



This report summarises the information from the surveillance systems which are used to monitor the Coronavirus Disease 2019 (COVID-19) pandemic in England. More information on the surveillance systems are available [here](#).

The report is based on week 23 (data between 01 June and 07 June 2020) and where available daily data up to 10 June 2020. References to COVID-19 represent the disease name and SARS-CoV-2 represent the virus name.

## Summary

Nationally, detections of COVID-19 cases continued to decline across all age groups and regions during week 23. Hospitalisation and ICU/HDU admission rates as well as COVID-19 deaths also continued to decline slowly. Week 23 is the first week, since week 12, during which there has been no significant overall excess all-cause mortality.

Activity remains highest in the North and Midlands.

While care home outbreaks have continued to decline, there has been an increase in hospital and 'other settings' outbreaks. There have also been small increases in some community and syndromic indicators, including google search queries, reports of fever or cough through FluSurvey, GP Out Of Hours (GPOOH) contacts for difficulty breathing, wheeze or asthma and emergency department attendances for COVID-19-like diagnoses. The increases are small and these indicators are not specific for COVID-19, however, they tend to be early indicators of changes in activity.

There was a notable increase in primary care sentinel swab positivity, however, this is based on small numbers and all positive cases were from a single care home, therefore this is not reflective of activity in the wider community.

Seroprevalence remains highest in London, where prevalence was 15.4% in week 21. New data from week 22 indicate prevalence of 3.7% in the South East and 4.2% in the East of England.

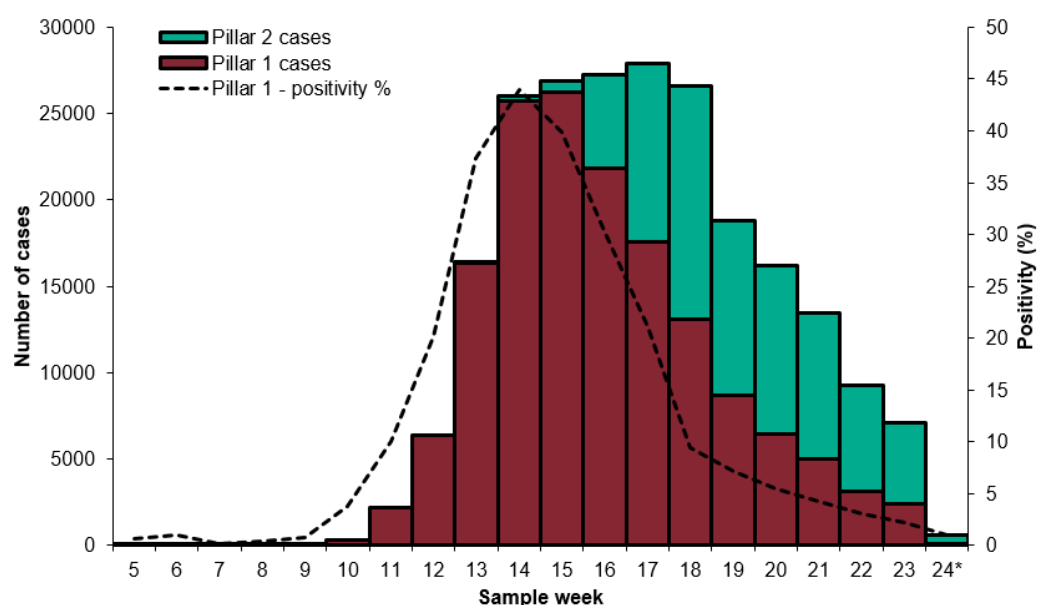
As of 09:00 on 10 June 2020, a total of 1,126,944 people have been tested under Pillar 1, of which 225,554 have been confirmed positive for COVID-19 in England under Pillar 1 and 2.

Figures 1 to 4, 6 and 8 to 10 and Tables 1 and 2 reflect cases tested under Pillar 1 (primarily in hospital testing of patients and some healthcare workers) and Pillar 2 (out of hospital testing)

Figures 5 and 7 reflect cases tested under Pillar 1 only.

Overall case numbers and positivity continue to decrease in week 23. The highest number of cases continued to be seen in the older age groups, in particular in the 85+ age group. Rates and positivity of cases continue to be highest in the North of England.

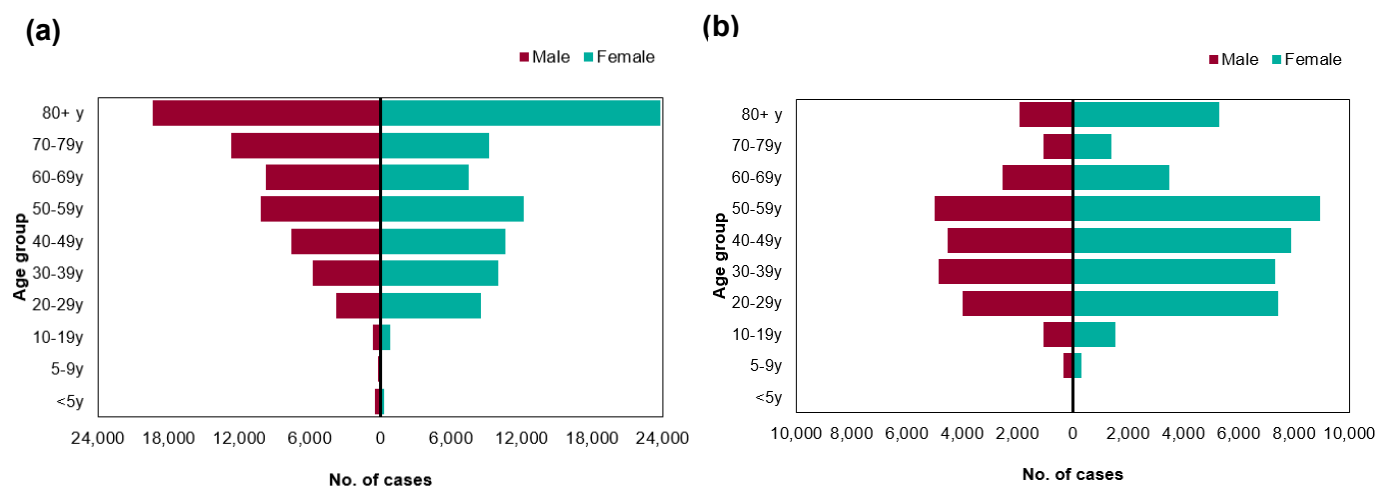
**Figure 1: Laboratory confirmed COVID-19 cases tested under Pillar 1 (n=153,376) and Pillar 2 (n=69,840), based on sample week with overall positivity for Pillar 1 only (%)**



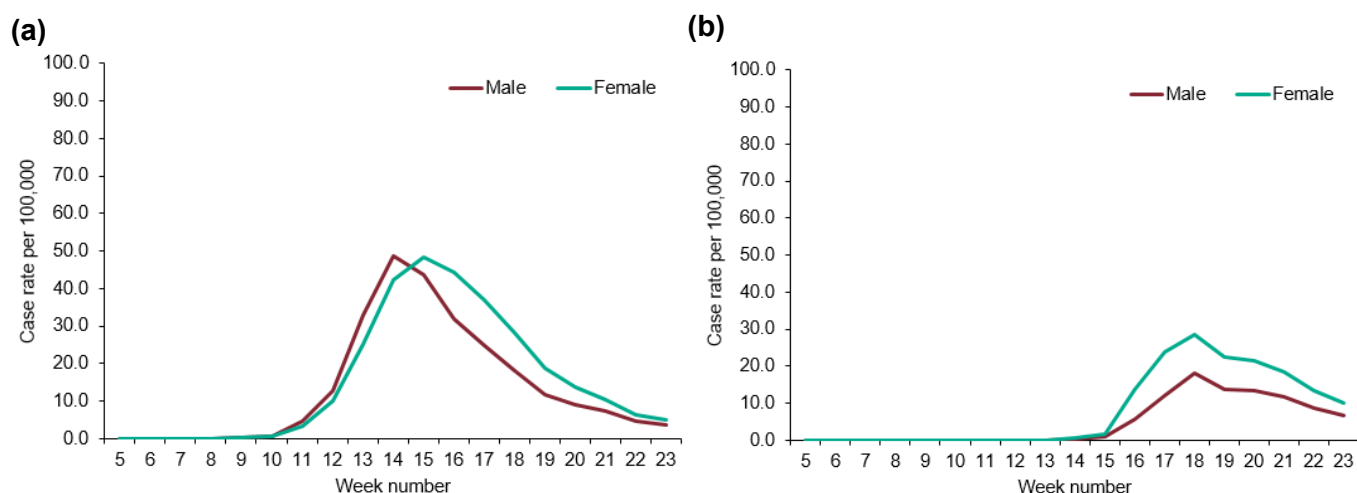
\* For the most recent week, more samples are expected therefore the decrease seen in this graph should be interpreted with caution. The data are shown by the week the specimen was taken from the person being tested. This gives the most accurate analysis of this time progression, but it does mean that the latest days' figures may be incomplete.

## Age and gender

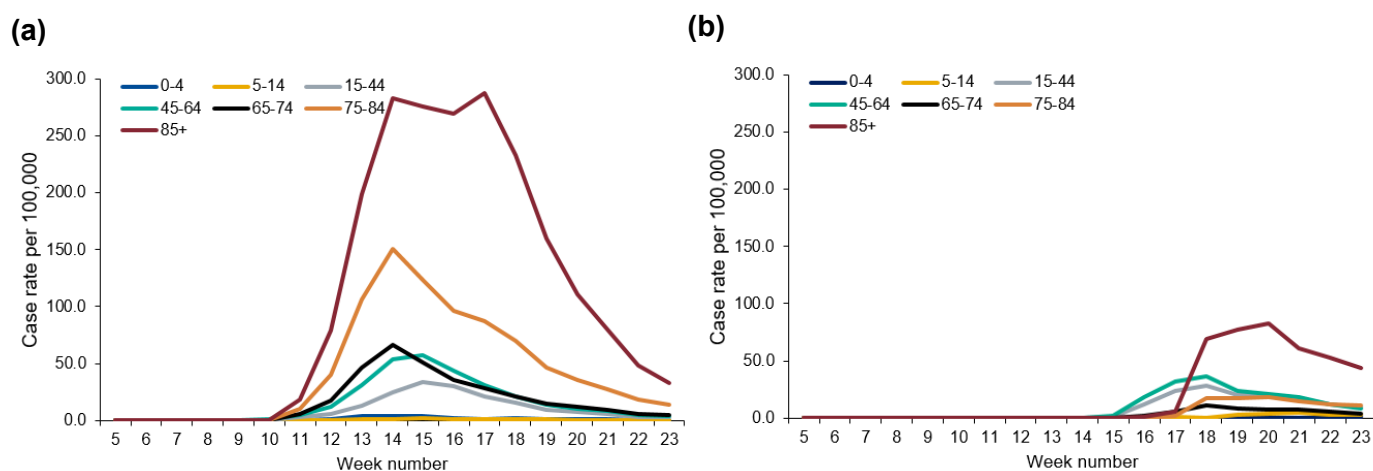
**Figure 2: Age/sex pyramids for laboratory confirmed COVID-19 cases tested through (a) Pillar 1 (n=153,466) and (b) Pillar 2 (n=68,979)**



**Figure 3: Weekly laboratory confirmed COVID-19 case rates per 100,000, tested under (a) Pillar 1 and (b) Pillar 2, by gender**

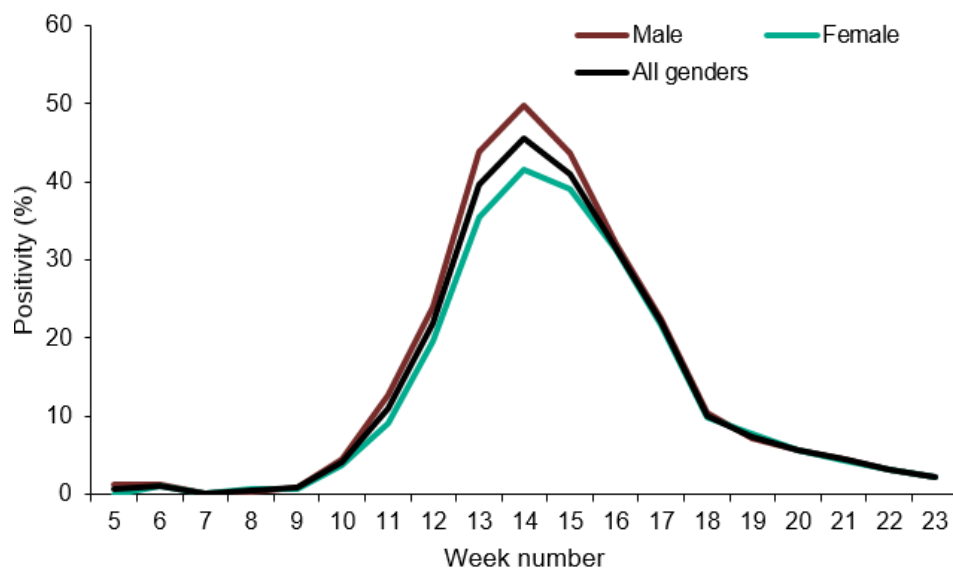


**Figure 4: Weekly laboratory confirmed COVID-19 case rates per 100,000, tested under (a) Pillar 1 and (b) Pillar 2, by age group**

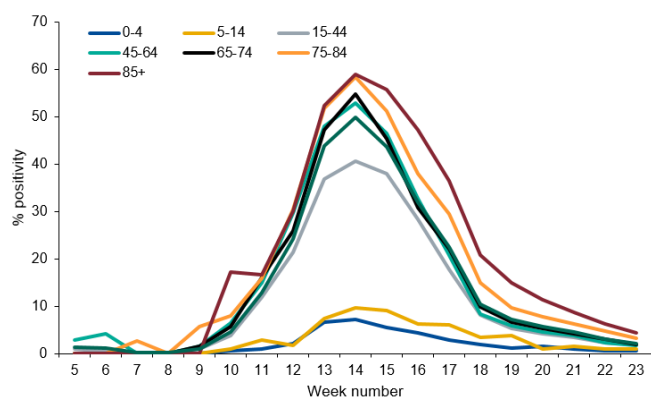


**Figure 5: Weekly positivity (%) of laboratory confirmed COVID-19 cases tested under Pillar 1, (a) overall and by gender and (b) by male and age group (c) by female and age group (SGSS and Respiratory DataMart)**

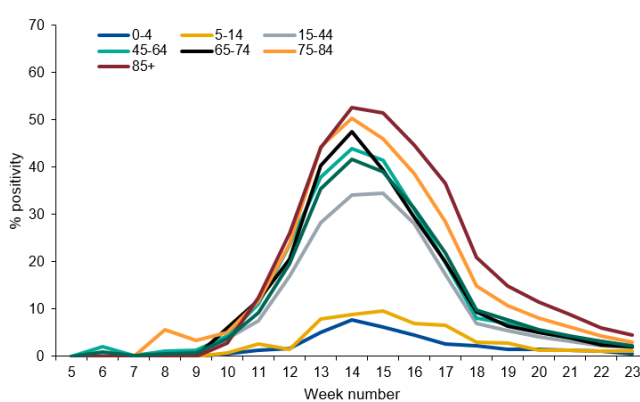
**(a) Overall positivity % and by gender**



**(b) Male**



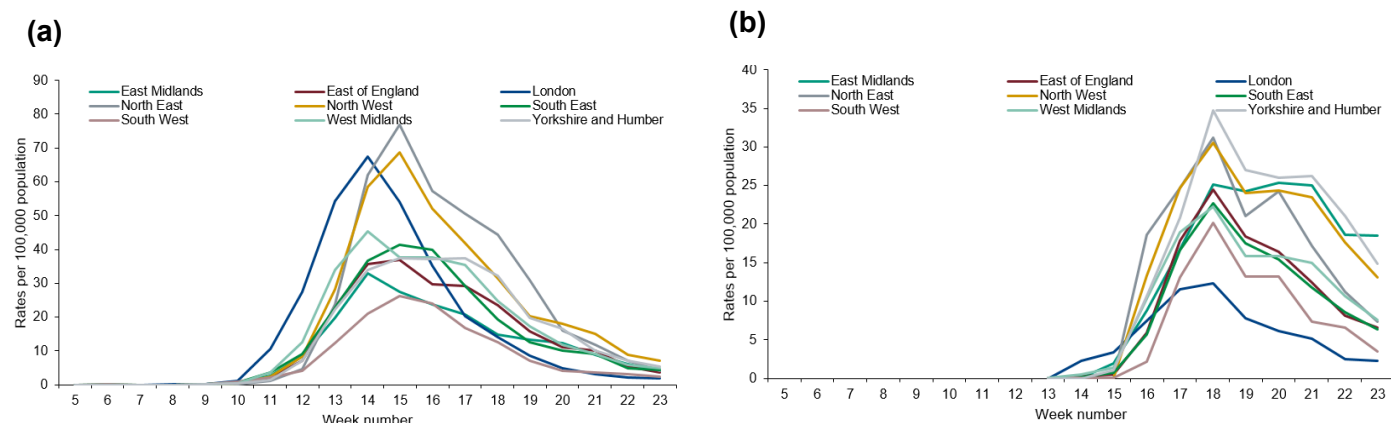
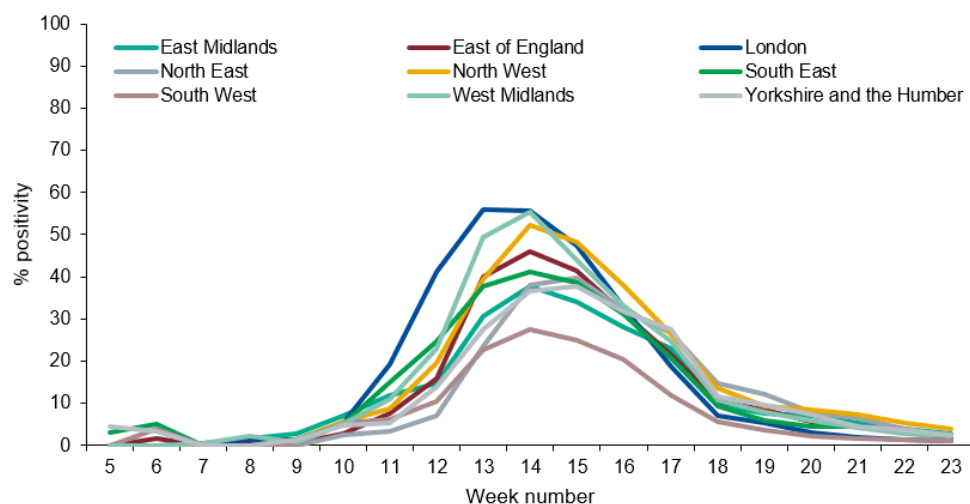
**(c) Female**



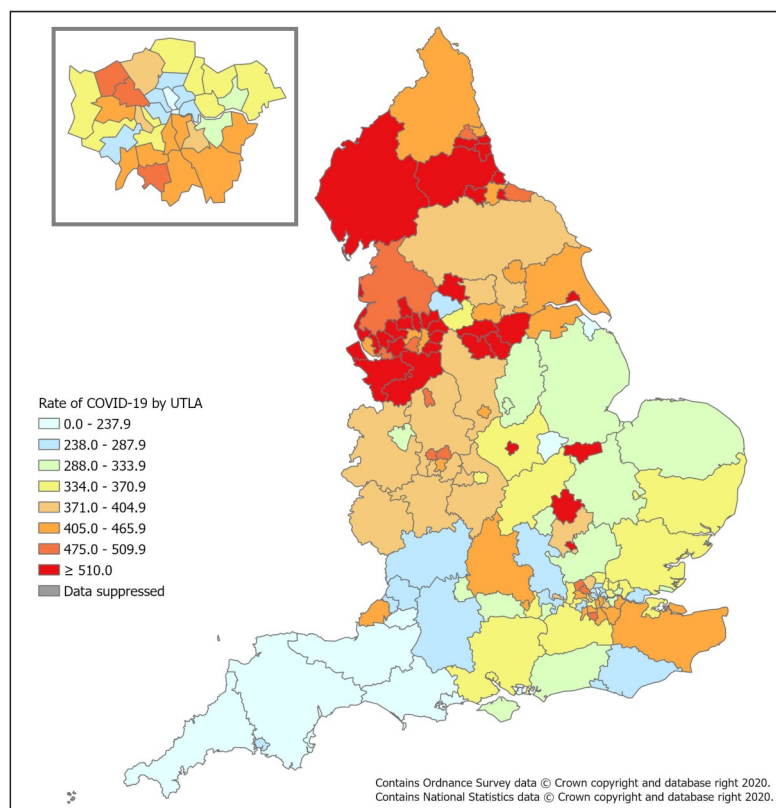
## PHE Centres and upper-tier local authority (UTLA)

**Table 1: Cumulative number of cases under Pillar 1 (n=149,291) and Pillar 2 (n=68,330) and total number of people tested under Pillar 1 (n=1,023,769) by PHE Centres**

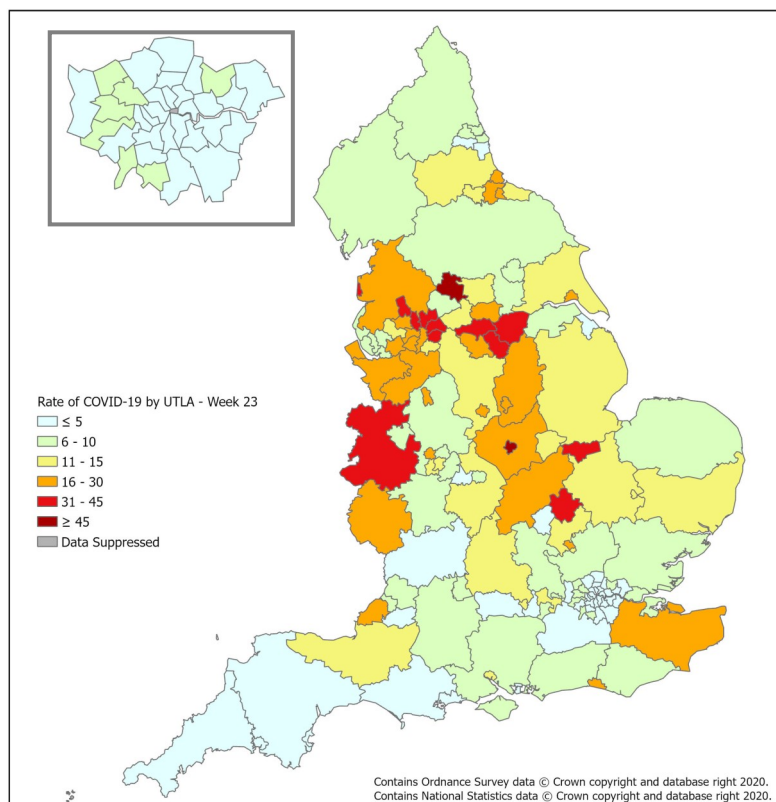
| PHE Centres        | Pillar 1 cases | Pillar 2 cases | Total number of people tested (under Pillar 1 only) |
|--------------------|----------------|----------------|---|
| North East         | 10,400         | 4,146          | 59,743  |
| North West         | 26,347         | 12,547         | 141,158   |
| Yorkshire & Humber | 14,751         | 10,094         | 107,712   |
| West Midlands      | 16,557         | 7,034          | 111,256   |
| East Midlands      | 9,448          | 8,007          | 71,227  |
| East of England    | 15,113         | 7,243          | 114,285   |
| London             | 27,209         | 5,424          | 153,886   |
| South East         | 21,613         | 9,387          | 159,635   |
| South West         | 7,853          | 4,448          | 104,867   |

**Figure 6: Weekly laboratory confirmed COVID-19 case rates per 100,000 population tested under (a) Pillar 1 and (b) Pillar 2, by PHE Centres and sample week****Figure 7: Weekly positivity of laboratory confirmed COVID-19 cases tested under Pillar 1 (%) by PHE Centres and sample week, (SGSS and Respiratory DataMart)**

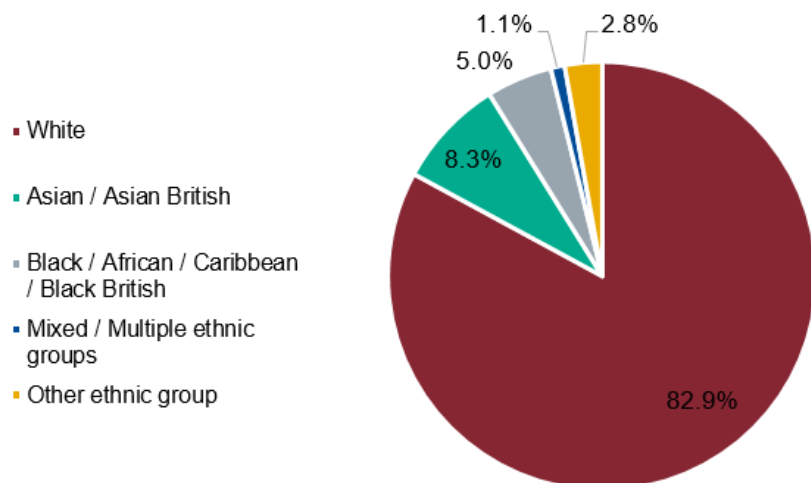
**Figure 8: Cumulative rate of COVID-19 cases per 100,000 population tested under Pillar 1 and 2, by upper-tier local authority, England (box shows enlarged maps of London area)**



**Figure 9: Weekly rate of COVID-19 cases per 100,000 population tested under Pillar 1 and 2, by upper-tier local authority, England (box shows enlarged maps of London area)**



## Ethnicity

**Figure 10: Ethnic group of cumulative laboratory confirmed COVID-19 cases tested under Pillar 1 and 2 (n=189,768)****Table 2: Number of cases tested under Pillar 1 and 2, and percentage (%) by ethnic group and week**

| Ethnic group                                | Week - number (%) |               |               |               |
|---|-------------------|---------------|---------------|---------------|
|   | 20                | 21            | 22            | 23            |
| White                                       | 10,226 (86.0%)    | 8,481 (85.2%) | 5,662 (82.8%) | 4,020 (78.0%) |
| Asian / Asian British                       | 931 (7.8%)        | 836 (8.4%)    | 775 (11.4%)   | 774 (15.0%)   |
| Black / African / Caribbean / Black British | 374 (3.1%)        | 292 (2.9%)    | 183 (2.7%)    | 151 (2.9%)    |
| Mixed / Multiple ethnic groups              | 126 (1.1%)        | 114 (1.1%)    | 78 (1.1%)     | 77 (1.5%)     |
| Other ethnic group                          | 235 (2.0%)        | 235 (2.4%)    | 135 (2.0%)    | 130 (2.5%)    |

This section summarises the monitoring of acute respiratory outbreaks and internet based surveillance systems for COVID-19.

### Acute respiratory outbreaks, England

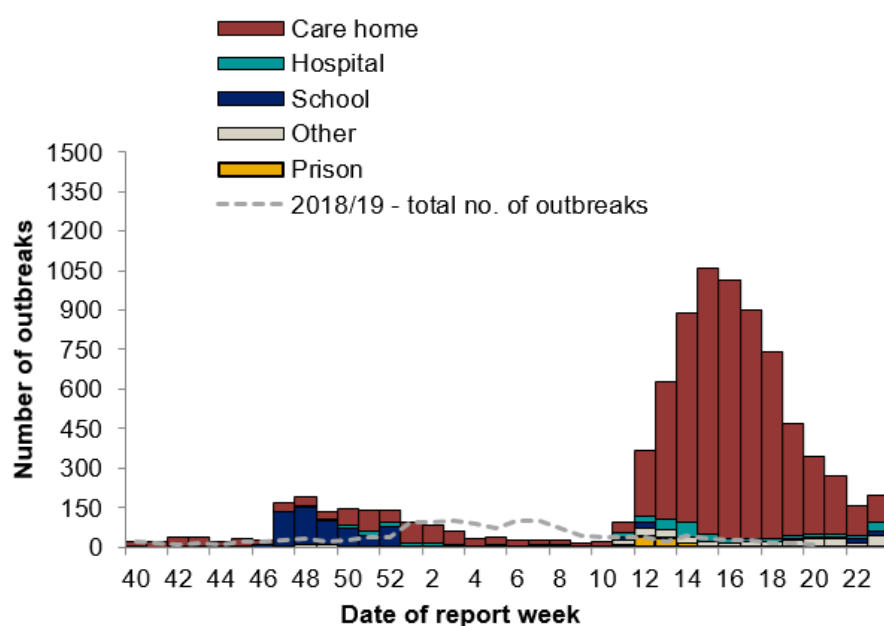
Information on acute respiratory outbreaks is collected by PHE's Health Protection Teams (HPTs).

An outbreak is defined as two or more people experiencing a similar illness, which appears to be linked to a particular setting.

197 new acute respiratory outbreaks have been reported in week 23 (Figure 11):

- 102 outbreaks were from care homes where 68 tested positive for SARS-CoV-2
- 37 outbreaks were from hospitals where 31 tested positive for SARS-CoV-2
- 14 outbreaks were from schools where 9 tested positive for SARS-CoV-2
- 3 outbreaks were from prisons where 2 tested positive for SARS-CoV-2
- 41 outbreaks were from the Other Settings category where 27 tested positive for SARS-CoV-2

**Figure 11: Number of acute respiratory outbreaks by institution, England**





## NHS 111

The [NHS 111 service](#) monitors daily trends in phone calls made to the service in England, to capture trends in infectious diseases such as influenza and norovirus.

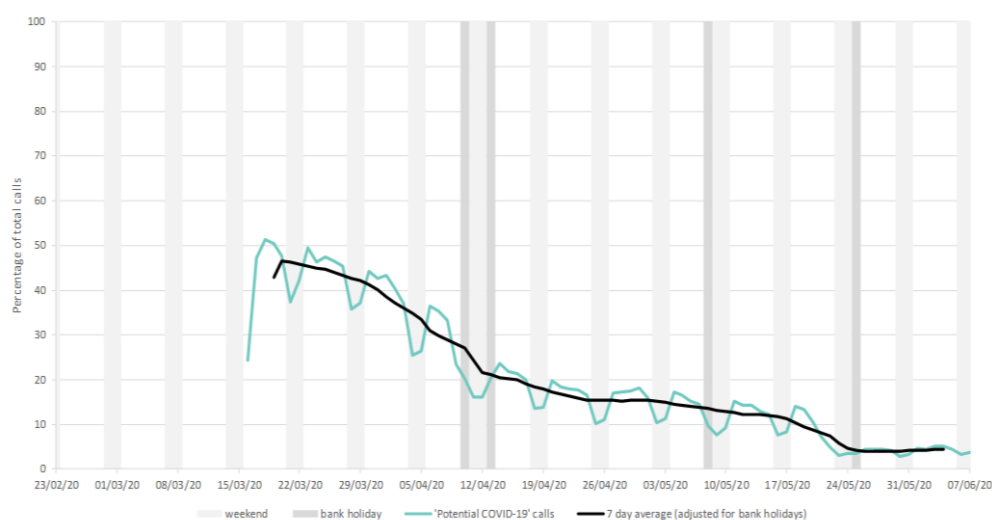
Up to 07 June 2020, the daily percentage of NHS 111 'potential COVID-19-like calls (as a percentage of total NHS 111 calls) and the daily number of NHS 111 'potential COVID-19' completed online assessments remained stable (Figure 12).

All NHS 111 indicator trends should be interpreted with caution due to changes in triage pathways and national advice regarding access to health care services during the COVID-19 pandemic.

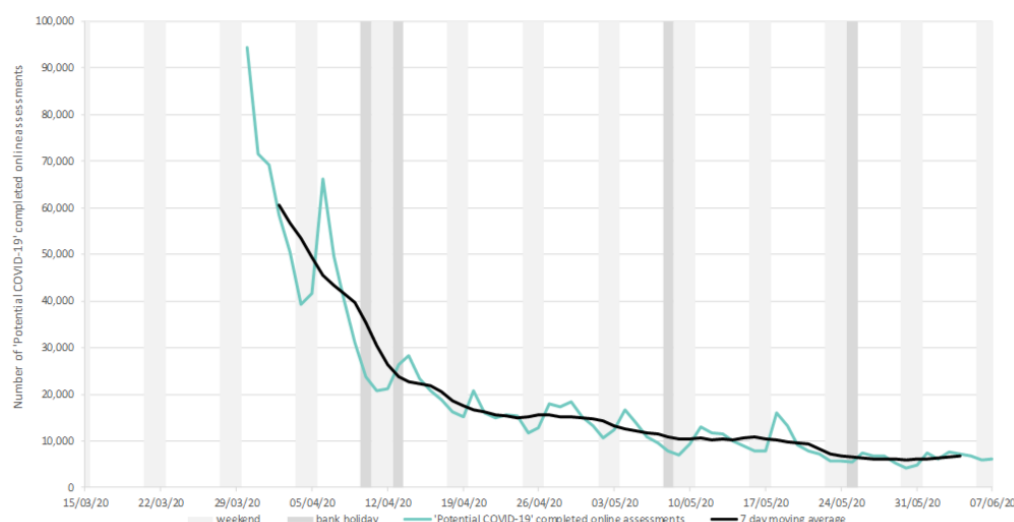
Further information about these caveats is available from the [PHE Remote Health Advice Syndromic Surveillance](#) bulletin.

### Figure 12 (a-b): NHS 111 telephony and online potential COVID-19 indicators, England

(a) Daily 'potential COVID-19' calls received through the NHS 111 telephony service as a percentage of total calls (and moving 7-day average), England



(b) Daily 'potential COVID-19' NHS 111 online assessments as the number of completed online assessments (and 7-day moving average), England



## Internet based surveillance

PHE's internet based surveillance systems aim to monitor the volume of people searching for typical symptoms of COVID-19 on the internet as well as tracking self-reported respiratory symptoms and health seeking behaviour patterns related to COVID-19.

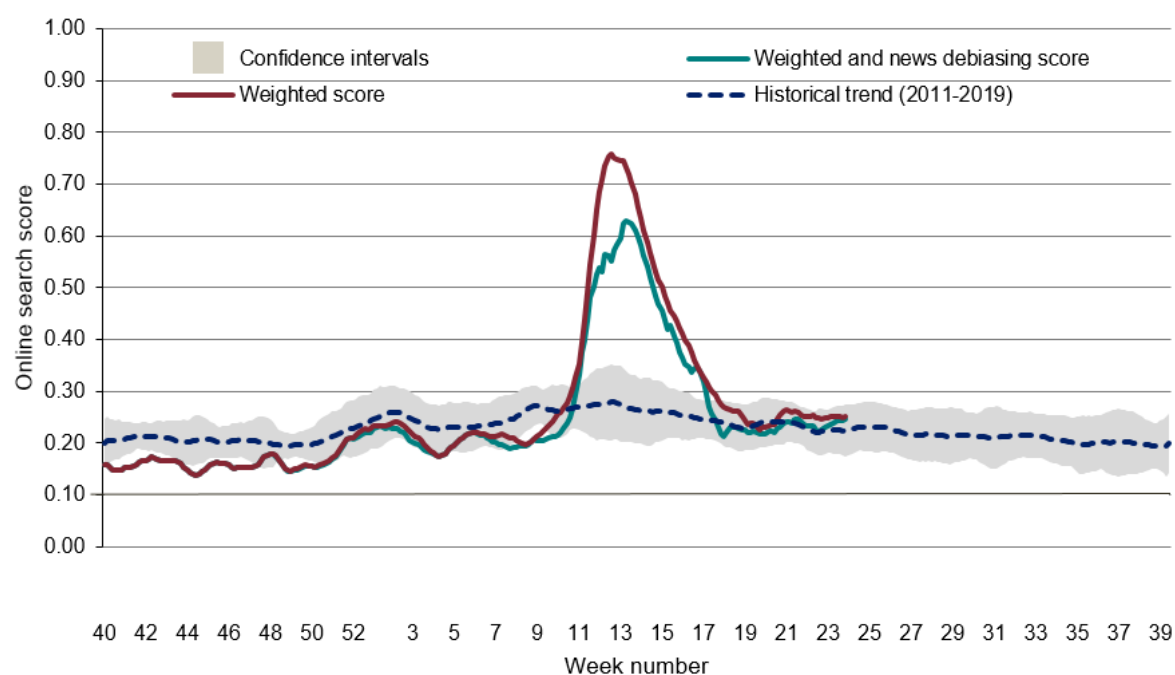
### Google search queries

This is a web-based syndromic surveillance system which uses daily search query frequency statistics obtained from the Google Health Trends API.[1] This model focuses on search queries about COVID-19 symptoms as well as generic queries about "coronavirus" (e.g. "covid-19"). The search query frequency time series has been weighted based on symptom frequency as reported in other data sources. Frequency of searches for symptoms is compared with a baseline calculated from historical daily data.

The overall and media-debiasing weighted scores increased slightly throughout week 23 (Figure 13).

[1] For more information about this model, please see <https://arxiv.org/abs/2003.08086>

**Figure 13: Normalised Google search score for COVID-19 symptoms, with weighted score for media-debiasing and historical trend, England**



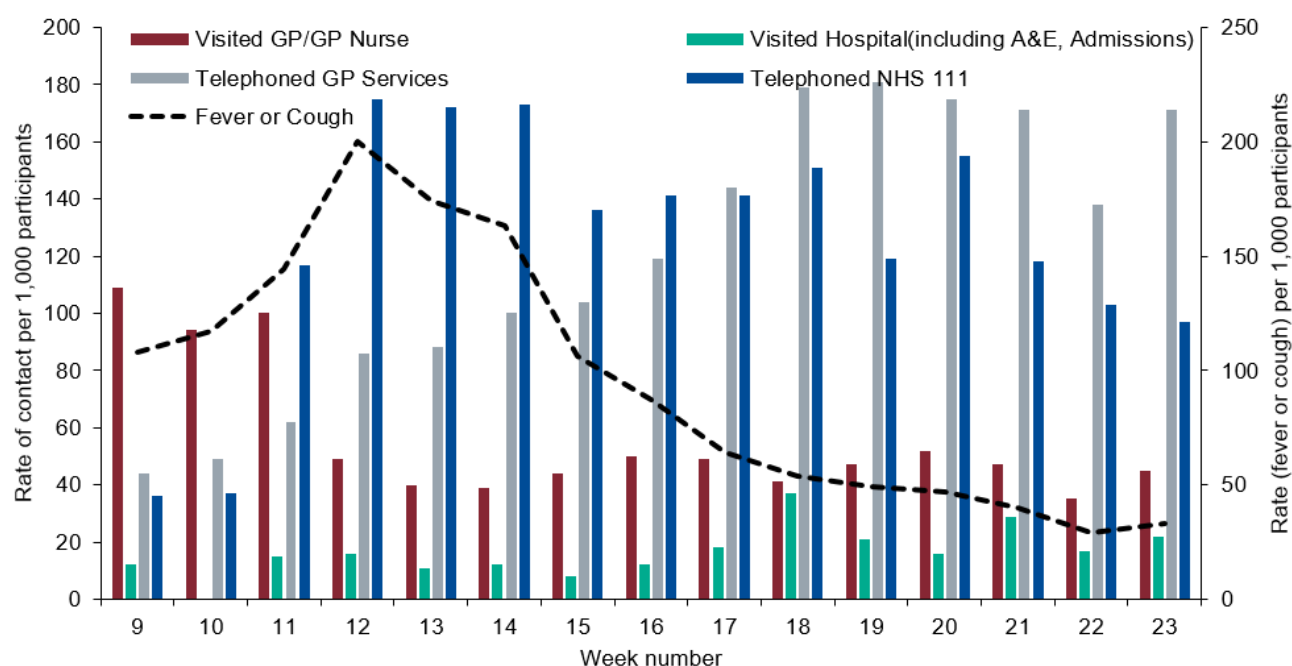
## Internet based surveillance

## FluSurvey

An internet based surveillance system has been developed based on FluSurvey. FluSurvey is a web tool survey designed to monitor trends of influenza like illness (ILI) in the community using self-reported respiratory symptoms from registered participants. The platform has been adapted to capture respiratory symptoms, exposure risk and healthcare seeking behaviours among registered participants to contribute to national surveillance of COVID-19 activity.

A total of 4,103 participants completed the weekly COVID-19 surveillance survey in week 23, of which 134 (3.3%) reported fever or cough, a slight increase from 2.9% reported in week 22. The most commonly reported method of access to healthcare services was through telephone services (Figure 14), which is in line with current government recommendations.

**Figure 14: Rate of contact with different healthcare services among FluSurvey participants reporting fever or cough symptoms, week 09 to 23, England**



## GP In Hours (GPIH) and GP Out of Hours (GPOOH), Syndromic surveillance

The [GP In Hours \(GPIH\) syndromic surveillance system](#) monitors the number of GP visits during regular hours of known clinical indicators. The [GP Out of Hours \(GPOOH\) syndromic surveillance system](#) monitors the numbers of daily unscheduled visits and calls to GPs during evenings, overnight, on weekends and on public holidays. Both systems cover around 55% of England's population.

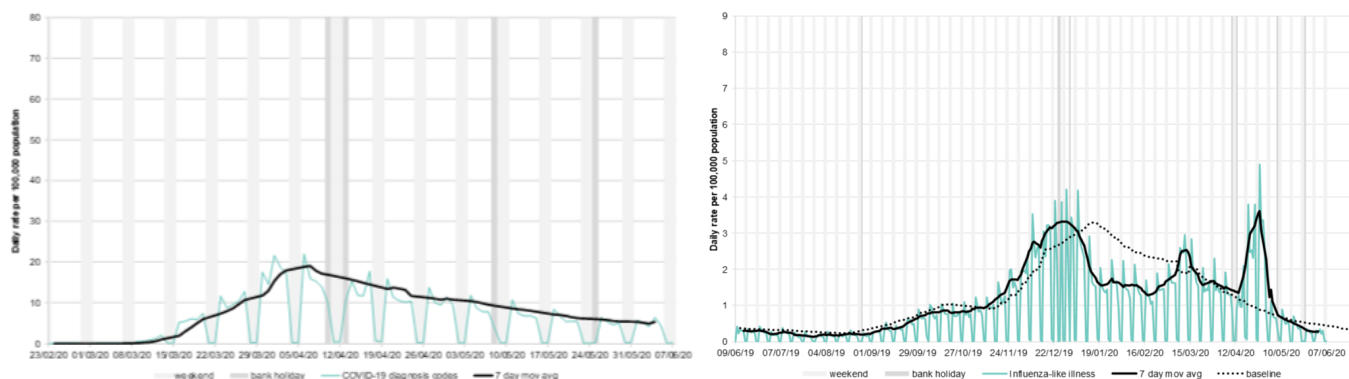
Up to 07 June 2020, GPIH consultations for potential COVID-19-like and ILI consultations remained stable (Figure 15). Through GPOOH consultations (up to 07 June 2020), the daily percentage (as a percentage of total contacts with a Read code) for ILI contacts decreased, while difficulty breathing/wheeze/asthma contacts increased (Figure 16).

Please note GP data should be interpreted with caution due to changes in advice regarding accessing GP surgeries due to COVID-19. Influenza-like-illness (ILI) rates are now approaching baseline levels after a recent change in the use of a new COVID-19 Care Pathway template which had affected recording of influenza-like illness from mid-April (Figure 12(a)). Further information about these caveats is available from the [PHE GP In Hours Syndromic Surveillance](#) bulletin.

**Figure 15 (a-b): GPIH clinical indicators, England**

(a) potential COVID-19 GP consultations, daily incidence rates per 100,000 population, all ages

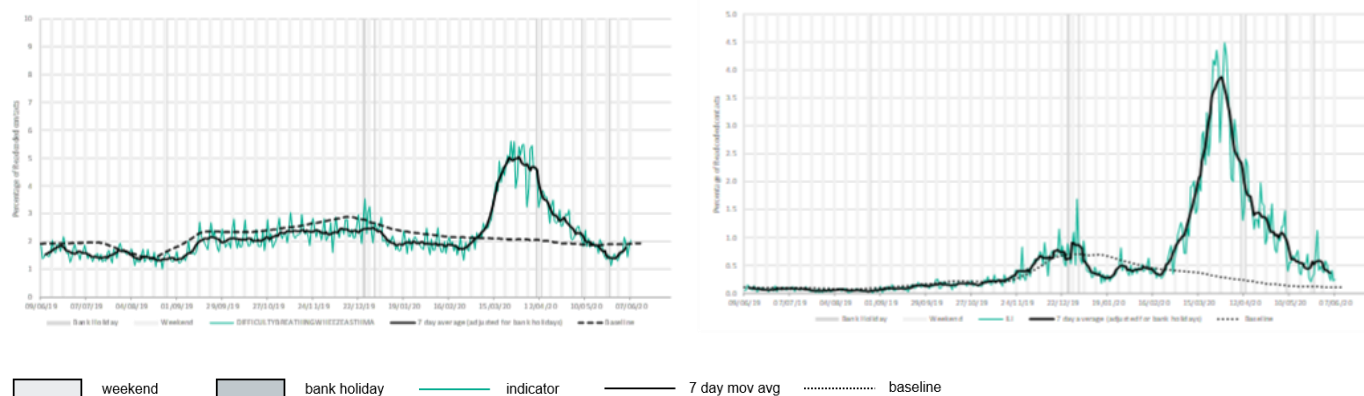
(b) Influenza-like illness consultations, daily incidence rates per 100,000 population, all ages



**Figure 16 (a-b) : GPOOH contacts indicators, England**

(a) Difficulty breathing/wheeze/asthma, daily contacts (%), all ages

(b) Influenza-like illness, daily contacts (%), all ages

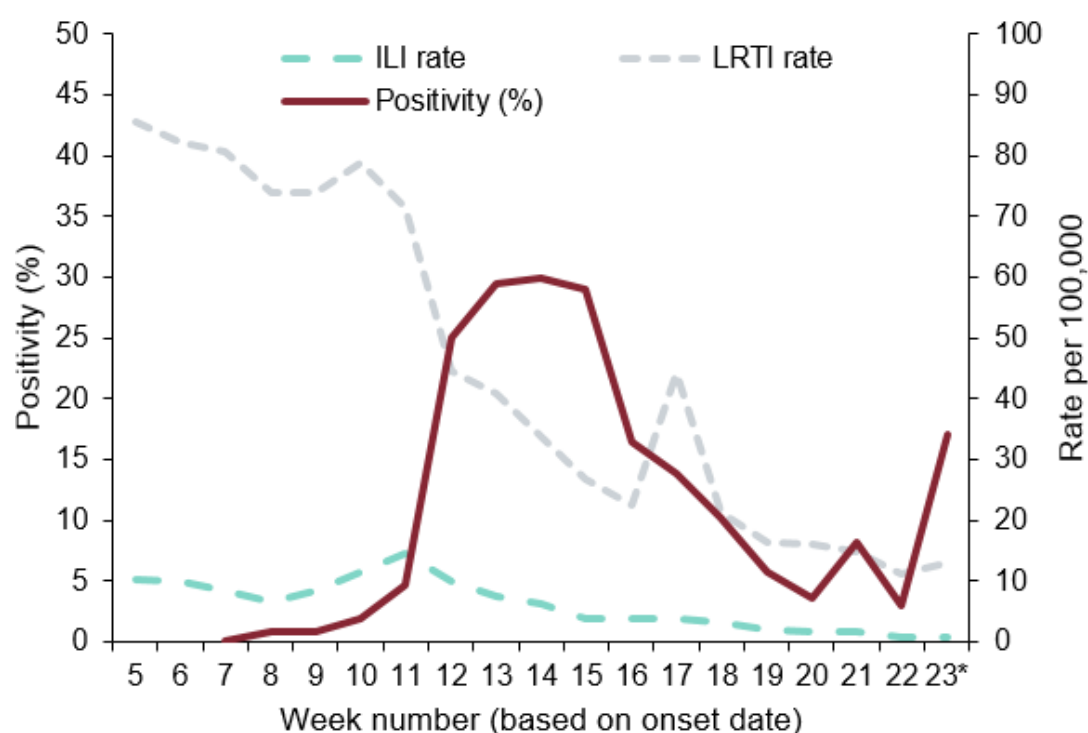


### RCGP Swabbing Scheme

This is an extended primary care surveillance system through the RCGP sentinel integrated clinical and virological scheme. The extension of the scheme was initiated on 24 February 2020. A sample of patients presenting to around 200 GP practices with Influenza-like Illness (ILI) and Lower Respiratory Tract Infections (LRTI) (not suspected for COVID-19) will be tested. This enables the week on week monitoring of test “positivity rate” to observe the trend in the proportion of people with confirmed COVID-19.

Up to 10 June 2020, a total of 4,448 patients have been tested of which 595 have tested positive for SARS-CoV-2 through this scheme. The overall positivity increased at 17.0% (8/47) in week 23 compared to 3.0% (4/134) in the previous week (Figure 17). All of the 8 patients who tested positive in week 23 were residents from a single care home therefore the increase in positivity is not reflective of activity in the community. The overall denominator for patients tested through GPs has decreased due to an increase in patients being tested under Pillar 2. During week 22, 3 out of the 4 positive cases were residents from 3 different care homes. Consultations for ILI and LRTI have continued to decrease (Figure 17). The highest positivity by region was observed in the South (Figure 18). Due to the total number of patients tested being less than 10, the positivity by age groups was not calculated. The highest positivity by gender was observed in females (Figure 19).

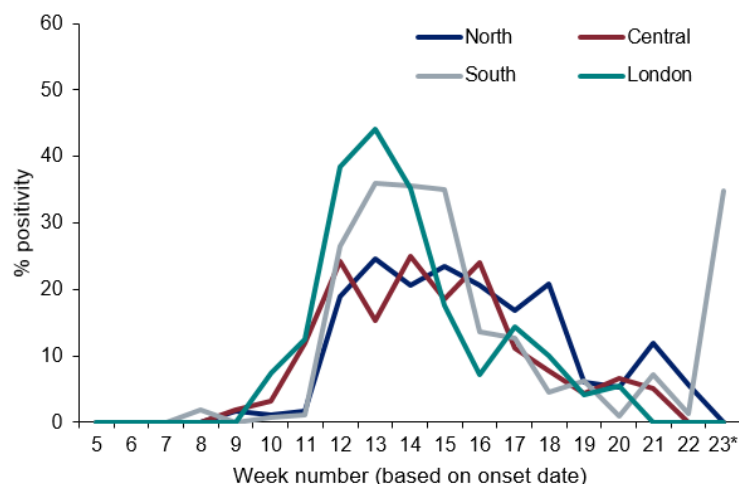
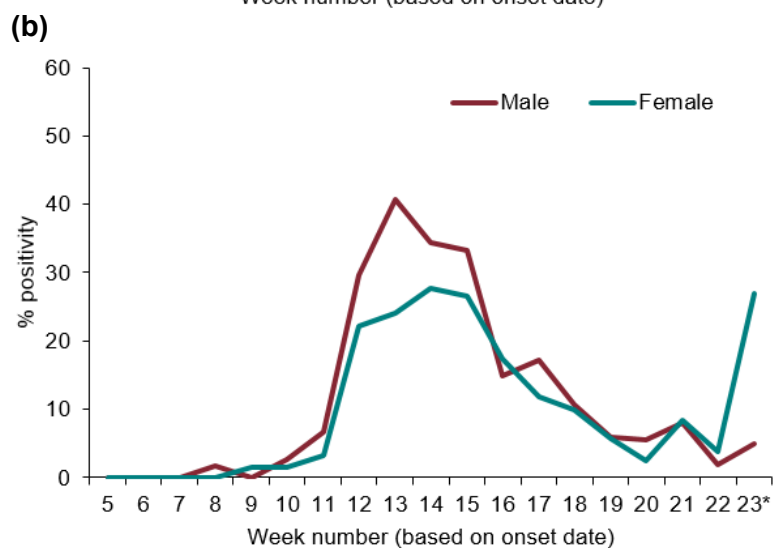
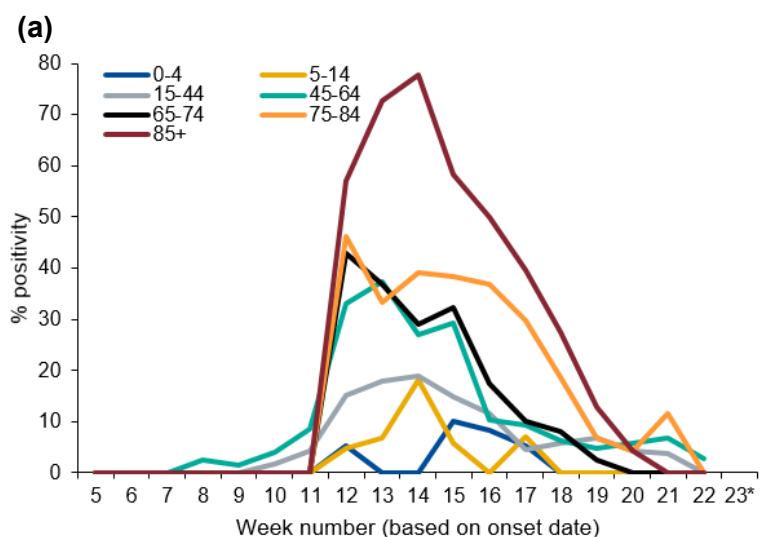
**Figure 17: Overall weekly positivity (%), ILI and LRTI consultations rates (per 100,000), RCGP, England**



\*For the most recent week, more samples are expected to be tested therefore the graph in Figures 17-19 should be interpreted with caution

\*Positivity (%) is not calculated when the total number tested is less than 10

## RCGP Swabbing Scheme

**Figure 18: Overall positivity (%) (weekly) by PHE Region, England (RCGP)****Figure 19: Positivity (%) (weekly) by (a) age group and (b) gender, England (RCGP)**

\*For the most recent week, more samples are expected to be tested therefore the graph in Figures 17-19 should be interpreted with caution

\*Positivity (%) is not calculated when the total number tested is less than 10

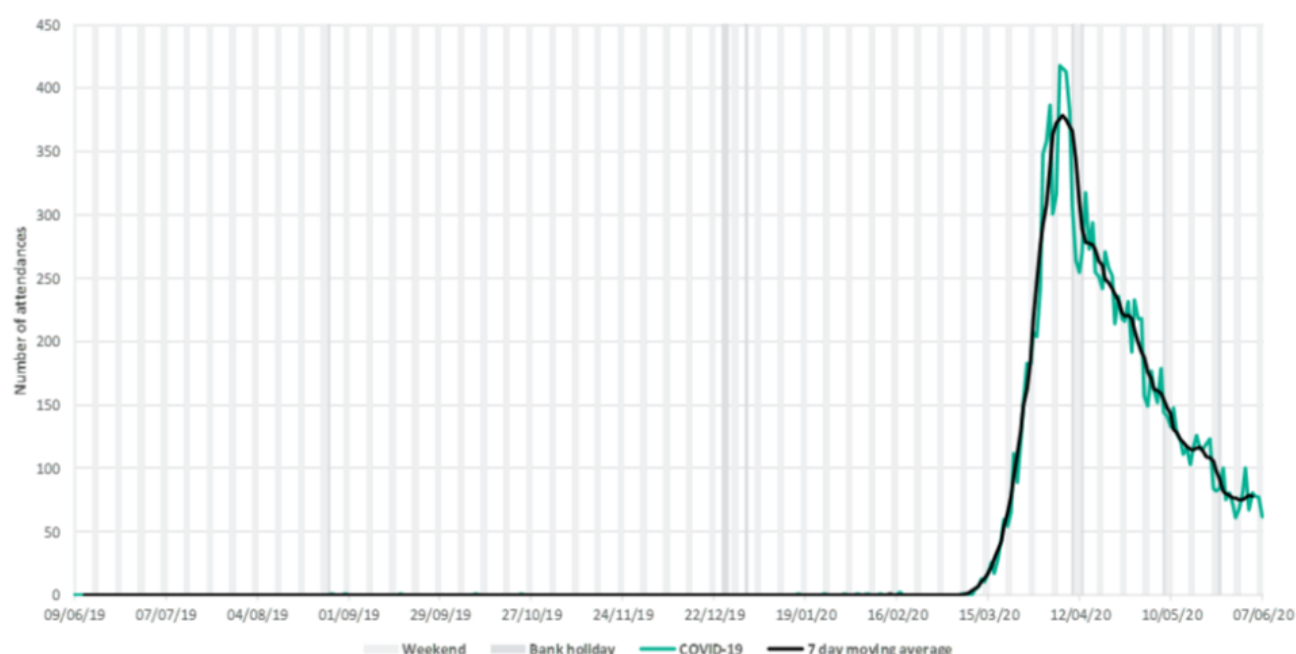
## Emergency Department attendances, Syndromic surveillance

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

Up to 07 June 2020, the daily number of ED attendances for all ages as reported by 67 EDs in England during week 23, for COVID-19-like attendances remained stable (Figure 20).

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

**Figure 20: COVID-19-like, daily ED attendances, all ages, England**



### COVID-19 Hospitalisation in England Surveillance System (CHESS)

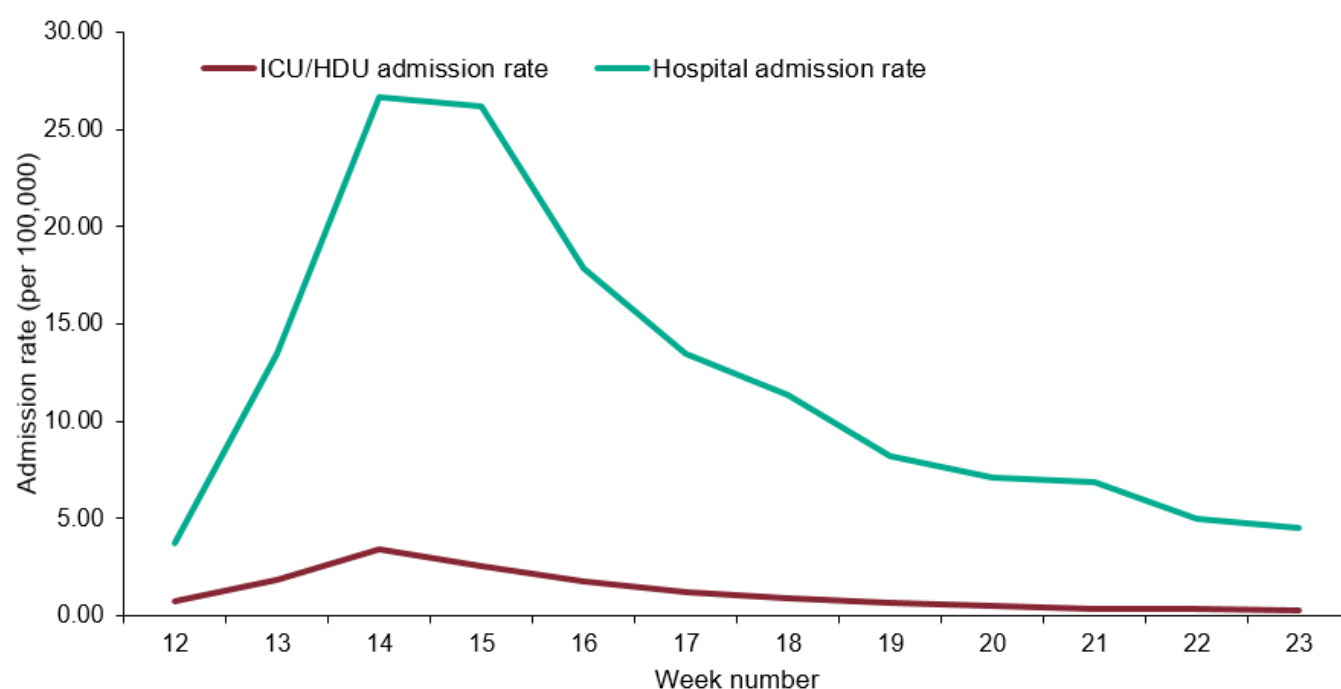
The CHESS surveillance system monitors daily new acute respiratory infections (ARI) and new laboratory confirmed COVID-19 admissions to hospital including critical care (ICU/HDU). Trends in hospital and critical care admission rates need to be interpreted in the context of testing recommendations.

A total of 134 NHS Trusts are now participating, although the number of Trusts reporting varies by day. The weekly rate of new admissions of COVID-19 cases is based on the trust catchment population of those NHS Trusts who made a new return. This may differ from other published figures such as the total number of people currently in hospital with COVID-19.

In week 23, the weekly admission rates for both hospitalisations and ICU/HDU COVID-19 admissions remained stable. This is the first time this data is presented by week.

The hospitalisation rate was at 4.51 per 100,000 in week 23 compared to 4.97 per 100,000 in the previous week. The ICU/HDU rate was at 0.29 per 100,000 in week 23 compared to 0.32 per 100,000 in the previous week (Figure 21). By NHS regions, the highest hospitalisation and ICU/HDU rate was observed in the North West (Figure 22).

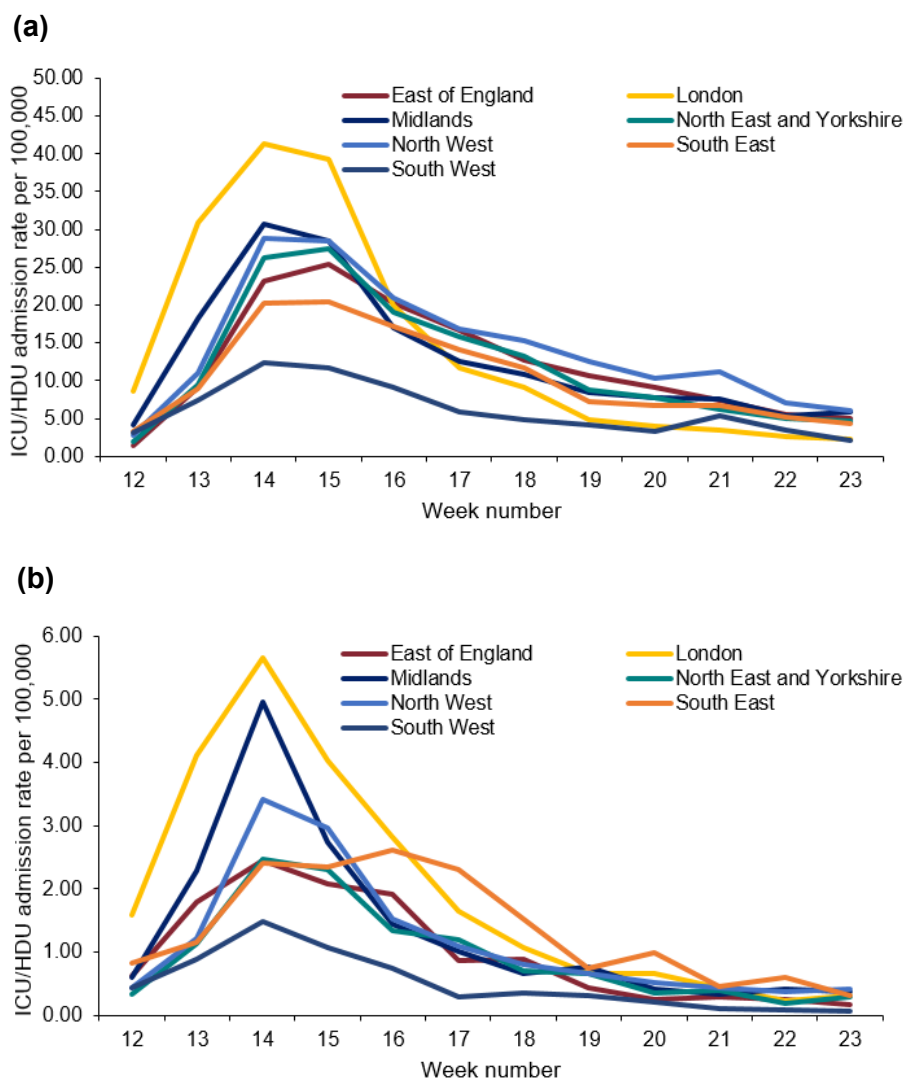
**Figure 21: Weekly overall hospital and ICU/HDU admission rates per 100,000 of new COVID-19 positive cases reported through CHESS, England**





## COVID-19 Hospitalisation in England Surveillance System (CHES)

**Figure 22: Weekly admission rate for (a) hospital admissions and (b) ICU/HDU admissions by NHS regions of new COVID-19 positive cases reported through CHES**

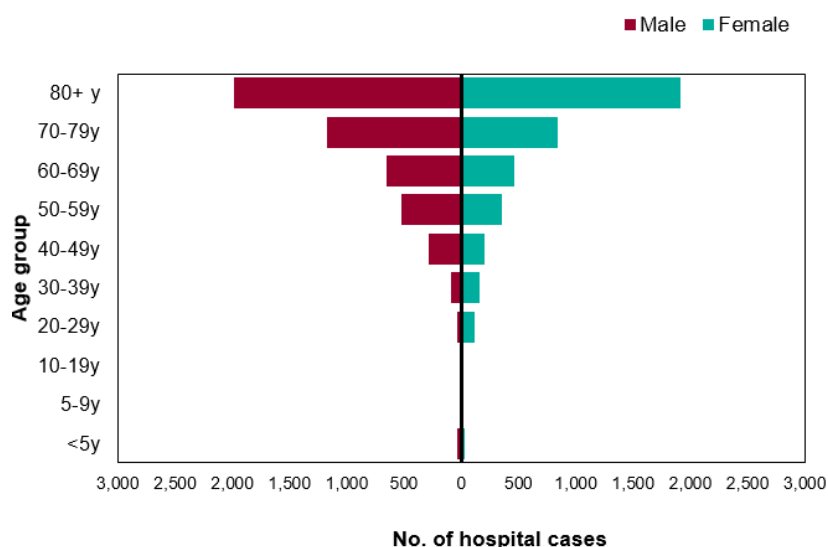


**COVID-19 Hospitalisation in England Surveillance System (CHESS)**

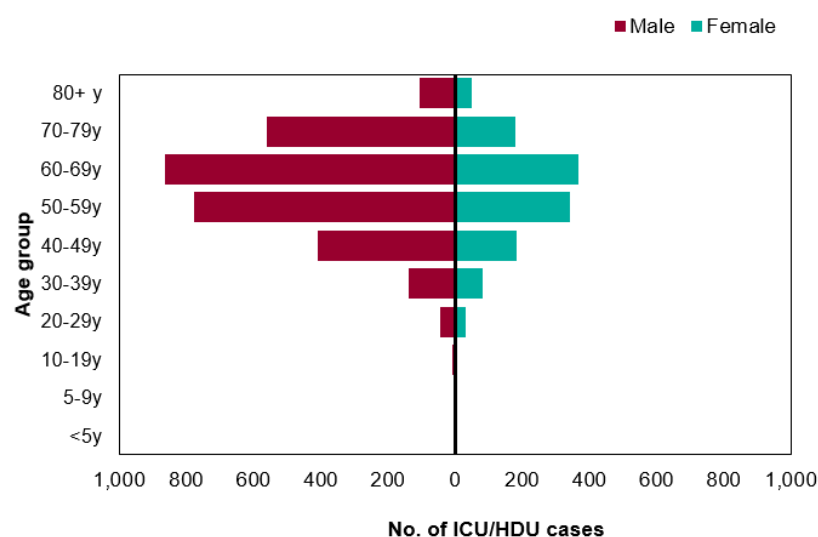
Figure 23 and 24 are based on individual patient level data which are provided to CHESS from a subset of NHS Acute Trusts, therefore the data should be interpreted with caution as the distribution of age, sex and ethnic group may not be representative of all hospitalised patients.

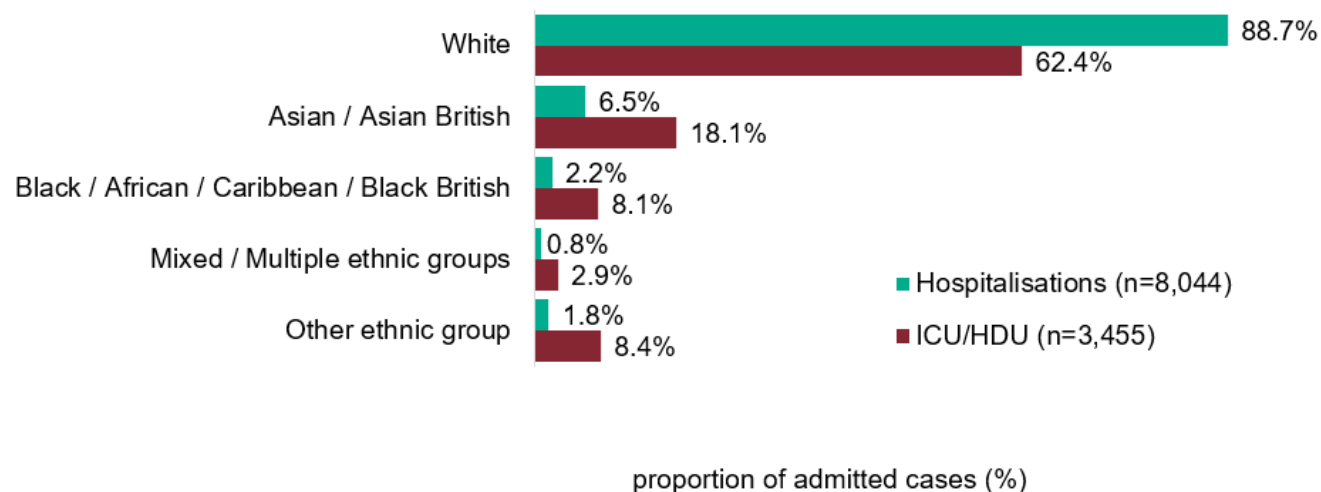
**Figure 23: Age/sex pyramid of new (a) hospital (lower level of care) (n=8,919) and (b) ICU/HDU (n=4,162) COVID-19 cases reported through CHESS, England**

(a)



(b)



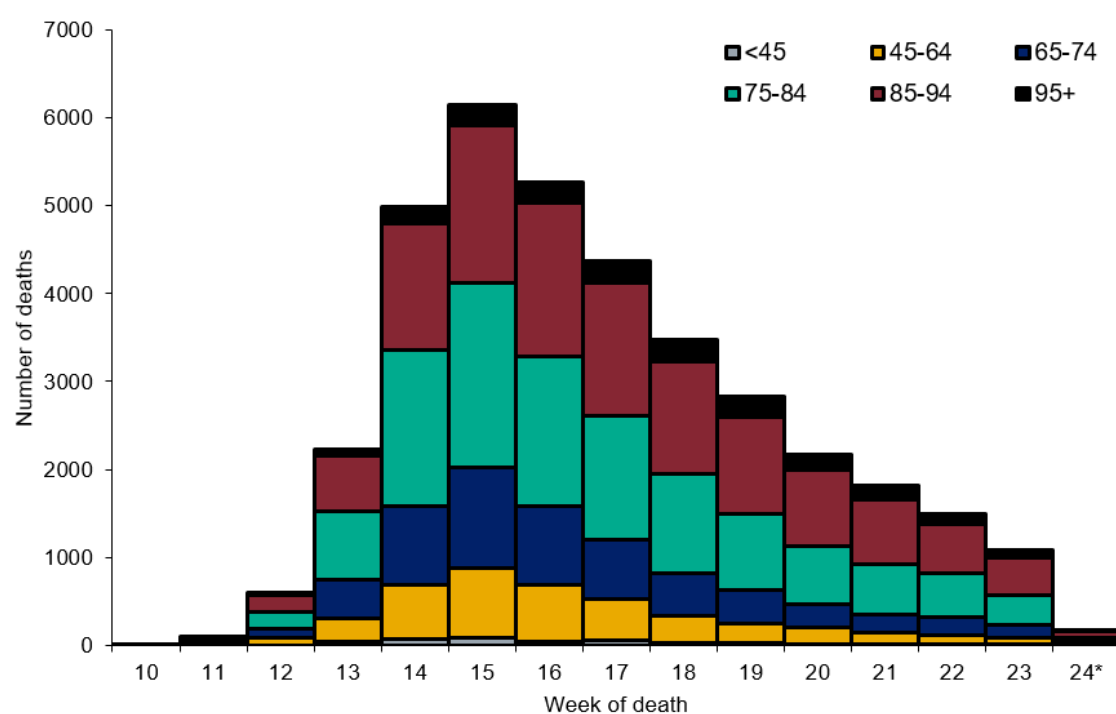
**COVID-19 Hospitalisation in England Surveillance System (CHESS)****Figure 24: Ethnic group of new hospitalisations (lower level of care) (n=8,044) and ICU/HDU (n=3,455) COVID-19 cases reported through CHESS, England****UK Severe Respiratory Failure (SRF) centres admissions**

Up to 10 June 2020, a total of 177 laboratory confirmed COVID-19 admissions have been reported from the 5 SRFs in England.

## Cumulative deaths

As of 5pm on 09 June 2020, a total of 36,750 cases under Pillar 1 and 2 with confirmed COVID-19 have died in England.

**Figure 25: Cumulative number of deaths by week of death and age group, England (n=36,750)**

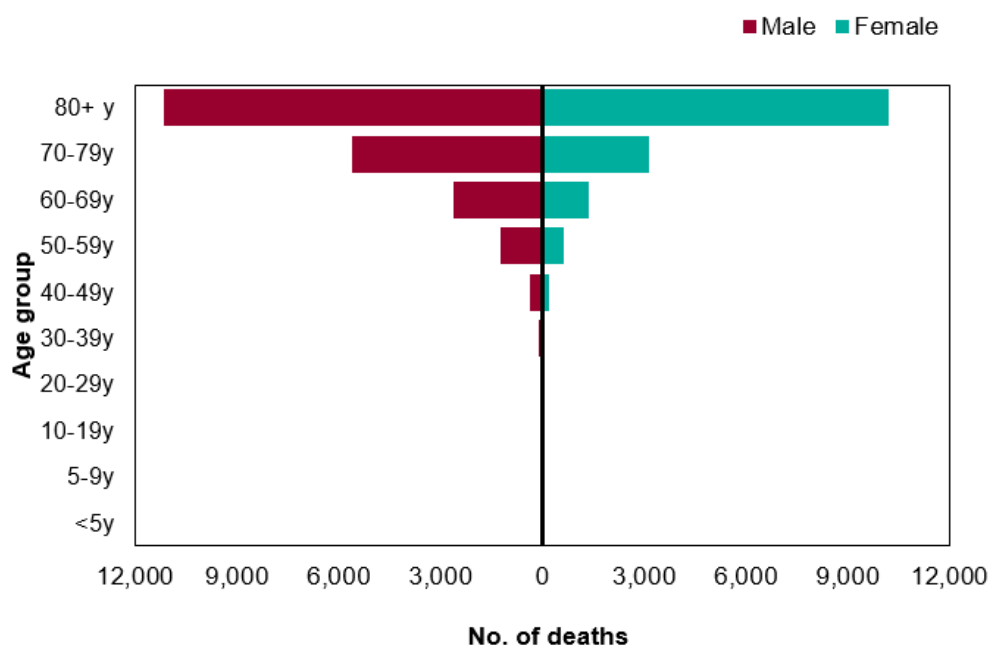
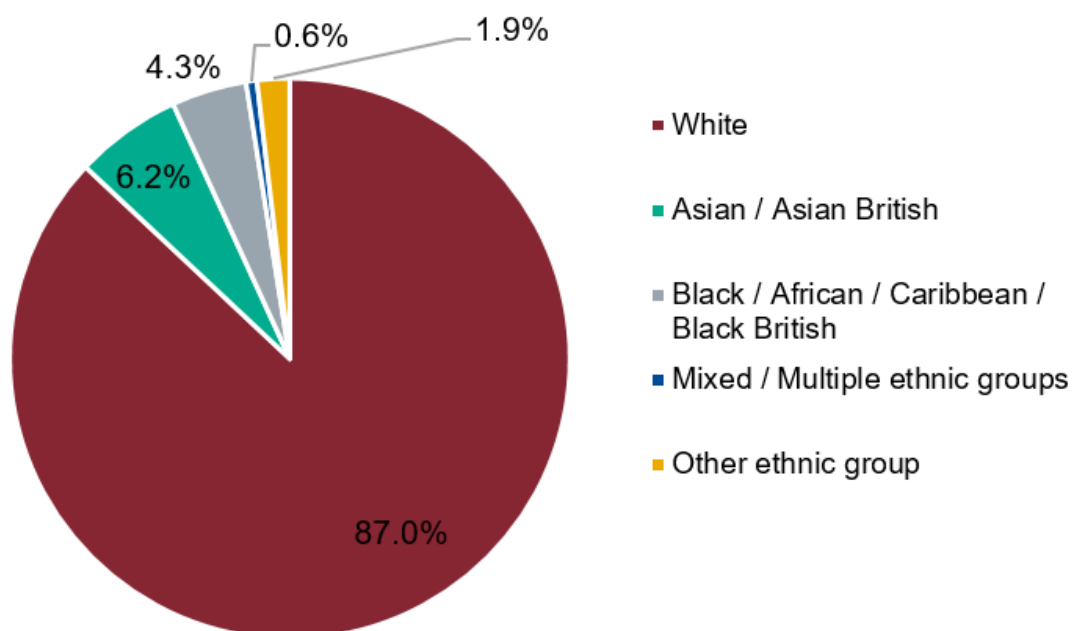


\* For the most recent week, more deaths will be reported therefore the decrease seen in this graph should be interpreted with caution

**Table 3: Cumulative number of deaths (Pillar 1 and 2) by PHE Centres (n=36,377)**

| PHE Centres        | Number of deaths |
|--------------------|------------------|
| North East         | 2,172            |
| North West         | 5,976            |
| Yorkshire & Humber | 3,454            |
| West Midlands      | 4,640            |
| East Midlands      | 2,788            |
| East of England    | 4,175            |
| London             | 6,470            |
| South East         | 4,784            |
| South West         | 1,918            |

## Cumulative deaths

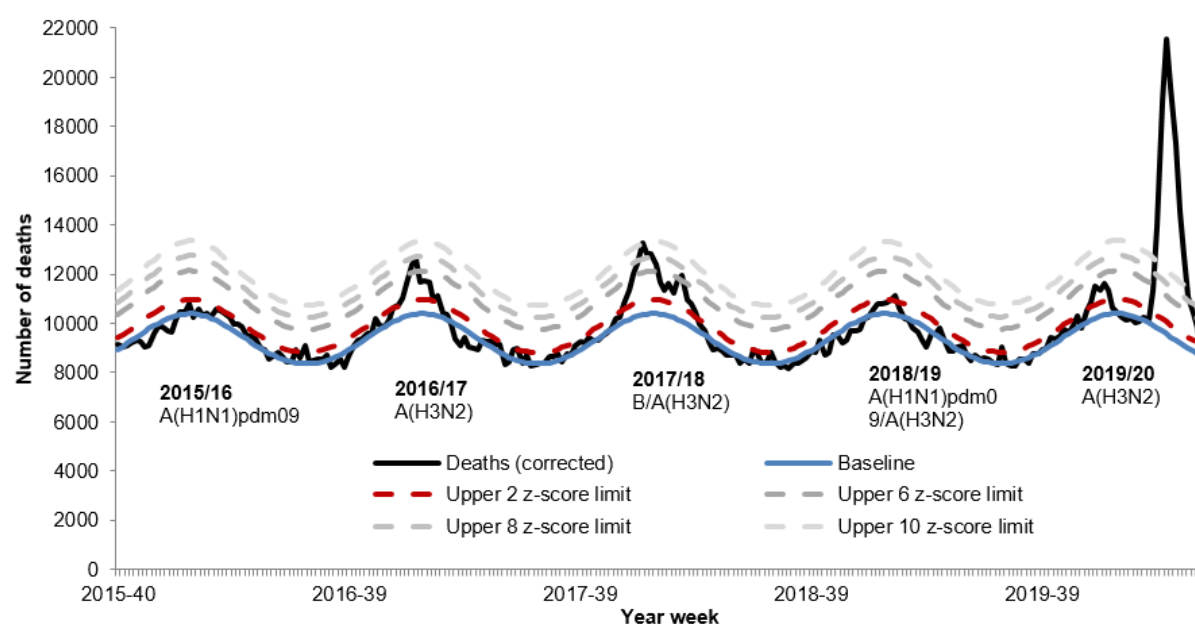
**Figure 26: Age/sex pyramid of laboratory confirmed COVID-19 (Pillar 1 and 2) deaths (n=36,750)****Figure 27: Ethnic group of confirmed COVID-19 (Pillar 1 and 2) deaths, England (n= 36,452)**

### Excess all-cause mortality, UK

In week 23 2020 in England, no statistically significant excess mortality by week of death above the upper 2 z-score threshold was seen overall or by age group. Significant excess was observed sub nationally (all ages) in the Yorkshire & Humber and East Midlands regions after correcting GRO disaggregate data for reporting delay with the standardised EuroMOMO algorithm (Figure 28 and Table 4).

This data is provisional due to the time delay in registration; numbers may vary from week to week.

**Figure 28: Weekly observed and expected number of all-cause deaths in all ages, with the dominant circulating influenza type(s), England, 2015 to week 23 2020**



**Table 4: Excess mortality by age group, England**

| Age group (years) | Excess detected in week 23 2020? | Weeks with excess in 2019/20 |
|-------------------|----------------------------------|------------------------------|
| <5                | ×                                | 48, 10                       |
| 5-14              | ×                                | 46, 01                       |
| 15-64             | ×                                | 02; 12-22                    |
| 65+               | ×                                | 50-02;12-22                  |

\* Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold

## Sero-prevalence epidemiology, England

Sero-epidemiological surveillance/studies enable the identification of the true number of infections within the general population and provides the ability to detect asymptomatic and mild infections. More information on this is available [here](#).

Donor samples from different geographic regions (approximately 1000 samples per region) in England are tested each week. The results from testing samples from healthy adult blood donors, supplied by the NHS Blood and Transplant (NHS BT) are summarised.

The results presented are based on testing using the Euroimmun assay for samples collected between weeks 13-22.

Figure 29 shows the overall prevalence in each region over time which has been adjusted for the accuracy of the Euroimmun assay (sensitivity and specificity). It is important to note that the sensitivity and specificity of the assay is subject to change as further data becomes available.

Additional data from the second sampling in the South East and East of England regions, collected in week 22, have been included.

Adjusted prevalence estimates vary across the country and over time. In London, where prevalence estimates are highest, overall adjusted prevalence increased from 1.5% (week 13) to 10.5% (weeks 15-16) to 14.5% (week 18) and most recently to 15.4% (week 21). Given that antibody response takes at least two weeks to become detectable, those displaying a positive result in week 18 are likely to have become infected before mid-April. The plateauing observed between weeks 18-21 demonstrates the impact of lock down measures on new infections.

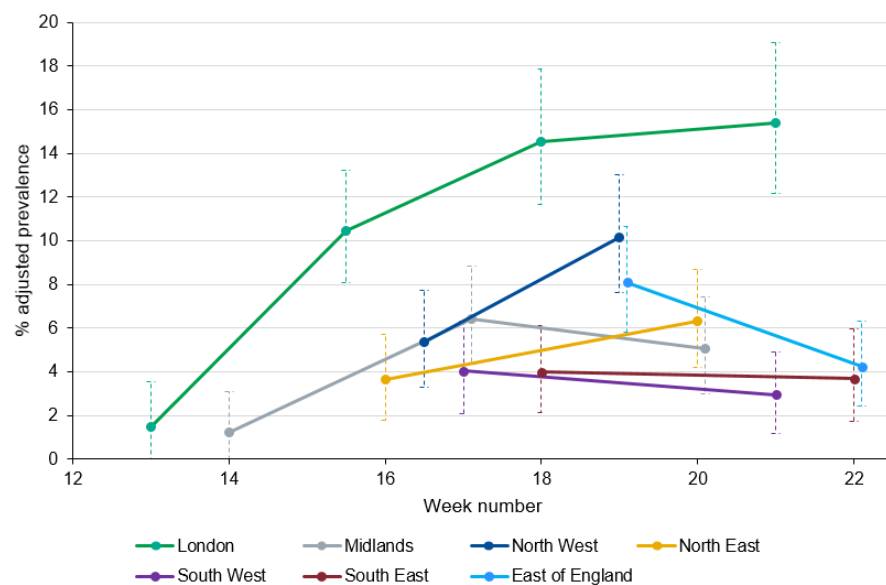
The lower prevalence in samples from other regions including the South East, South West and North East regions is consistent with data from other surveillance systems. Prevalence in South East appears to have plateaued with an adjusted prevalence of 4% (week 18) and 3.7% (week 22).

In some regions, prevalence estimates are slightly lower in recent weeks. For example in the Midlands, the adjusted prevalence was 1.2% (week 14), 6.4% (week 17) and 5% (week 20). A more pronounced change has been noted in the East of England with a lower adjusted prevalence of 4.2% (week 22) compared with 8.1% (week 19). This is likely driven by changes in the locations of sampling within each region over time with the more recent set containing significantly fewer samples from higher prevalence areas e.g. in the most recent set from East of England, there were significantly less samples from those areas of the region closer to London.

Age specific prevalence estimates have changed over time with prevalence notably higher in the young adults in those areas that experienced the highest incidence in the earlier weeks of the outbreak. Over time however the prevalence in older adults increased more suggesting that this age group were being affected later. These patterns may reflect differences in behaviour and mixing patterns in the different age groups.

## Sero-prevalence epidemiology, England

**Figure 29: Overall SARS-CoV-2 antibody seroprevalence (%) in blood donors by PHE centres, using Euroimmun test adjusted for sensitivity (82.5%) and specificity (99.1%) and 95% confidence intervals (dashed lines)**

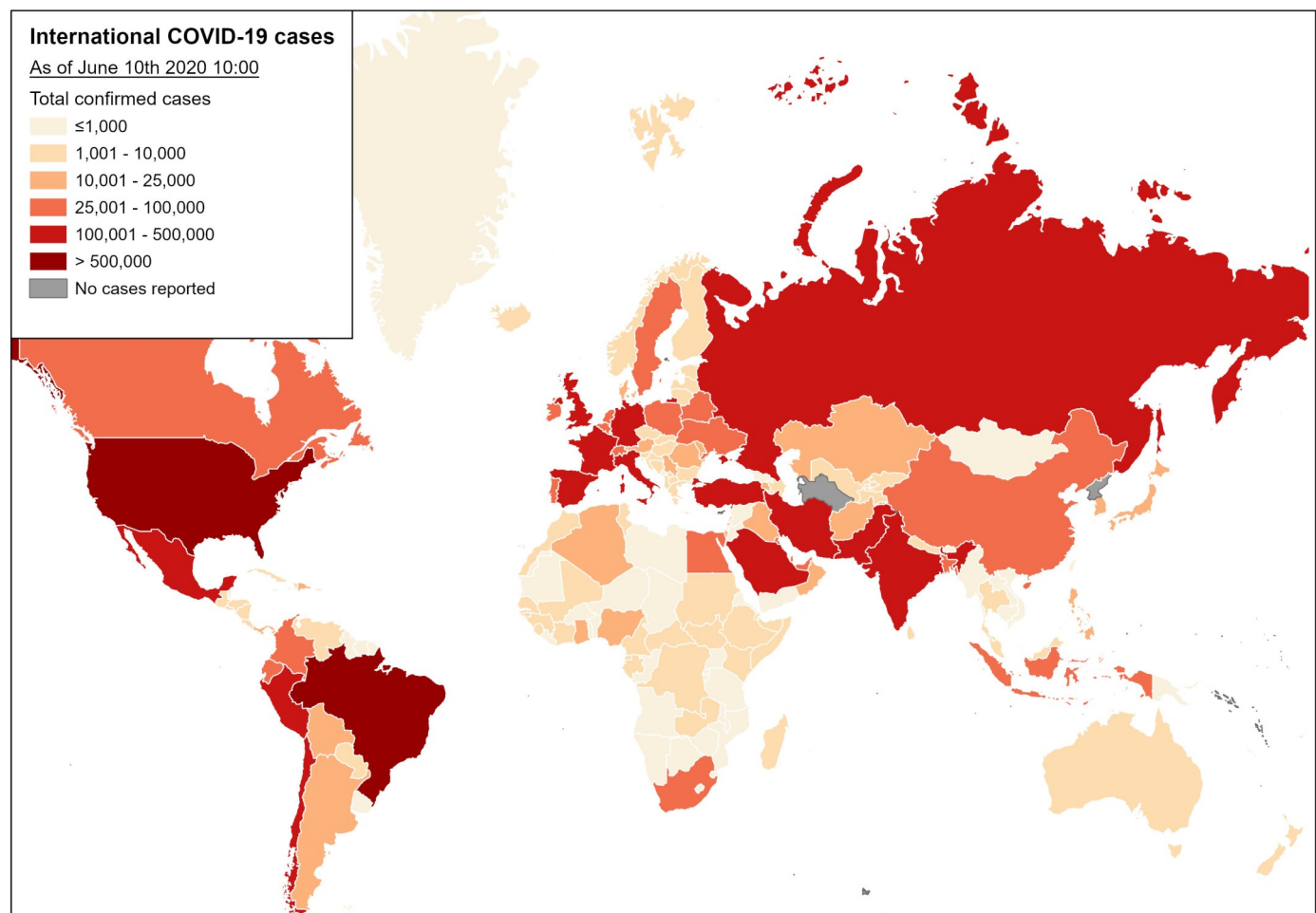




## Global situation

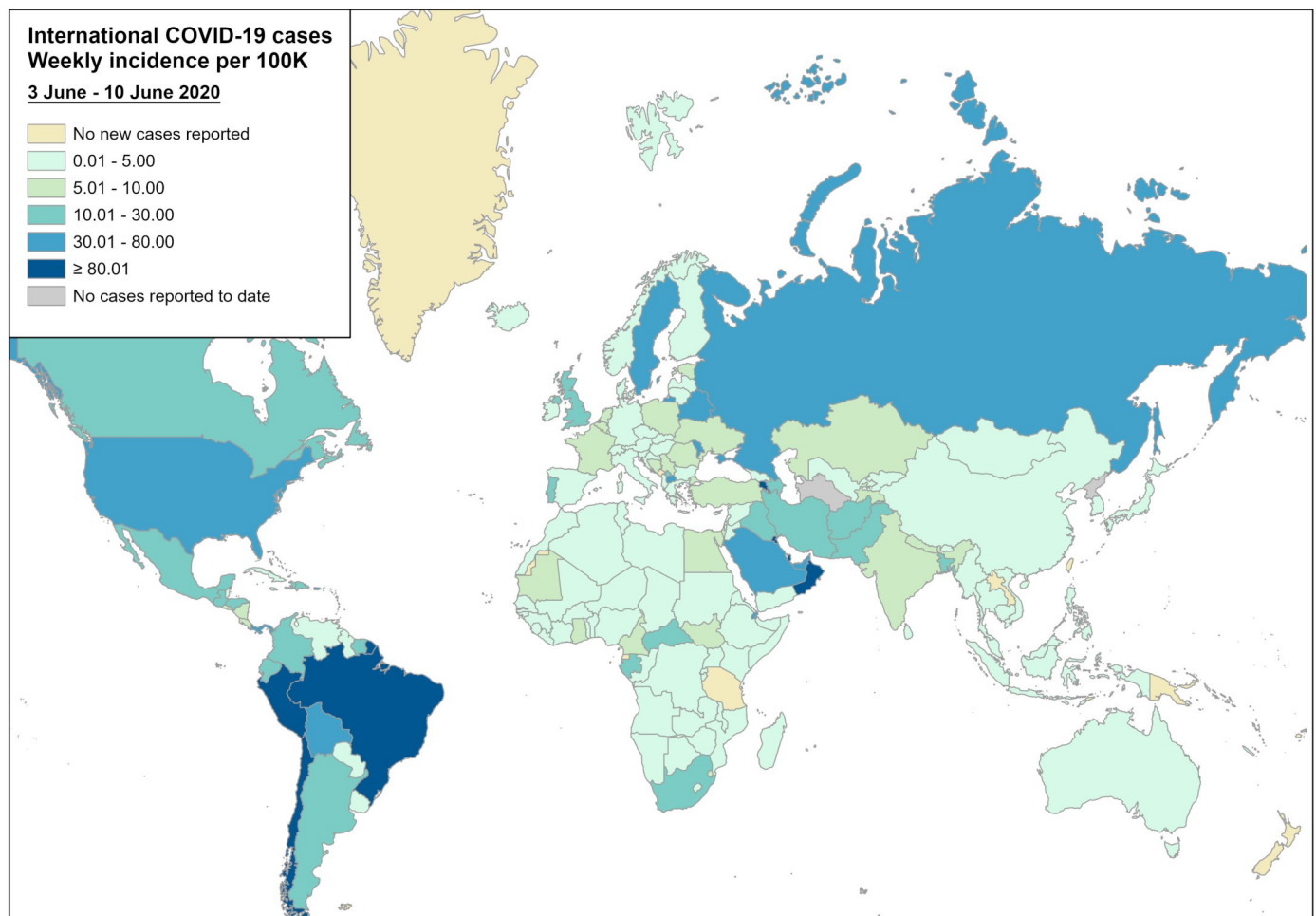
Globally, up to 10 June 2020, a total of 7,191,048 cases of COVID-19 infection have been reported worldwide, including 410,504 COVID-19 related deaths.

**Figure 30: Global map of cumulative COVID-19 cases**



## Global situation

Figure 31: Global map of weekly COVID-19 case incidence rate per 100,000, week 23 2020



PHE has delegated authority, on behalf of the Secretary of State, to process Patient Confidential Data under Regulation 3 The Health Service (Control of Patient Information) Regulations 2002

<http://www.legislation.gov.uk/ukxi/2002/1438/regulation/3/made>. Regulation 3 makes provision for the processing of patient information for the recognition, control and prevention of communicable disease and other risks to public health.