisional Eta cases, by region of residence as of 25 October 2021**

Region	Total case number	Case proportion
East Midlands	12	2.6%
East of England	30	6.5%
London	166	36.0%
North East	5	1.1%
North West	79	17.1%
South East	82	17.8%
South West	18	3.9%
West Midlands	36	7.8%
Yorkshire and Humber	20	4.3%
Unknown region	13	2.8%
Total	461	-

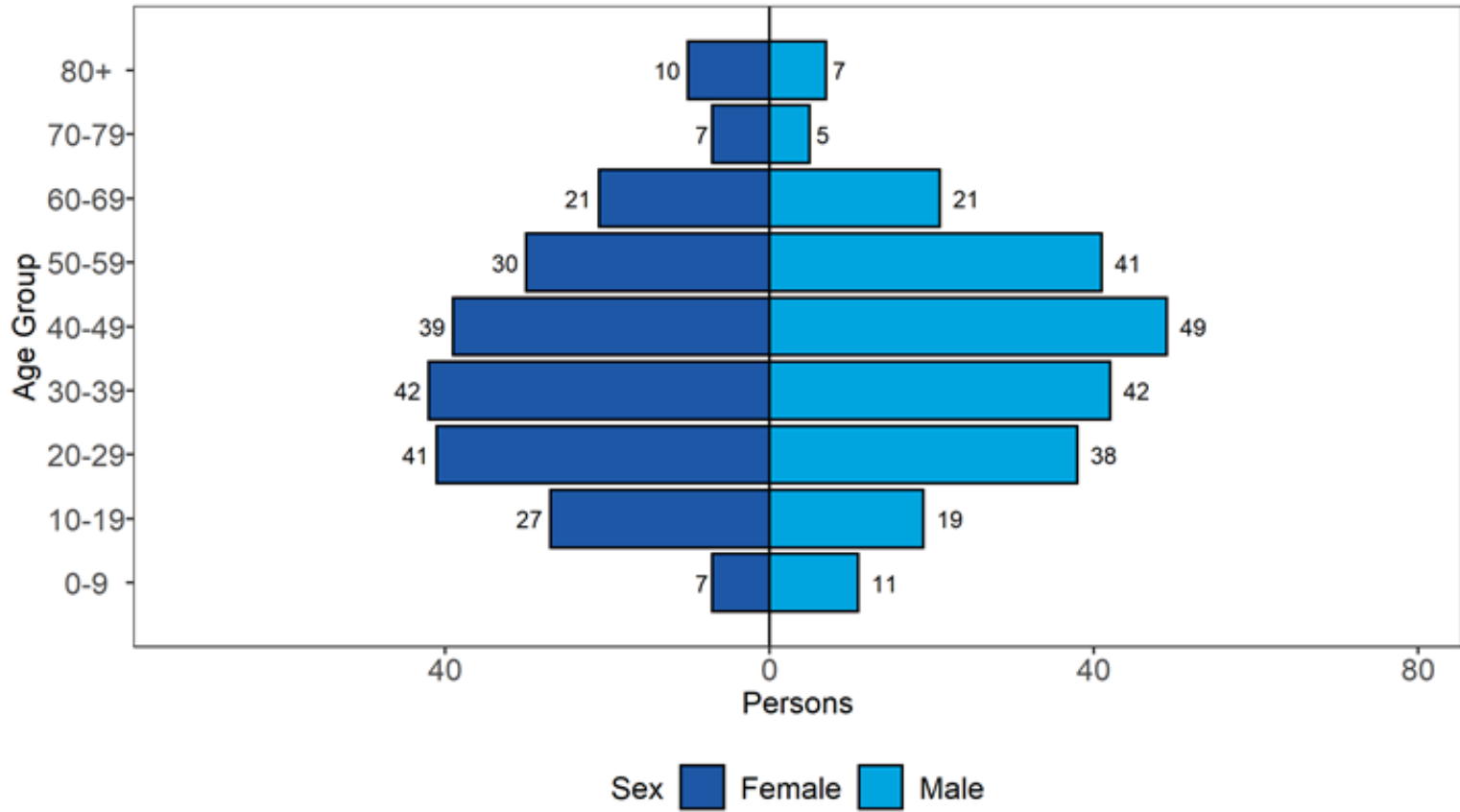
**Figure 10. Confirmed and provisional Eta cases by specimen date and region of residence as of 25 October 2021**

Larger plot includes last 60 days only. (Find accessible data used in this graph in [underlying data.](#))



**Figure 11. Age and sex pyramid of Eta cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



4 cases excluded where sex or age not reported

## VUI-21FEB-04 (B.1.1.318)

B.1.1.318 was identified in England in mid-February 2021 through routine horizon scanning for the development of new clusters of genomes containing E484K. This analysis identified an initial cluster of 6 cases containing E484K and other spike mutations, designated VUI-21FEB-04 (B.1.1.318) on 23 February 2021.

### International epidemiology

GISAID includes data on sequences available internationally. As of 26 October 2021, 360 international VUI-21FEB-04 sequences from 30 countries, excluding the UK have been identified on GISAID.

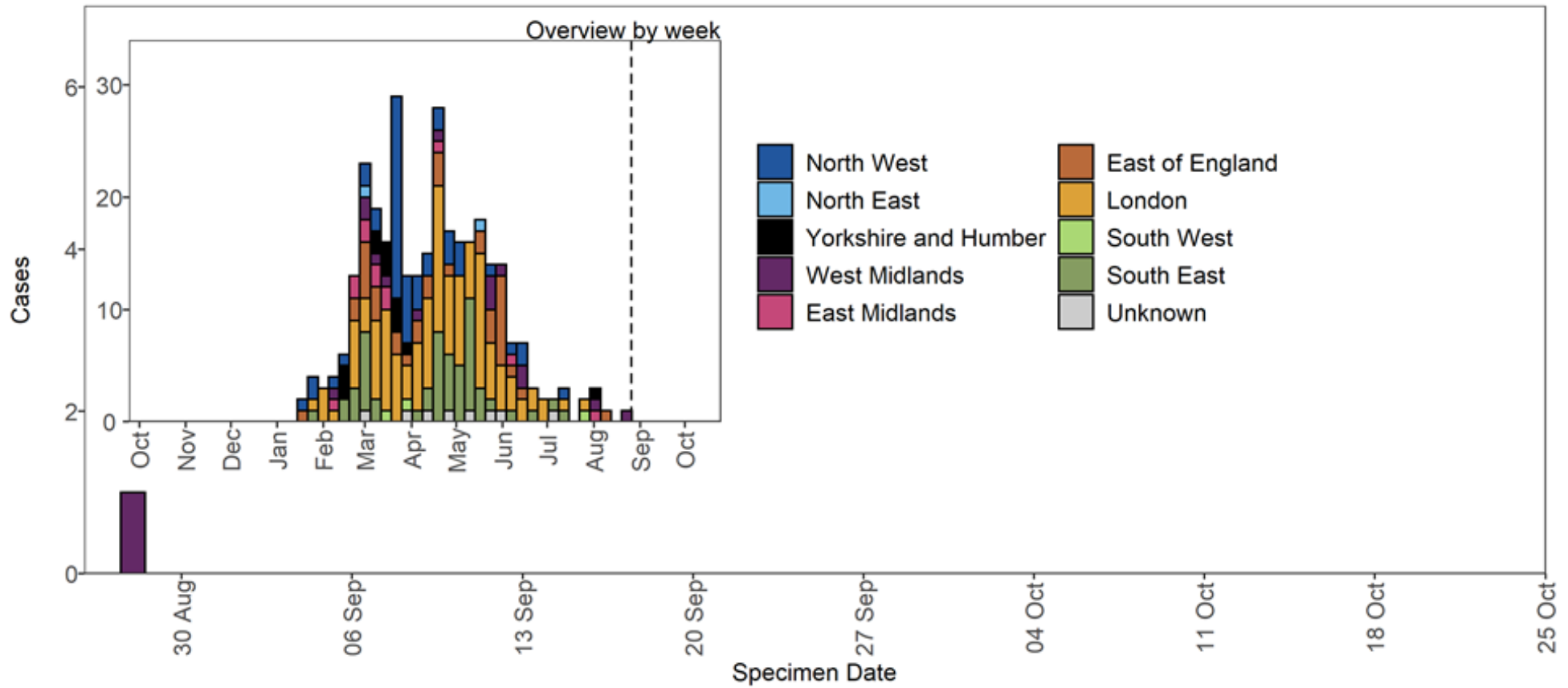
### Epidemiology

**Table 7. Number of confirmed and provisional VUI-21FEB-04 (B.1.1.318) cases, by region of residence as of 25 October 2021**

Region	Total case number	Case proportion
East Midlands	12	3.8%
East of England	38	12.1%
London	118	37.5%
North East	2	0.6%
North West	51	16.2%
South East	54	17.1%
South West	3	1.0%
West Midlands	15	4.8%
Yorkshire and Humber	13	4.1%
Unknown region	9	2.9%
Total	315	-

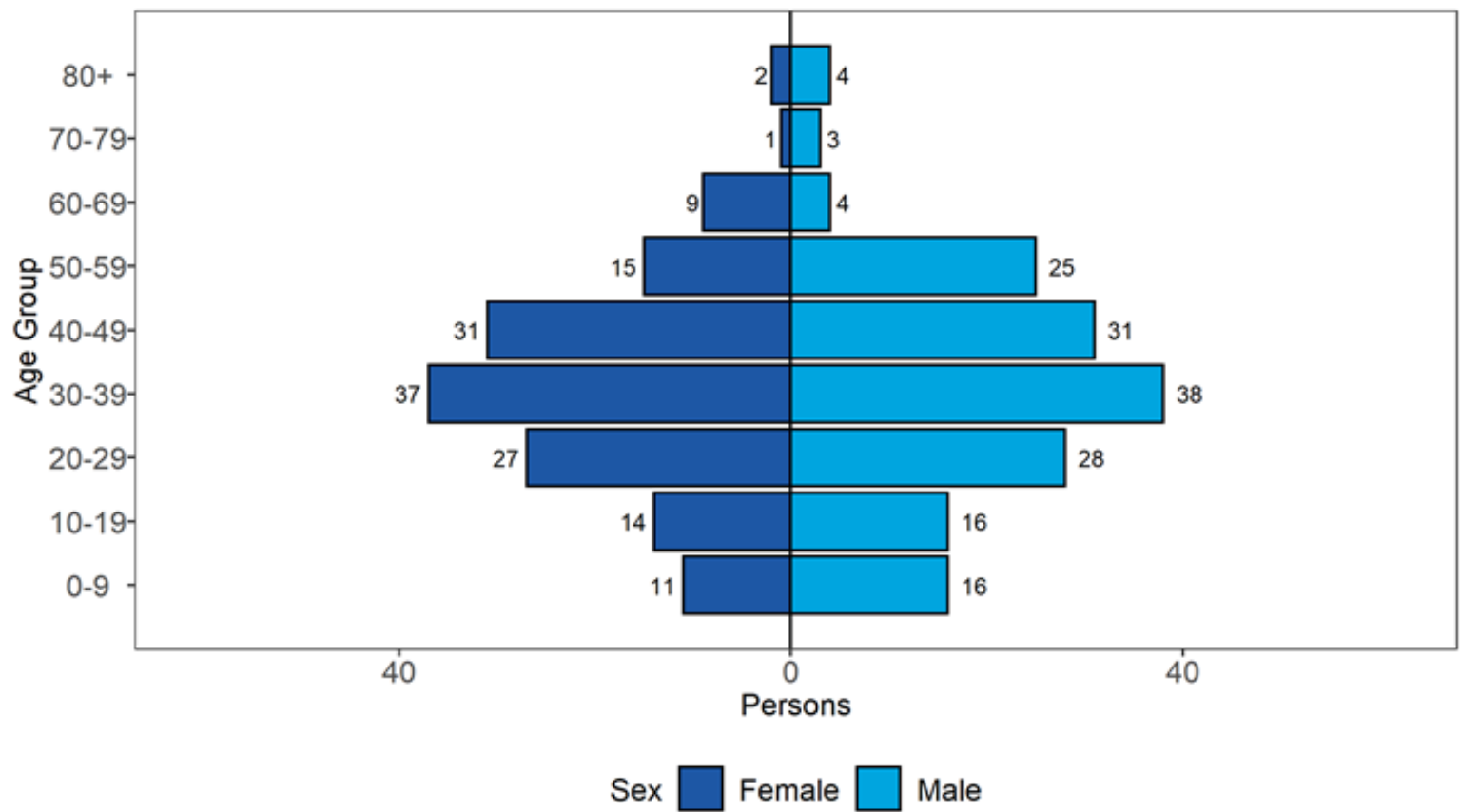
**Figure 12. Confirmed and provisional VUI-21FEB-04 cases by specimen date and region of residence as of 25 October 2021**

Larger plot includes last 60 days only. (Find accessible data used in this graph in [underlying data](#).)



**Figure 13. Age and sex pyramid of VUI-21FEB-04 cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



3 cases excluded where sex or age not reported

## VUI-21MAY-02 (C.36.3)

C.36.3 was designated a variant under investigation on 24 May 2021 (VUI-21MAY-02) based on its mutation profile and increased importation from a widening international area.

### International epidemiology

GISAID includes data on sequences available internationally. Excluding the UK, as of 26 October 2021, 1,872 sequences of VUI-21MAY-02 from 55 countries, excluding the UK have been on GISAID.

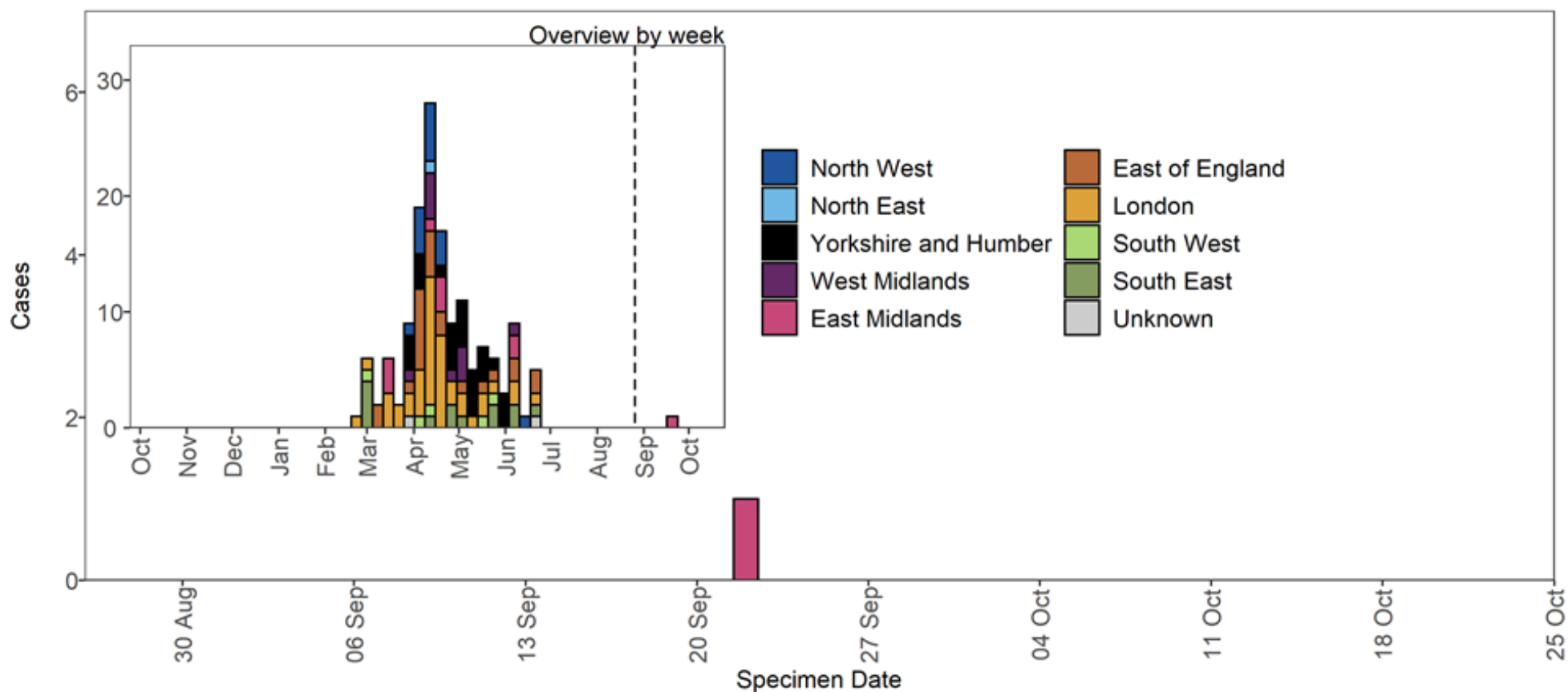
### Epidemiology

**Table 8. Number of confirmed and provisional VUI-21MAY-02 cases, by region of residence as of 25 October 2021**

Region	Total case number	Case proportion
East Midlands	10	6.8%
East of England	23	15.5%
London	43	29.1%
North East	1	0.7%
North West	14	9.5%
South East	13	8.8%
South West	5	3.4%
West Midlands	10	6.8%
Yorkshire and Humber	26	17.6%
Unknown region	3	2.0%
Total	148	-

**Figure 14. Confirmed and provisional VUI-21MAY-02 cases by specimen date and region of residence as of 25 October 2021. Larger plot includes last 60 days only.**

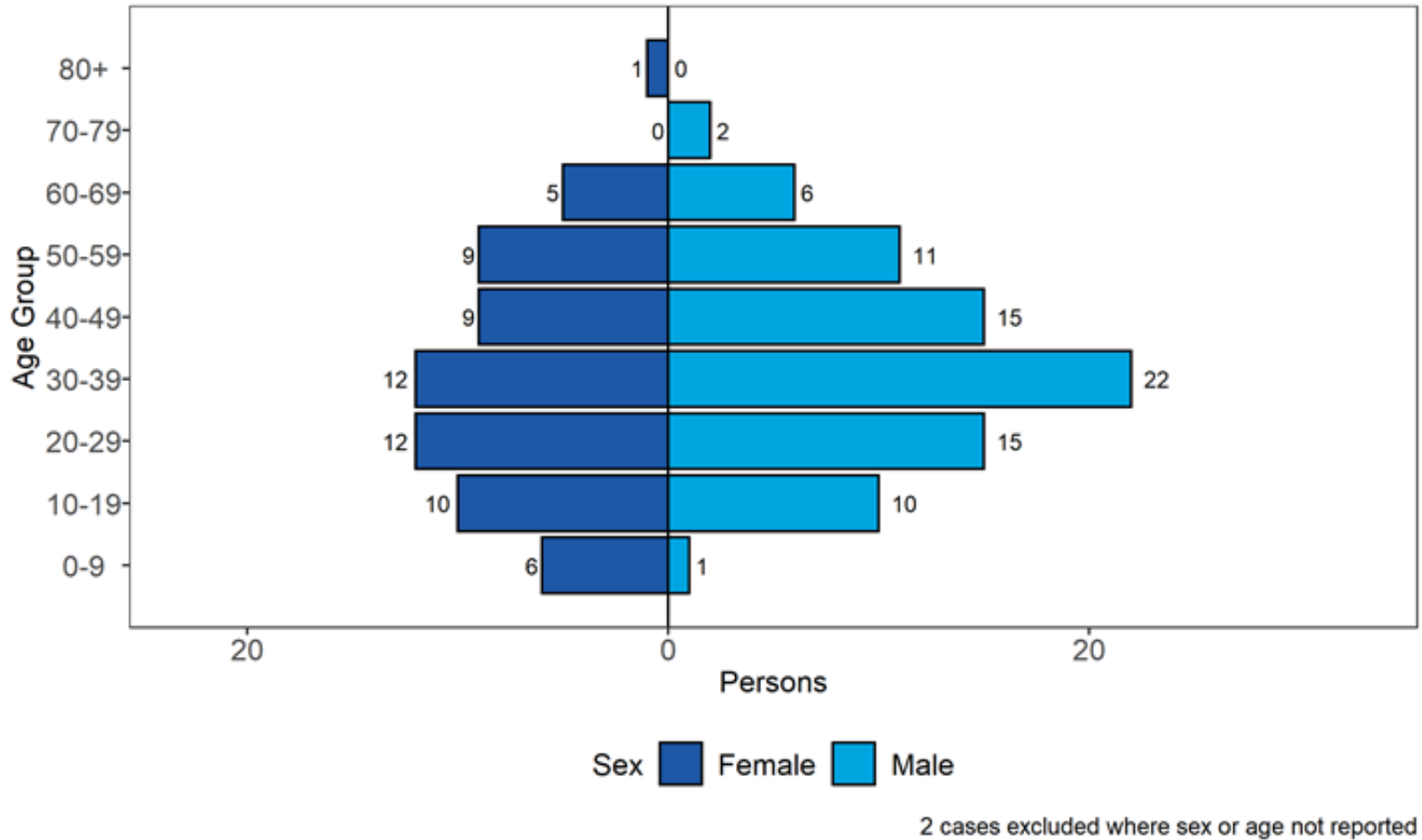
(Find accessible data used in this graph in [underlying data.](#))





**Figure 15. Age and sex pyramid of VUI-21MAY-02 cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



## Mu (B.1.621)

VUI-21JUL-01 was identified through international variant horizon scanning and was made a signal in monitoring by PHE on 7 June 2021 (lineage B.1.621 at the time). On 21 July 2021, PHE designated lineage B.1.621 as a new variant under investigation, VUI-21JUL-01, based on apparent spread into multiple countries, importation to the UK and mutations of concern. B.1.621 was designated as Mu by WHO on the 30 August 2021.

### International epidemiology

As of 26 October 2021, 11,737 Mu sequences from 53 countries, excluding the UK have been on GISAID.

### Epidemiology

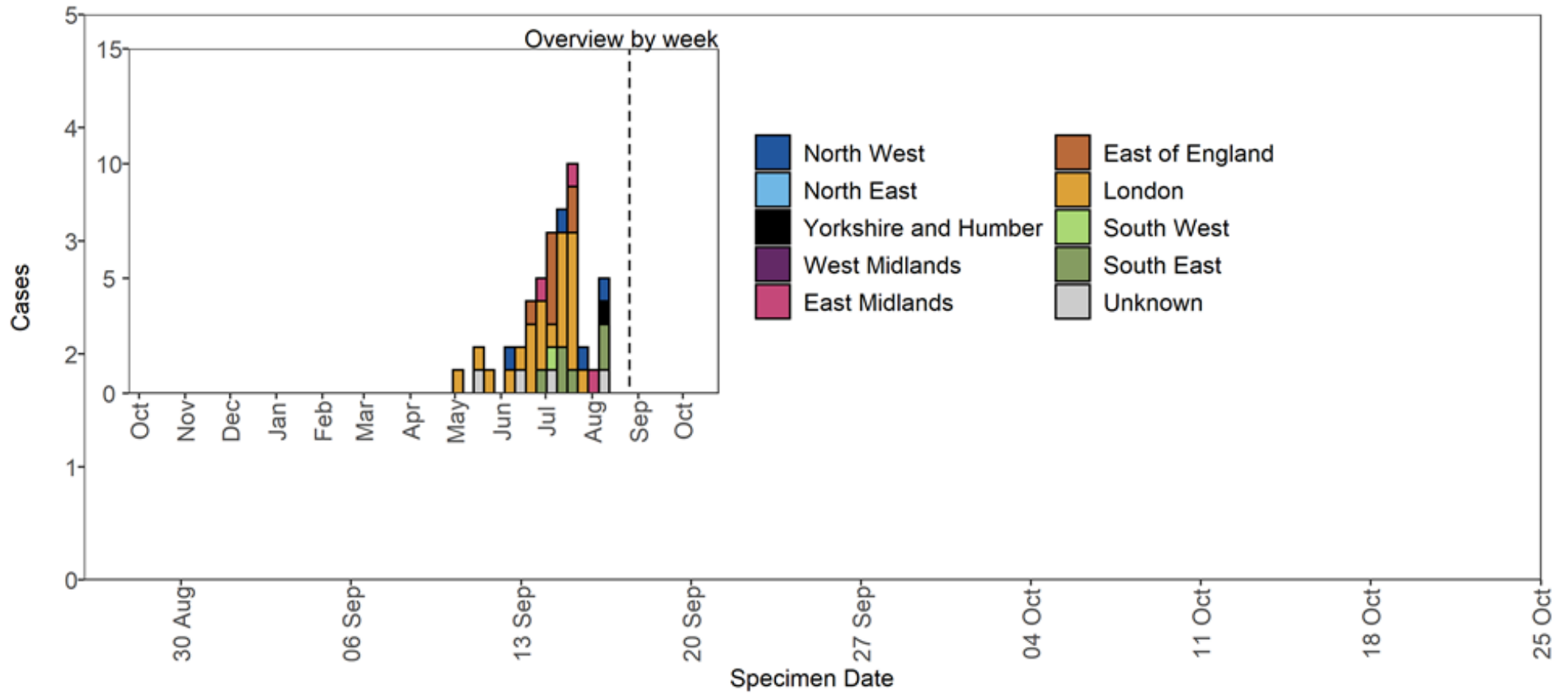
**Table 9. Confirmed and provisional Mu cases in England by region as of 25 October 2021**

Region	Total case number*	Case proportion
East Midlands	3	6.0%
East of England	7	14.0%
London	24	48.0%
North East	0	0.0%
North West	4	8.0%
South East	6	12.0%
South West	1	2.0%
West Midlands	0	0.0%
Yorkshire and Humber	1	2.0%
Unknown region	4	8.0%
Total	50	-

\* Excludes 12 genotyped cases that cannot be definitely identified as either Beta or Mu.

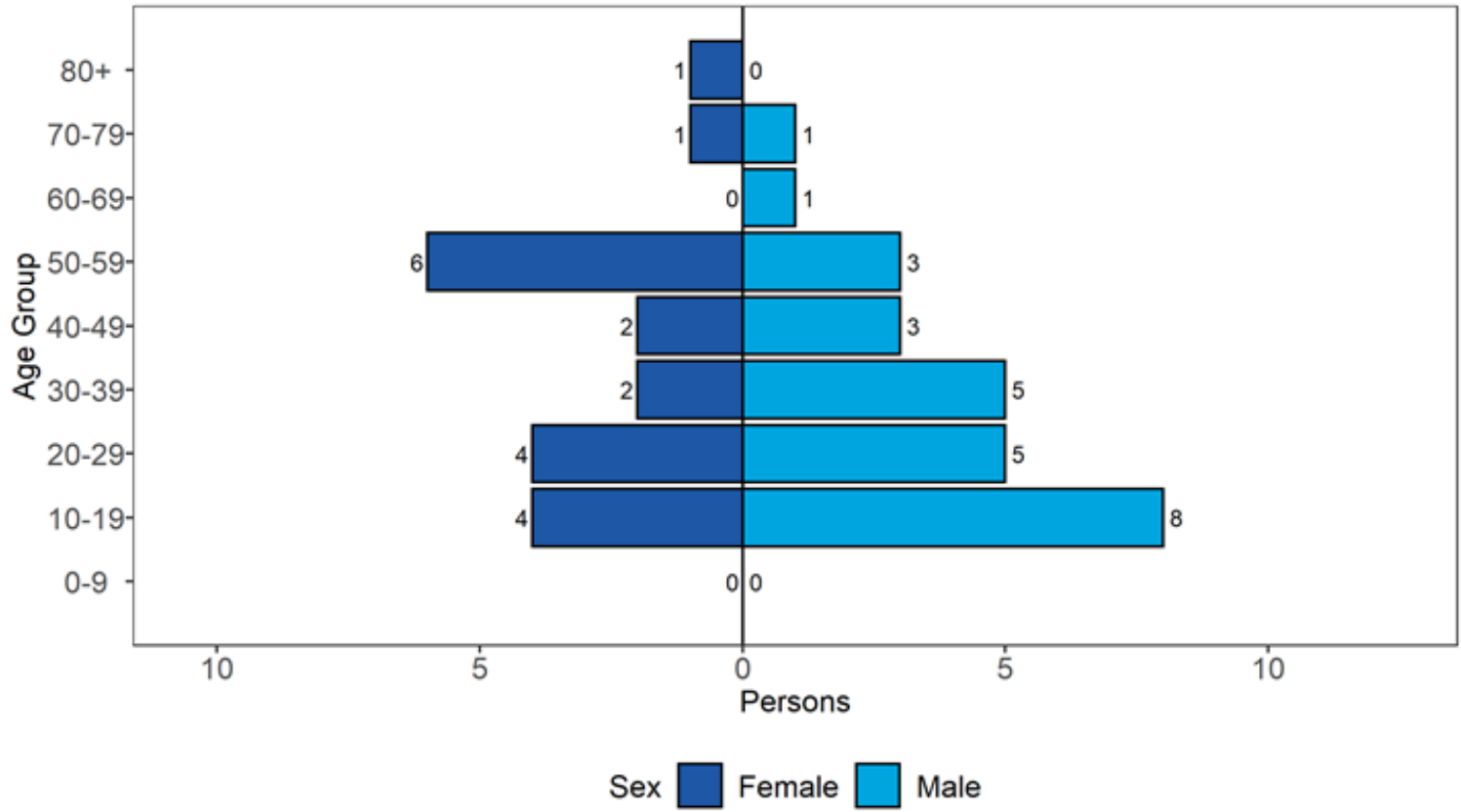
**Figure 16. Cases of Mu in England by region as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



**Figure 17. Age and sex pyramid of Mu cases as of 25 October 2021**

(Find accessible data used in this graph in [underlying data](#).)



4 cases excluded where sex or age not reported

# Sources and acknowledgments

## Data sources

Data used in this investigation is derived from the COG-UK data set, the UKHSA Second Generation Surveillance System (SGSS), NHS Test and Trace, the Secondary Uses Service (SUS) data set and Emergency Care Data Set (ECDS). Data on international cases are derived from reports in GISAID.

## Repository of human and machine-readable genomic case definitions

A repository containing the up-to-date genomic definitions for all VOC and VUI as curated by Public Health England (PHE) was created 5 March 2021. The repository can be accessed on GitHub. They are provided to facilitate standardised VOC and VUI calling across sequencing sites and bioinformatics pipelines and are the same definitions used internally at UKHSA (formerly PHE). Definition files are provided in YAML format so are compatible with a range of computational platforms. The repository will be regularly updated. The genomic and biological profiles of VOC and VUI are also detailed on first description in prior technical briefings.

## Variant Technical Group

### Authors of this report

UKHSA Genomics Cell  
UKHSA Outbreak Surveillance Team  
UKHSA Epidemiology Cell  
UKHSA Contact Tracing Cell Data Team  
UKHSA International Cell

### Variant Technical Group membership

The UKHSA Variant Technical Group includes representation from the following organisations: UKHSA, DHSC, BEIS, Public Health Wales, Public Health Scotland, Public Health Agency Northern Ireland, Imperial College London, London School of Hygiene and Tropical Medicine, University of Birmingham, University of Cambridge, University of Edinburgh, University of Liverpool, the Wellcome Sanger Institute.

### Acknowledgements

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# About the UK Health Security Agency

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