

## Statistical Note: Ambulance Quality Indicators (AQI)

The latest Systems Indicators for ambulance services in England show that November 2019 was the busiest month, both for calls and for incidents, since these measures were introduced in autumn 2017.

For the third consecutive month, response times for all categories in November 2019 were longer than in the previous month.

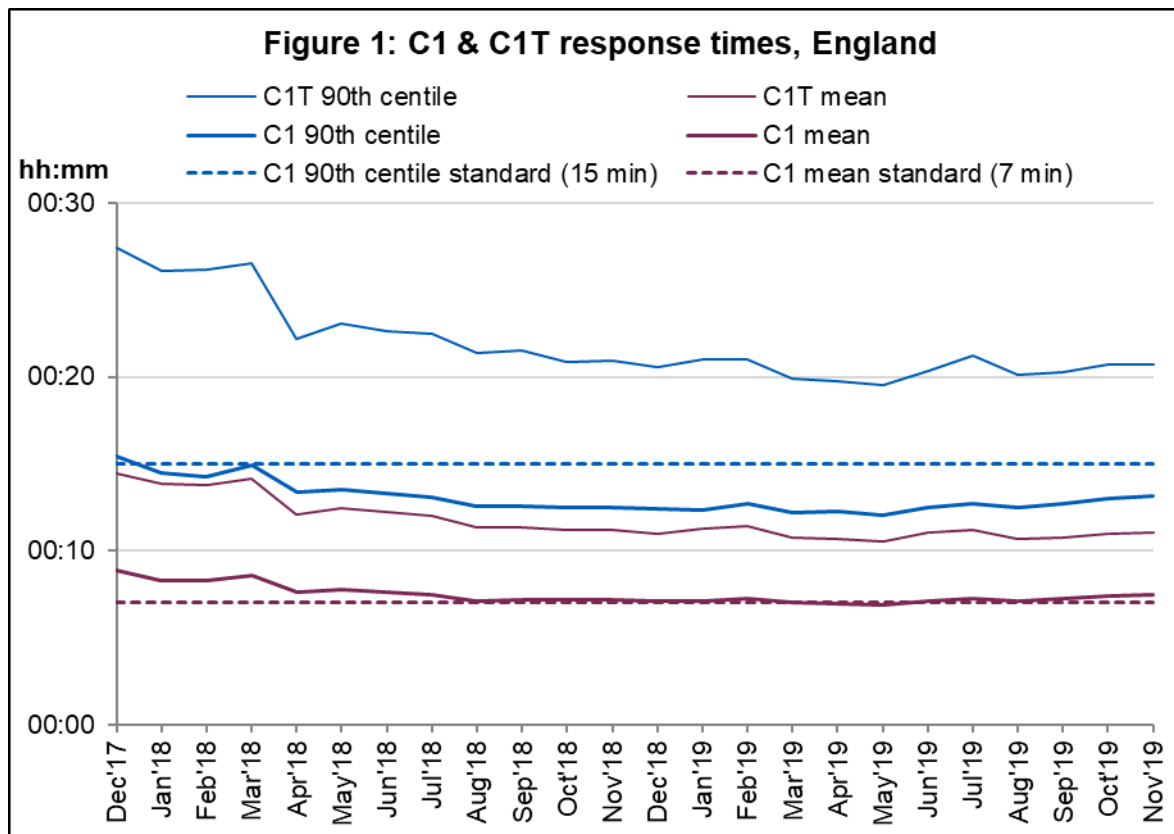
### 1. Systems Indicators

#### 1.1 Response times

The mean average C1 response time across England was 7 minutes 28 seconds in November 2019, longer than the standard of 7 minutes. The C1 90th centile response times averaged 13:11 across England in November.

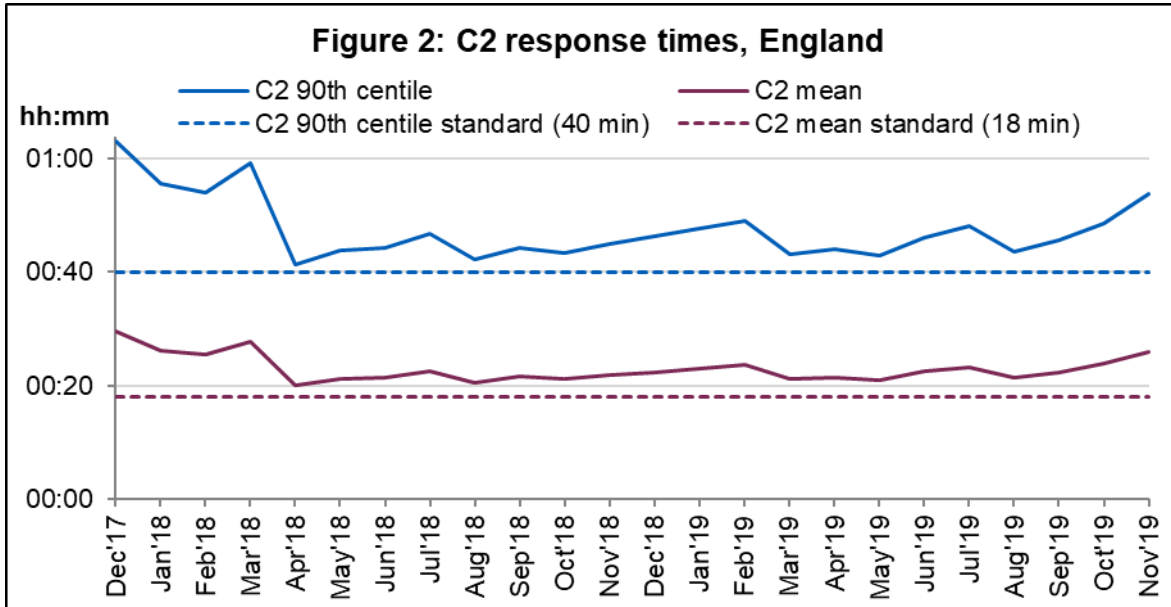
Both measures were the longest since June 2018. Of the six ambulance response standards in the Handbook<sup>1</sup> to the NHS constitution, the C1 90th centile standard of 15 minutes was the only one to be met.

For C1T (arrival of transporting vehicle, for C1 patients transported) the mean and 90th centile response times were 11:04 and 20:44 respectively.



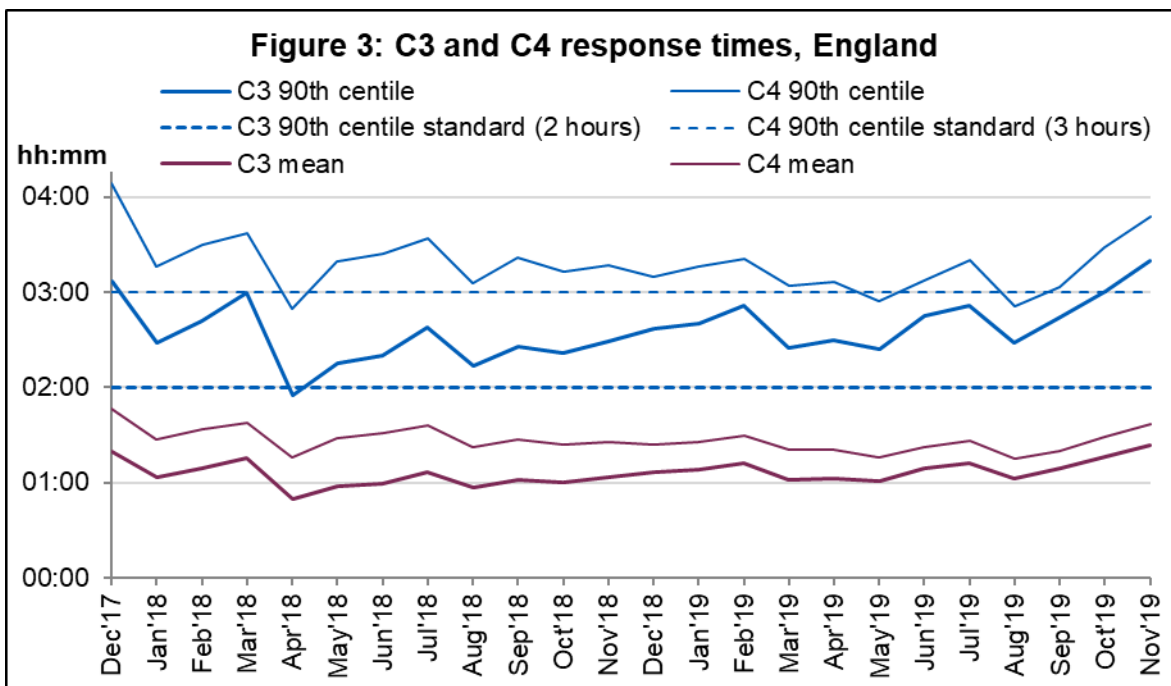
<sup>1</sup> Ambulance standards are in the Handbook to the NHS Constitution: [www.gov.uk/government/publications/supplements-to-the-nhs-constitution-for-england](http://www.gov.uk/government/publications/supplements-to-the-nhs-constitution-for-england)

Figure 2 shows that the mean average response time in November 2019, for England, for all C2 incidents, was 26:02, an increase of more than 2 minutes on October. The C2 90th centiles averaged 53:45 across England, more than 5 minutes longer than in October. Both C2 measures were the longest since March 2018.



The C3 mean average response time for England in November was 1:23:48. The C3 90th centile times averaged 3:20:03, over one hour longer than the standard of two hours. Both were the longest times in the series (Figure 3).

The C4 mean average response time was 1:36:45 in November. The C4 90th centile times averaged 3:47:24, longer than the standard of three hours, and the longest time since December 2017.



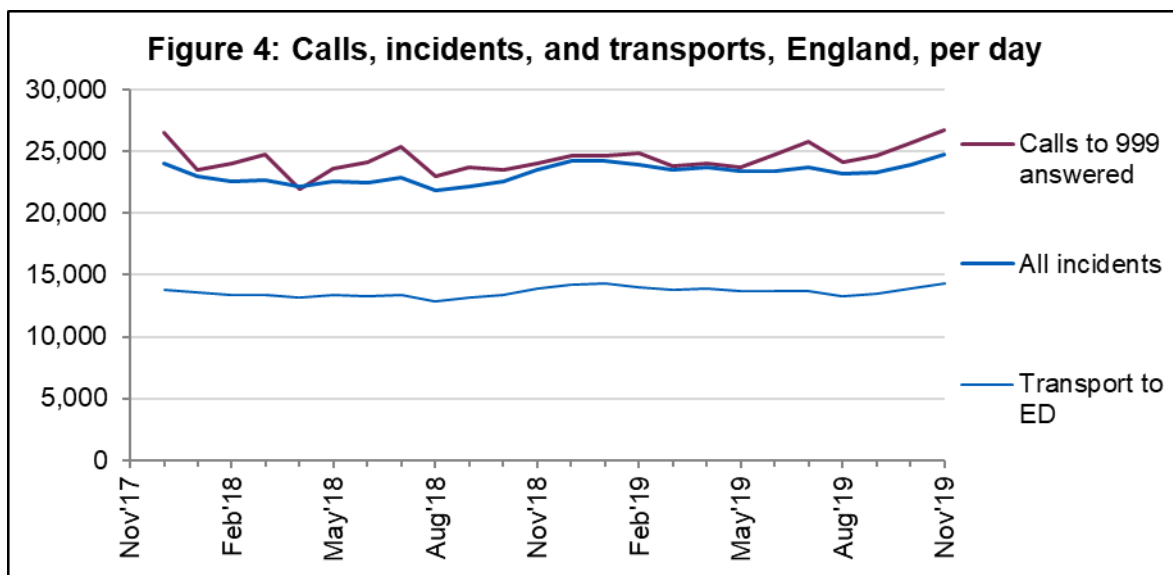
## 1.2 Other Systems Indicators

The mean average call answer time across England in November 2019 was 8 seconds, and the 90th, 95th, and 99th centile times averaged 25, 49, and 106 seconds, respectively. These times were all the shortest since May 2019.

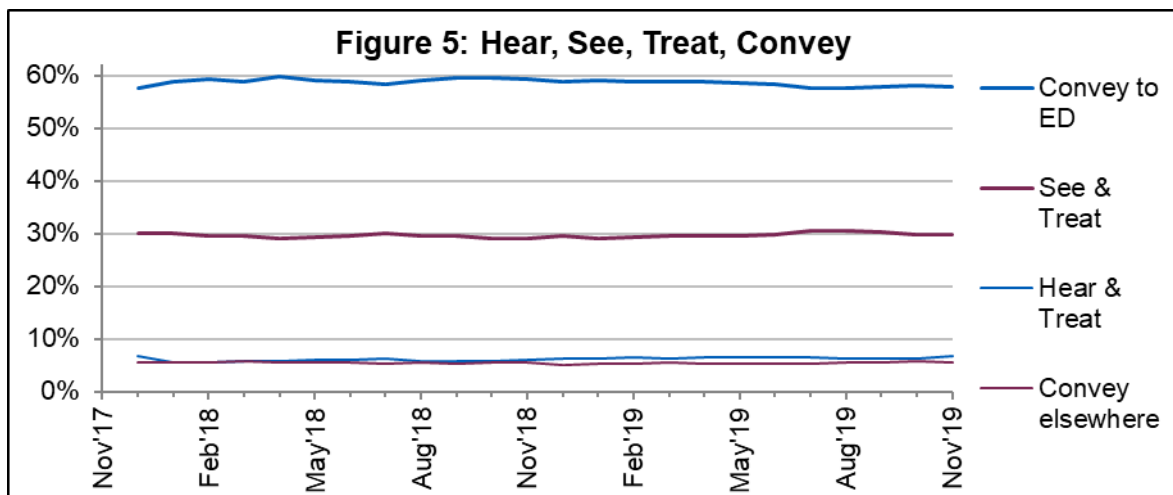
Per day, there were (Figure 4):

- 26.8 thousand calls to 999 answered in November, a 4.2% increase on October;
- 24.8 thousand incidents received a response (whether on the telephone or on the scene) from an ambulance service in November, 3.8% more than October;
- 14.4 thousand incidents where a patient was transported to an Emergency Department (ED) in November, 3.3% more than in October.

For all these measures, November 2019 was the busiest month per day since the measures were introduced in autumn 2017.



In November 2019, 6.7% of incidents were resolved on the telephone (hear and treat), more than in all other months of 2018 and 2019. Other incidents in November 2019 comprised 57.9% where a patient was transported to an Emergency Department (ED), 29.9% where a patient was attended but not transported (see and treat), and 5.5% with a patient transported somewhere other than ED (Figure 5).



## 2. Clinical Outcomes

We continue to publish Clinical Outcomes data in spreadsheets each month. In general, we discuss data for England as a whole for each topic area in the month when we publish new bundle data for that topic.

However, today (and at six-monthly intervals in future), we are publishing revisions to Clinical Outcomes. So here we discuss all topics and the revisions from April 2018 to June 2019, as well as the latest data for July 2019.

Also, the Christmas holiday period will delay the delivery of our stroke data items for the next publication (9 January 2020), so we will not have time to write a discussion in the next publication of those data items.

### 2.1 Cardiac arrest

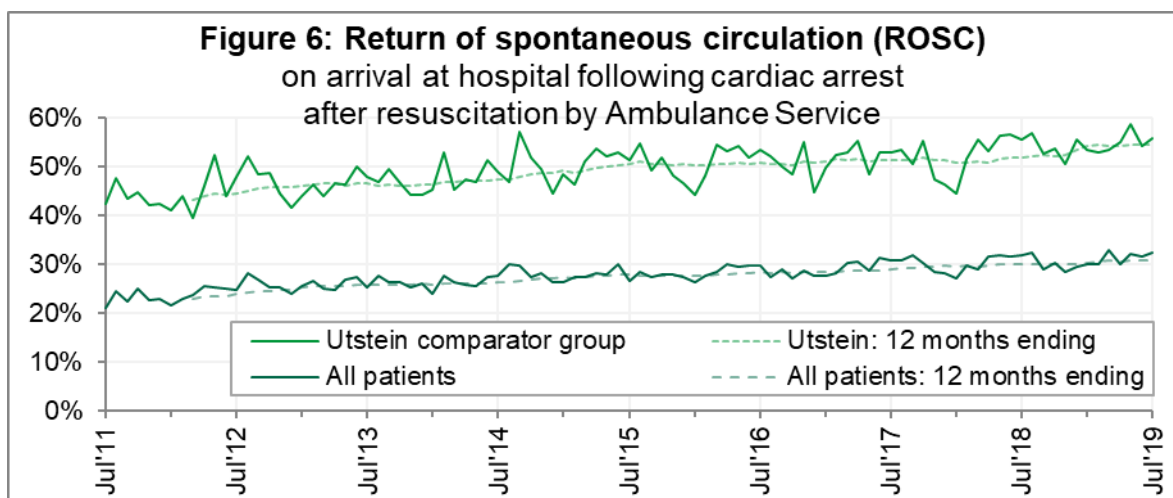
Patients in cardiac arrest will typically have no pulse and will not be breathing. We show, of patients for whom resuscitation was commenced or continued by ambulance staff out-of-hospital, how many had return of spontaneous circulation (ROSC), with a pulse, on arrival at hospital (Figure 6), and how many survived to be discharged from hospital (Figure 9).

From April 2018, these data have been supplied by ambulance services via the University of Warwick Out of Hospital Cardiac Arrest Outcomes (OHCAO) study, rather than directly to NHS England and NHS Improvement (NHSEI).

For all patients, in July 2019, at England level, ROSC was 32%, similar to the average for 2018-19 (31%).

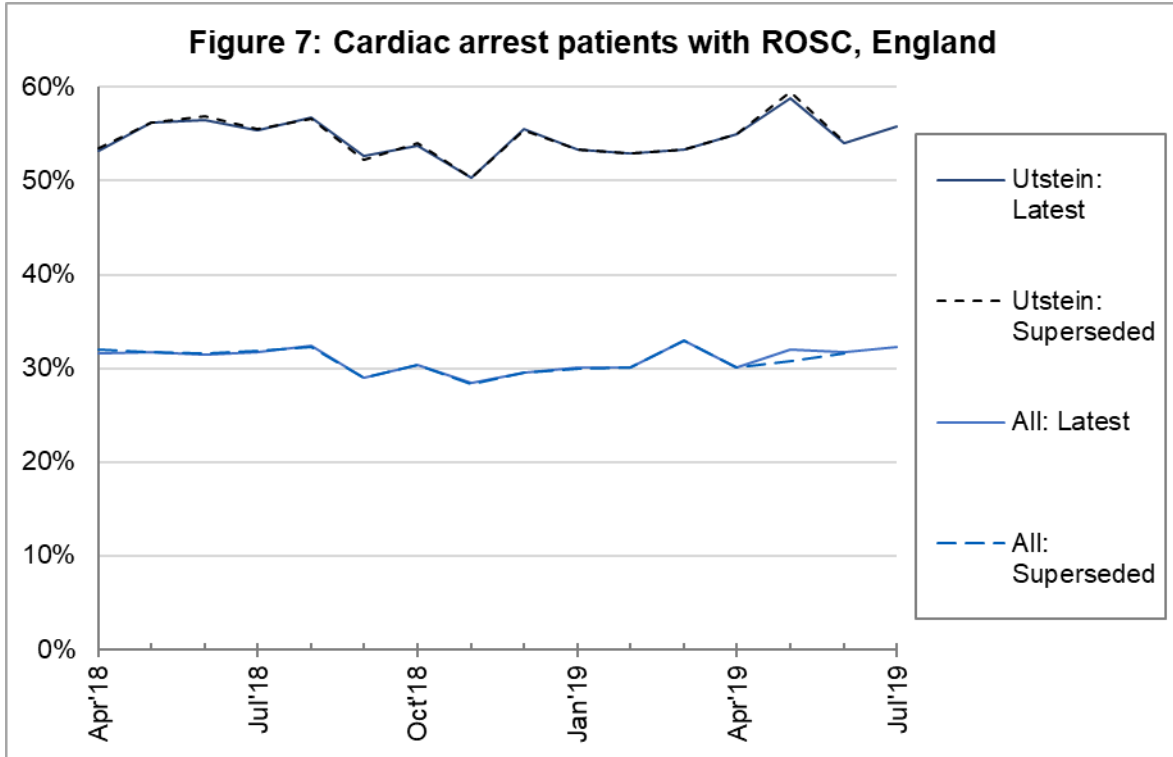
The Utstein comparator group<sup>2</sup> comprises patients with an out-of-hospital cardiac arrest of presumed cardiac origin, where the arrest was bystander witnessed, and the initial rhythm was Ventricular Fibrillation or Ventricular Tachycardia. This group therefore have a better chance of survival.

For the Utstein group, ROSC was 56%, also similar to the average for 2018-19 (54%).



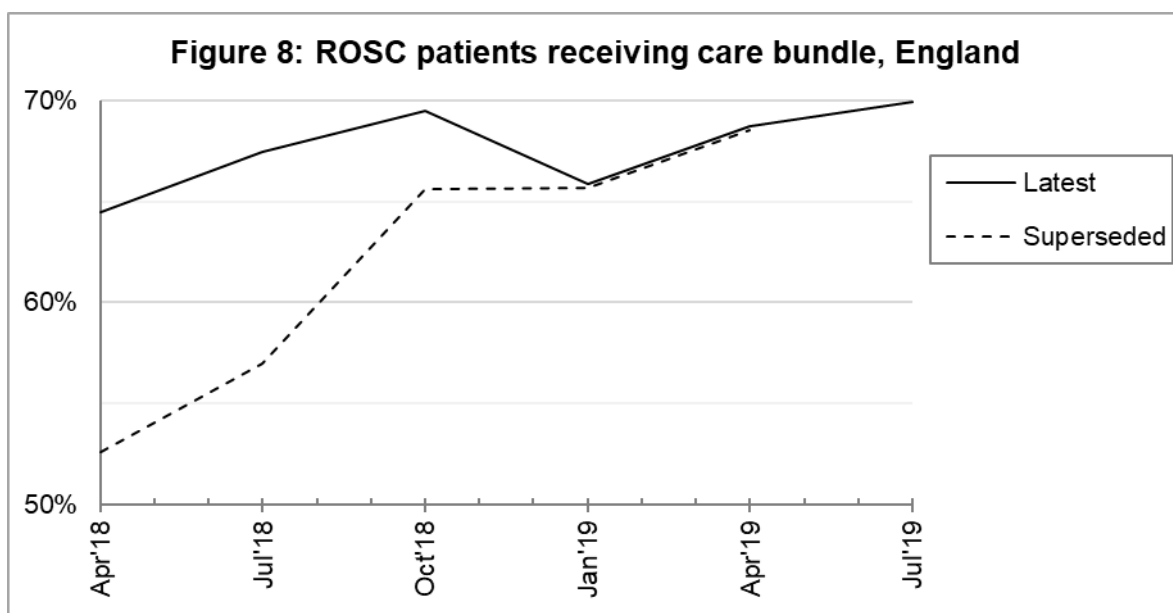
<sup>2</sup> This definition was proposed at Utstein Abbey in Norway by an international group of cardiologists and other health professionals in 1990. <http://circ.ahajournals.org/content/110/21/3385>

There were revisions to ROSC data for all months between April 2018 and June 2019, but for England as a whole, only the May 2019 proportions changed by more than half a percentage point (Figure 7).



For patients with ROSC in July 2019, 70% received the post-ROSC care bundle, similar to the 2018-19 average of 67%.

Large revisions were made to the ROSC bundle data, in particular by the East of England (EEAST), changing the proportion for England by more than 10 percentage points in April and July 2018, and by 4 percentage points in October (Figure 8).



Survival to discharge following cardiac arrest in July 2019 was 11% for all patients (Figure 9), similar to the average for 2018-19 (10%). For the Utstein group, survival was 31% in July, the same as the 2018-19 average.

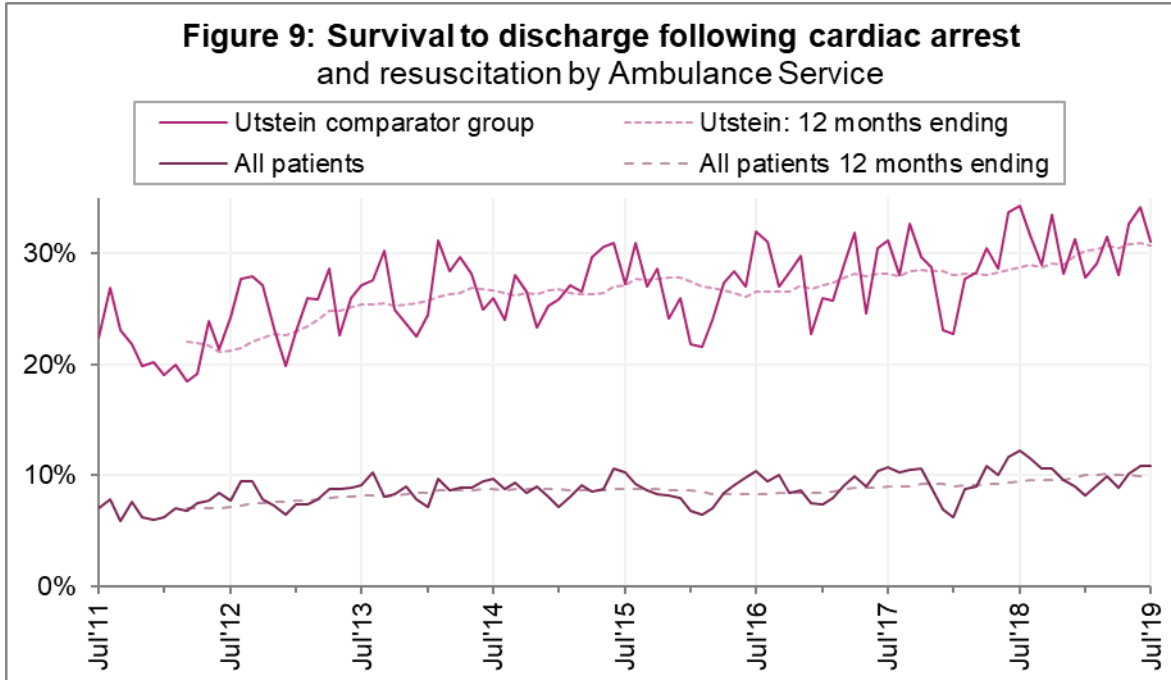
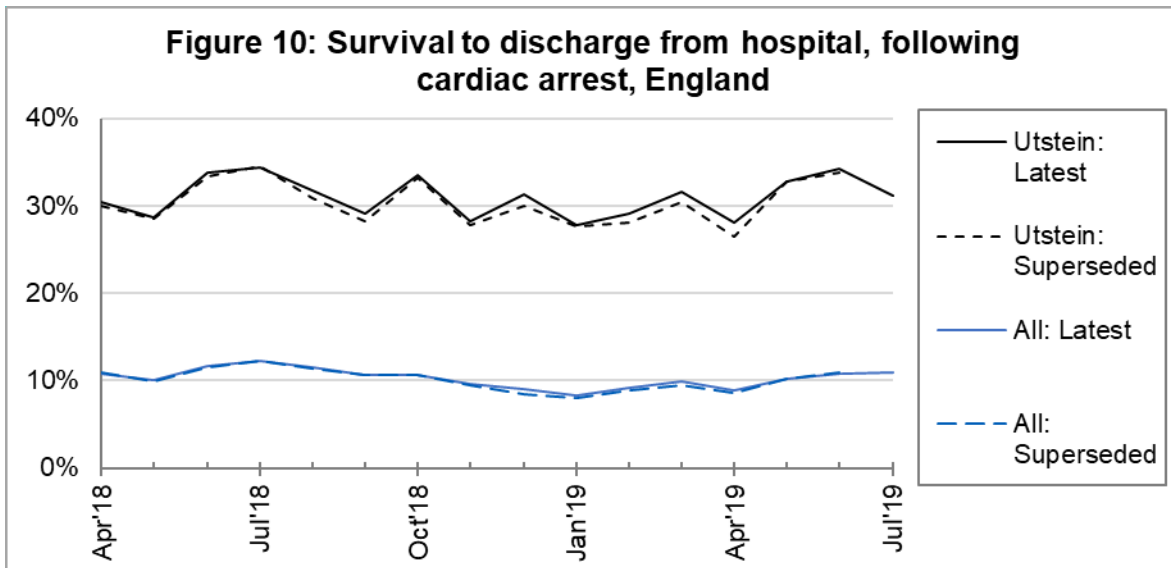


Figure 10 shows the effect of revisions upon the survival to discharge proportions. The largest change was for April 2019, +1.6 percentage points for the Utstein group.



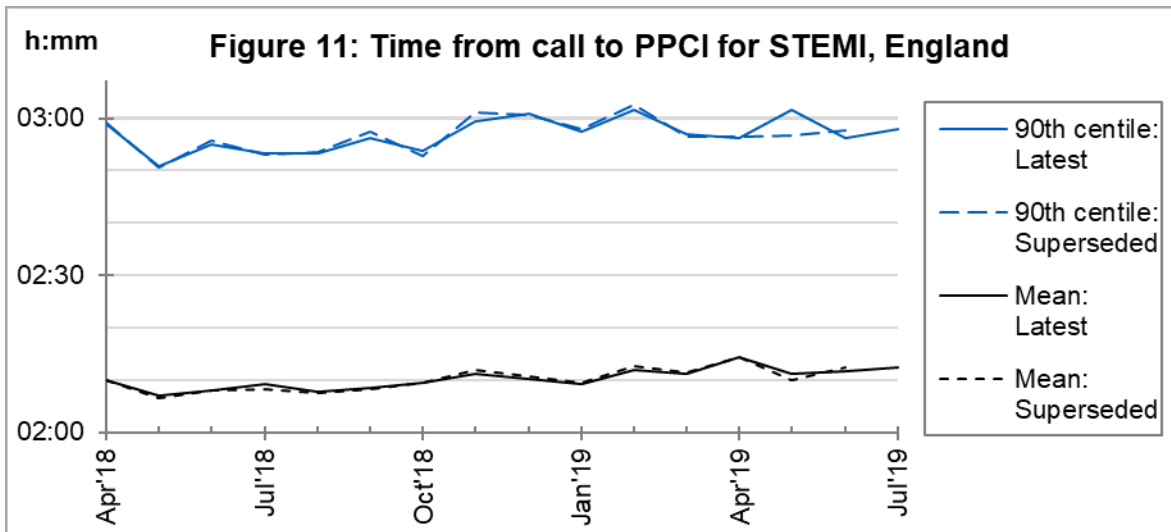
## 2.2 ST-segment elevation myocardial infarction (STEMI)

STEMI is a type of heart attack, determined by an electrocardiogram (ECG) test. Early access to reperfusion, where blocked arteries are opened to re-establish blood flow, and other assessment and care interventions, are associated with reductions in STEMI mortality and morbidity.

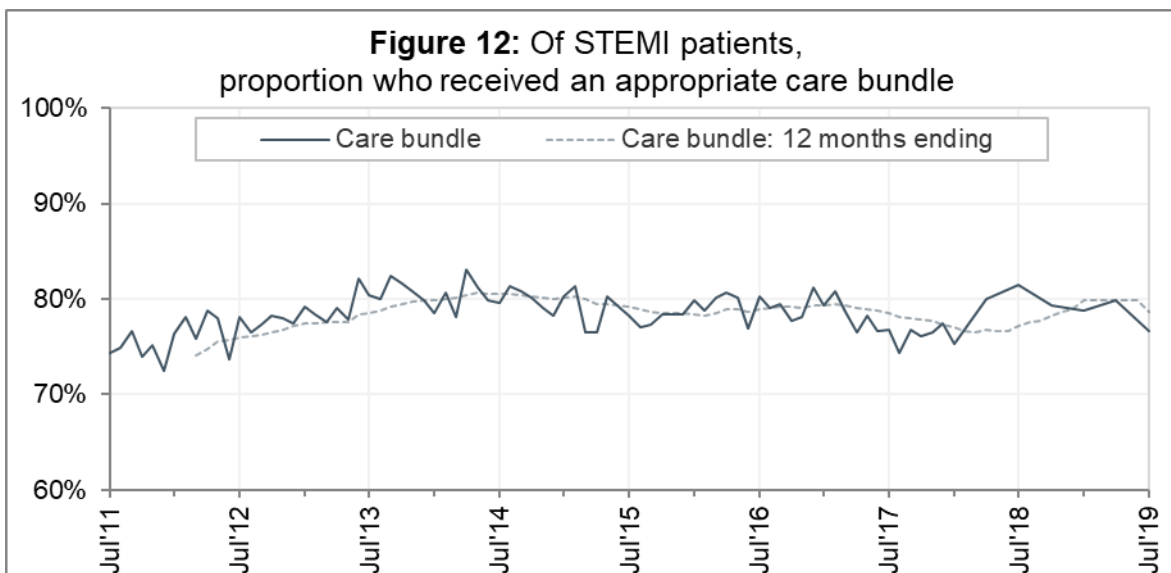
For STEMI patients, ambulance services measure the time from ambulance call to insertion of a catheter for primary percutaneous coronary intervention (PPCI): inflation of a balloon inside a blood vessel to restore blood flow to the heart.

In England in July 2019, the mean average time was 2 hours 12 minutes, similar to the 2018-19 average of 2:09. The 90th centile times averaged 2:57, similar to the 2018-19 value of 2:56.

Figure 11 shows that for England, revisions to the monthly times from call to PPCI were all less than 2 minutes, except for the May 2019 90th centile (5 minutes).



The proportion of patients with an acute STEMI in England in July 2019 that received an appropriate care bundle was 77% (Figure 12), a significant<sup>3</sup> decrease on the average for 2018-19 (80%).



Revisions to STEMI care bundle data were unremarkable. At England level, January 2019 saw the greatest change, with an increase of 0.15 percentage points.

<sup>3</sup> Calculated using Student's t-test with 95% significance.

### 2.3 Stroke (revisions)

For April 2019 data onwards, the patient count and times from call to hospital arrival after a stroke have been supplied at record-level by ambulance services to the Sentinel Stroke National Audit Project (SSNAP) at King's College London, who then provide the times in aggregate form to NHSEI. These data have not been revised.

Before April 2019, times from call to hospital arrival were provided directly to NHSEI by the ambulance services. Revisions to those are no more than one minute.

At England level, revisions to the proportion of stroke patients receiving a diagnostic bundle were all less than 0.1 percentage points.

### 2.4 Sepsis (revisions)

Only the North West Ambulance Service revised their sepsis data, and only for March 2019, changing the proportion by 0.3 percentage points.

## 3. Further information on AQI

### 3.1 The AQI landing page and Quality Statement

[www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators](http://www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators), or <http://bit.ly/NHSAQI>, is the AQI landing page, and it holds:

- a Quality Statement for these statistics, which includes information on relevance, accuracy, timeliness, coherence, and user engagement;
- the specification guidance documents for those who supply the data;
- timetables for data collection and publication;
- time series spreadsheets and csv files from April 2011 up to the latest month;
- links to individual web pages for each financial year;
- contact details for the responsible statistician (also in section 3.4 below).

Publication dates are also at

[www.gov.uk/government/statistics/announcements?keywords=ambulance](http://www.gov.uk/government/statistics/announcements?keywords=ambulance).

The web pages for each financial year hold:

- separate spreadsheets of each month's data;
- this Statistical Note, and equivalent versions from previous months;
- the list of people with pre-release access to the data.

### 3.2 Related statistics

Ambulance handover delays of over 30 minutes at each Emergency Department are published by NHSEI during winter 2012-13, 2013-14, 2014-15, 2017-18, 2018-19, and 2019-20, at [www.england.nhs.uk/statistics/statistical-work-areas/winter-daily-sitreps](http://www.england.nhs.uk/statistics/statistical-work-areas/winter-daily-sitreps).

The Quality Statement described in section 3.1 includes information on:

- the "Ambulance Services" publications<sup>4</sup> by NHS Digital, with data from before 2000, to 2014-15;

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<sup>4</sup> <https://digital.nhs.uk/data-and-information/publications/statistical/ambulance-services>



- a dashboard with an alternative layout for AQI data up to April 2016;
- the comparability of data for other countries of the UK:

Wales: <https://statswales.gov.wales/Catalogue/Health-and-Social-Care/NHS-Performance/Ambulance-Services>

Scotland: See Quality Improvement Indicators (QII) documents at [www.scottishambulance.com/TheService/BoardPapers.aspx](http://www.scottishambulance.com/TheService/BoardPapers.aspx)

Northern Ireland: [www.health-ni.gov.uk/articles/emergency-care-and-ambulance-statistics](http://www.health-ni.gov.uk/articles/emergency-care-and-ambulance-statistics)

### 3.3 AQI Scope

The AQI include calls made by dialling either the usual UK-wide number 999 or its international equivalent 112. As described in the specification guidance mentioned in section 3.1, incidents resulting from a call to NHS 111 are included in all Systems Indicators the except call data items, A1 to A6.

### 3.4 Contact information

Media: NHSEI Media team, [nhsengland.media@nhs.net](mailto:nhsengland.media@nhs.net), 0113 825 0958.

The person responsible for producing this publication is Ian Kay; Finance, Performance and Planning Directorate; NHS England and NHS Improvement; 0113 825 4606; [i.kay@nhs.net](mailto:i.kay@nhs.net); Room 5E24, Quarry House, Leeds, LS2 7UE.

### 3.5 National Statistics

The UK Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.