

Statistical Note: Ambulance Quality Indicators (AQI)

The latest Systems Indicators for October 2018 for Ambulance Services in England showed that one of the six response standards in the Handbook¹ to the NHS constitution was met.

Survival to discharge from hospital, following cardiac arrest and transportation by Ambulance Services, reached new high levels in June 2018.

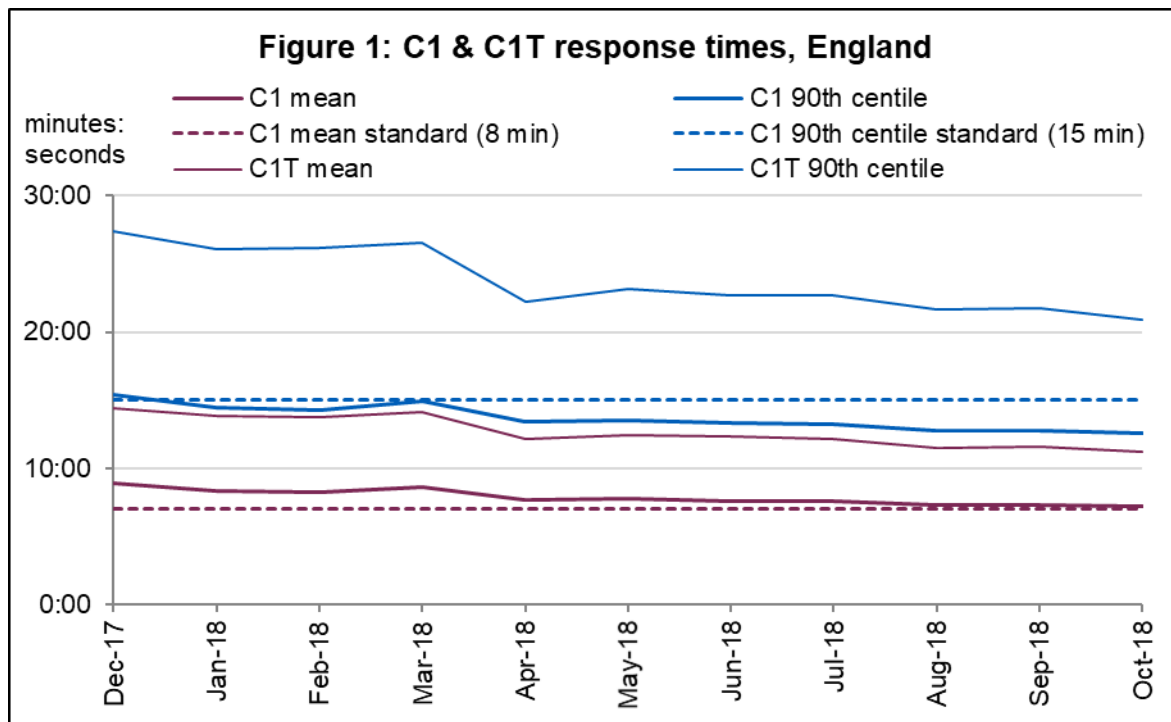
1. Systems Indicators

1.1 Response times

In October 2018, the Category C1 mean average response time across England was 7 minutes 13 seconds, the shortest time since the current categorisation was first in use throughout England² in December 2017; but still longer than the standard of 7:00.

The C1 90th centile response times averaged 12:33 seconds across England, also the shortest time in the series, and less than the standard of 15:00.

The mean and 90th centile for C1T (arrival of transporting vehicle for C1 patients transported) were also the shortest ever, at 11:15 and 20:54 respectively.

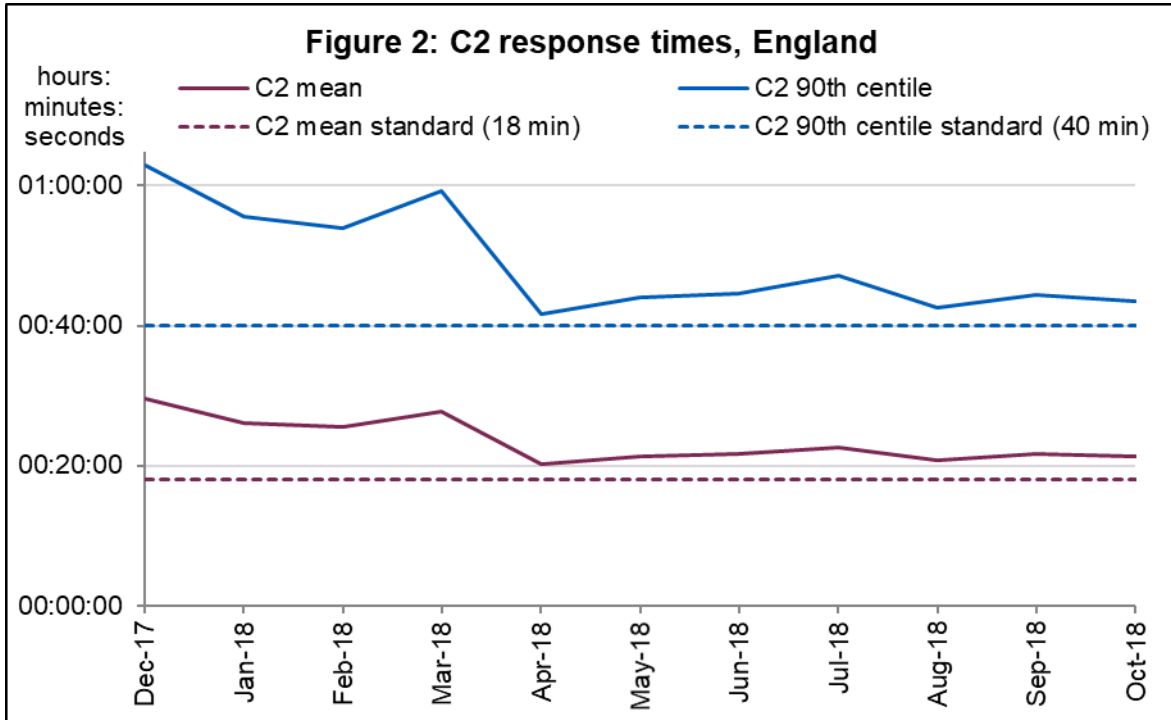


¹ Ambulance standards are in the September 2017 addendum to the Handbook to the NHS Constitution: www.gov.uk/government/publications/supplements-to-the-nhs-constitution-for-england

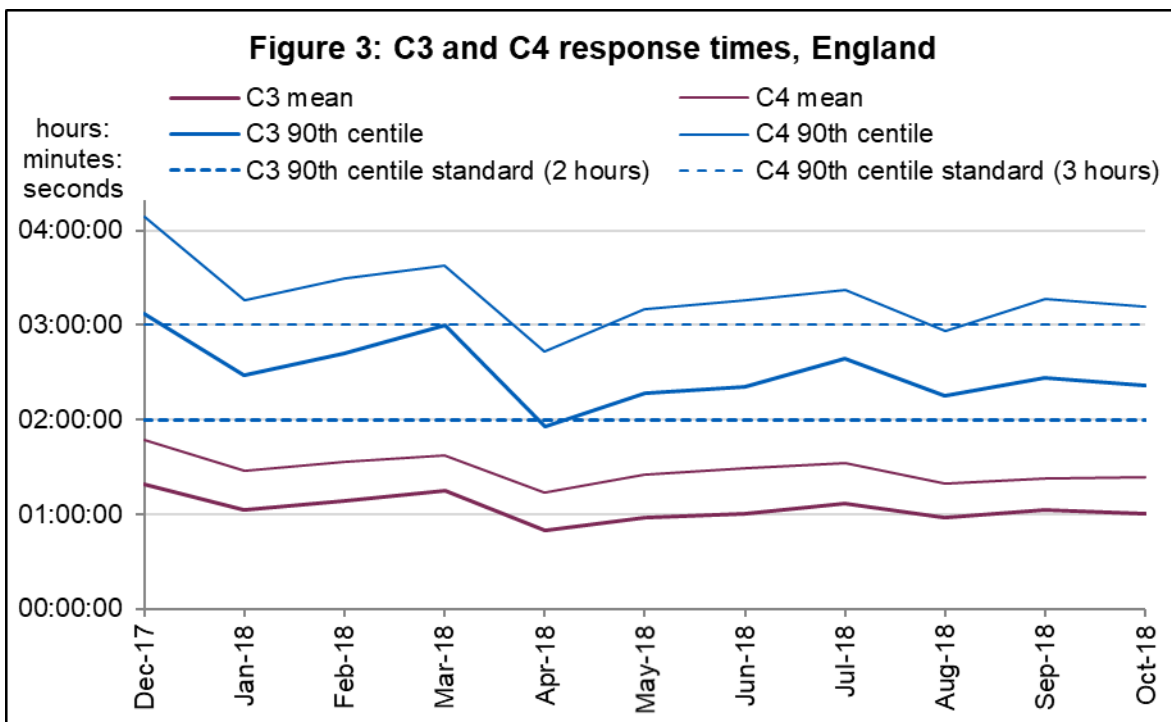
² The Isle of Wight (IOW) Ambulance Service has provided data from April 2018, including response times against the new categories C1 to C4. However, until 9 October 2018, it still used the old Red 1 / Red 2 / Green categories operationally, so its response times reflected the old category used at the time of the incident, and not the new category that the incident corresponded to.

The C2 mean average response time for England was 21:18 in October 2018, shorter than in most months of 2018, but longer than the standard of 18:00.

The C2 90th centiles averaged 43:29 across England, again shorter than in most previous months, but longer than the standard of 40 minutes.



Across England, the C3 90th centile response times averaged 2:21:52, and the C4 equivalents 3:11:57. Both were shorter than in the previous month, but longer than the standards of 2 hours and 3 hours respectively.

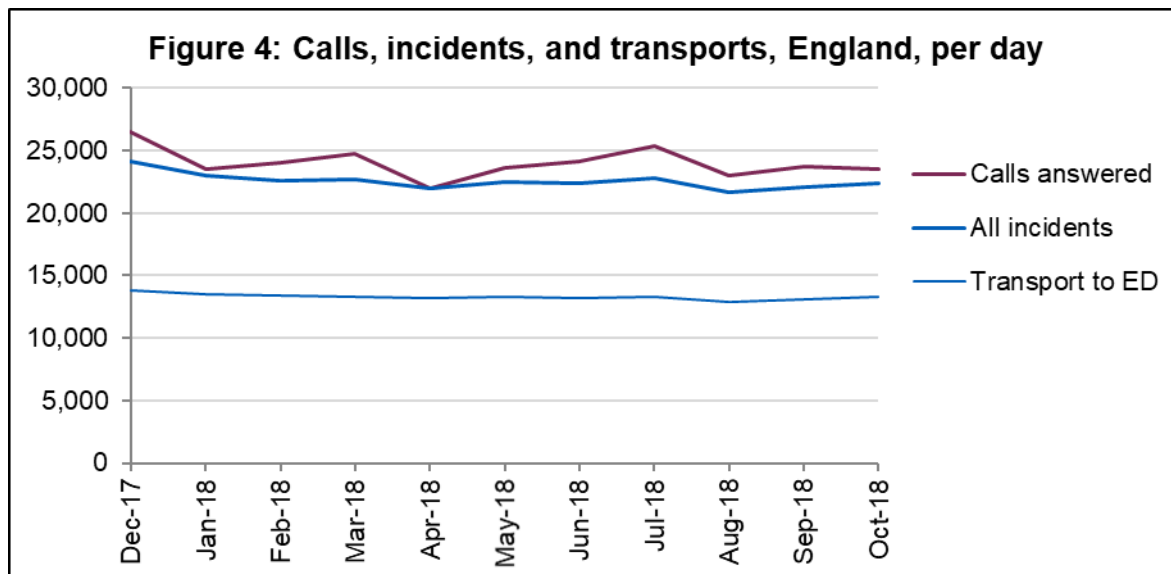


1.2 Other Systems Indicators

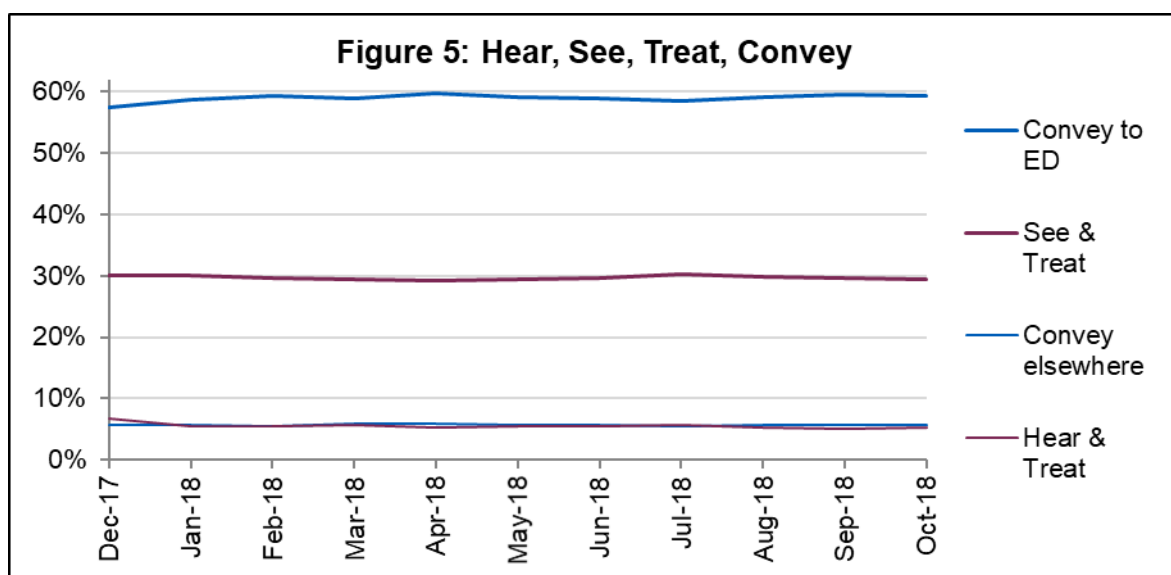
The mean average call answer time in October was 7 seconds, fewer than in most months of 2018.

In October 2018, per day, there were (Figure 4):

- 23.5 thousand calls to 999 answered per day, a 1% decrease on September;
- 22.4 thousand incidents that received a response from an Ambulance Service, an increase of 2% on September;
- 13.3 thousand incidents where a patient was transported to an Emergency Department (ED), an increase of 1% on September.



The proportion of incidents where a patient was transported to ED was 59.4% in October. Other incidents in October comprised 5.8% with a patient transported elsewhere, 29.5% where patients were attended but not transported (see and treat), and 5.3% resolved on the telephone (hear and treat). All these proportions changed less than 0.5 percentage points on the previous two months (Figure 5).

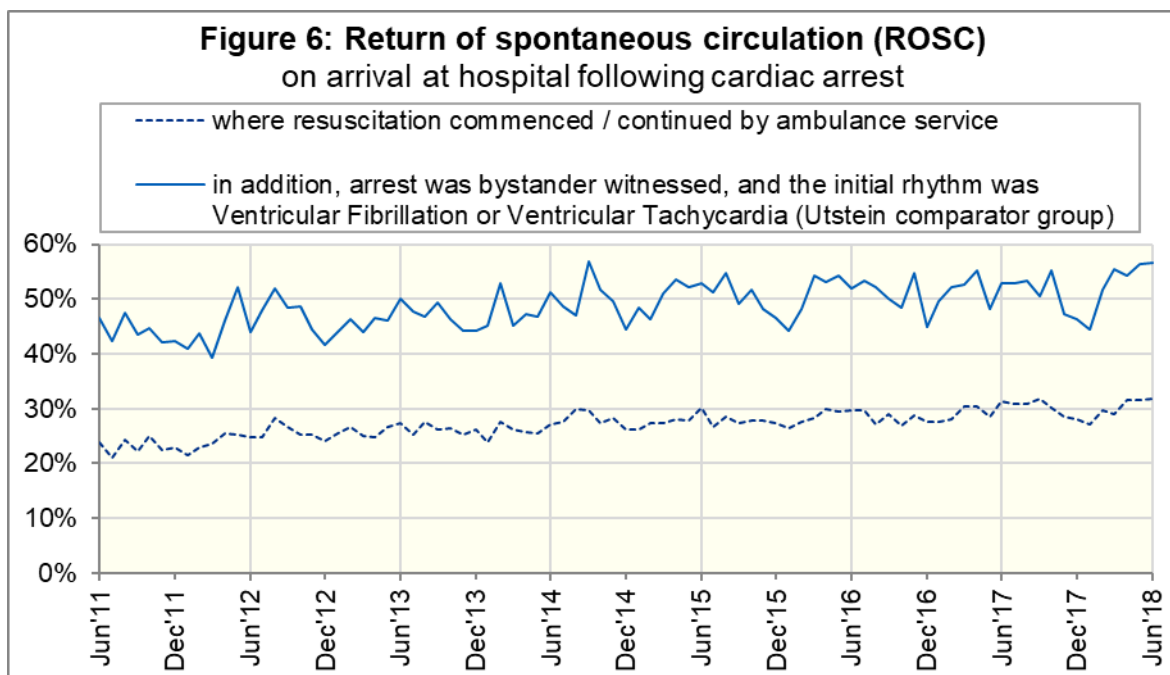


2. Latest Clinical Outcome data

Besides our regular clinical outcomes data, today for the month of June 2018, we have also published revisions for April 2017 to May 2018, and introduced a new measure for patients with sepsis.

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 7).



At England level, for all patients, ROSC (Figure 6) exceeded 31% for each month April to June 2018. It reached 31.8% in June, the joint highest proportion in the time series, and significantly³ higher than the average for 2017-18 (30%).

Survival to discharge (Figure 7) for all patients also increased throughout this quarter, reaching 11% in June, the highest proportion in the series, and also significantly higher than for 2017-18 (9%).

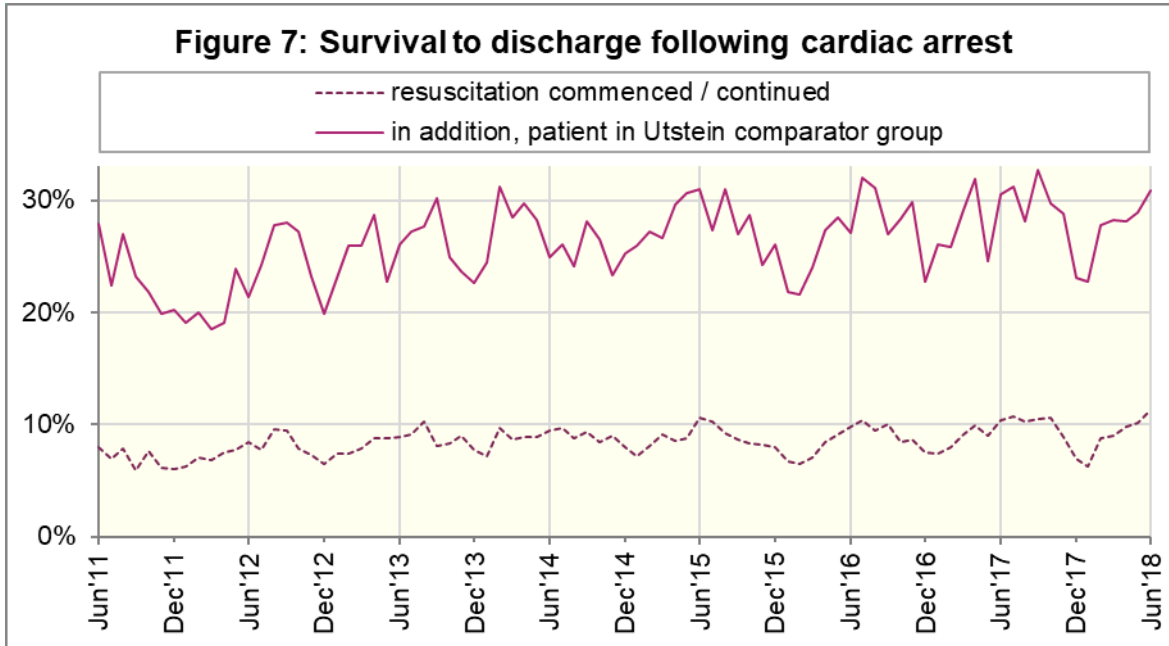
The Utstein comparator group⁴ comprises patients who had resuscitation commenced or continued by the Ambulance Services, following an out-of-hospital cardiac arrest of presumed cardiac origin, where the arrest was bystander witnessed, and the initial rhythm was Ventricular Fibrillation or Ventricular Tachycardia. This group therefore have a better chance of survival.

³ Significance calculations in this document are Student's t-test with 95% significance.

⁴ 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>

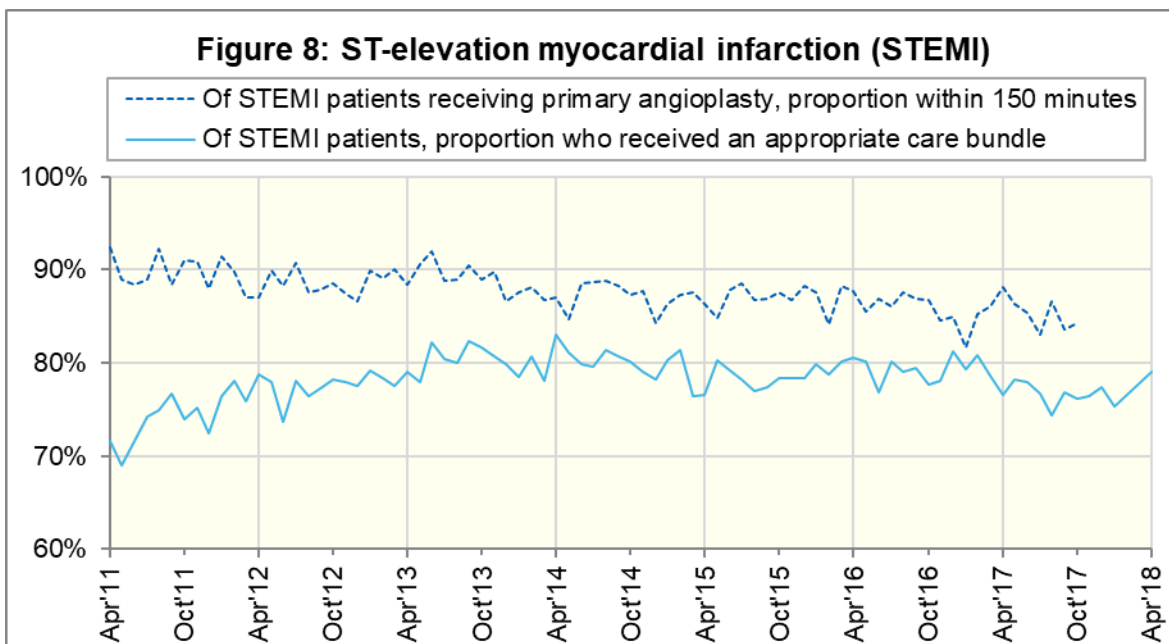
Both ROSC and survival also rose for the Utstein group from April to June: survival was 31% in June; while ROSC reached 57% in June, the highest proportion since September 2014, and significantly higher than the average for 2017-18 (51%).

However; for every year in the time series, ROSC is higher during April to June than in the previous quarter; both for all patients, and for the Utstein group. That is also true for survival to discharge following cardiac arrest, except for in 2014.



2.2 ST-segment elevation myocardial infarction (Figure 8)

ST-segment elevation myocardial infarction (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.



In 2018, STEMI care bundle data is collected one month in three (January, April, July and October).

The proportion of patients with acute STEMI that received an appropriate care bundle was 79% in April 2018, significantly higher than the average of 77% for 2017-18.

The Myocardial Ischaemia National Audit Project (MINAP) continues to supply the times from ambulance call to primary percutaneous coronary intervention (PPCI): inflation of a balloon inside a blood vessel to restore blood flow to the heart. From November 2017 onwards, these replaced the previous 150-minute STEMI measure.

Across England for the months of April, May, and June 2018, the mean average time from call to catheter insertion was always within a minute of 2 hours 10 minutes, and therefore similar to the November 2017 to March 2018 average of 2:12.

The 90th centile time from call to catheter insertion was 3:05 in June 2018, the longest time in the series, but this measure has also not varied a lot; the shortest time in the series from November 2017 was 2:56 in May 2018.

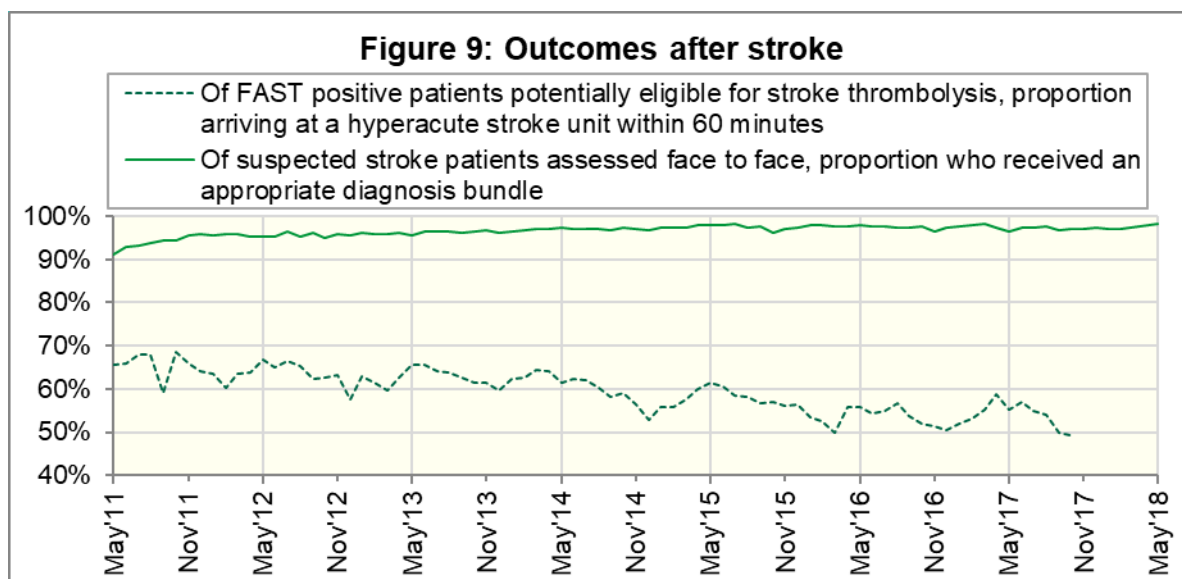
2.4 Stroke (Figure 9)

The FAST procedure helps assess whether someone has suffered a stroke:

- Facial weakness: can the person smile? Has their mouth or eye drooped?
- Arm weakness: can the person raise both arms?
- Speech problems: can the person speak clearly and understand what you say?
- Time to call 999 for an ambulance if you spot any one of these signs.

After February 2018, stroke diagnostic bundle data items are collected one month in three (May, August and November).

Of stroke patients assessed face-to-face in May 2018, the proportion that received an appropriate diagnostic bundle was 98.3%, the highest proportion recorded in the time series, and significantly higher than the average for 2017-18. However, this measure does not vary a lot; all Ambulance Services have had at least 92% for this measure every month since December 2016.



Ambulance Services continue to supply times from call to arrival at hospital. The Sentinel Stroke National Audit Project (SSNAP) continues to supply times from arrival at hospital to (i) CT scan and (ii) thrombolysis (dissolving of a blood clot inside a blood vessel to restore blood flow to the heart). From November 2017 onwards, these times collectively replaced the previous stroke measure for arrival at a hyper-acute stroke centre.

The mean average time from call to hospital arrival for stroke was 1 hour 13 minutes in June 2018, less than the November 2017 to March 2018 average of 1:19.

The mean average time from arrival at hospital to CT scan for stroke was 2:29 in June 2018, the shortest time in the series. However, this appears to be quite a volatile measure, and skewed by some individual long times. The median was 40 minutes for June 2018, more than in May (38 minutes) but less than in each of the previous six months.

The mean average time from arrival at hospital to thrombolysis for stroke varies little. For each month from November 2017 to June 2018 it has been between 54 and 57 minutes.

2.5 Sepsis

We have introduced a new measure today for delivery of a care bundle (including administration of oxygen and fluids, and recording of observations) to Ambulance Service patients with sepsis. For the remainder of 2018, Sepsis care bundle data items will be published one month in three (June, September and December).

We published the definition in an expanded version (20181102) of the Clinical Outcomes specification pdf at www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators.

Sepsis is a time-critical condition. Early recognition and management of sepsis in the pre-hospital setting can reduce mortality and improve the health and well-being of patients. Making a diagnosis quickly and ensuring early transport of a patient to an appropriate Emergency Department capable of providing further tests, treatment and care (including appropriate antibiotics for those who are eligible) represents a standard of ambulance care.

In June 2018, the proportion of patients receiving the sepsis care bundle was 68.2%.

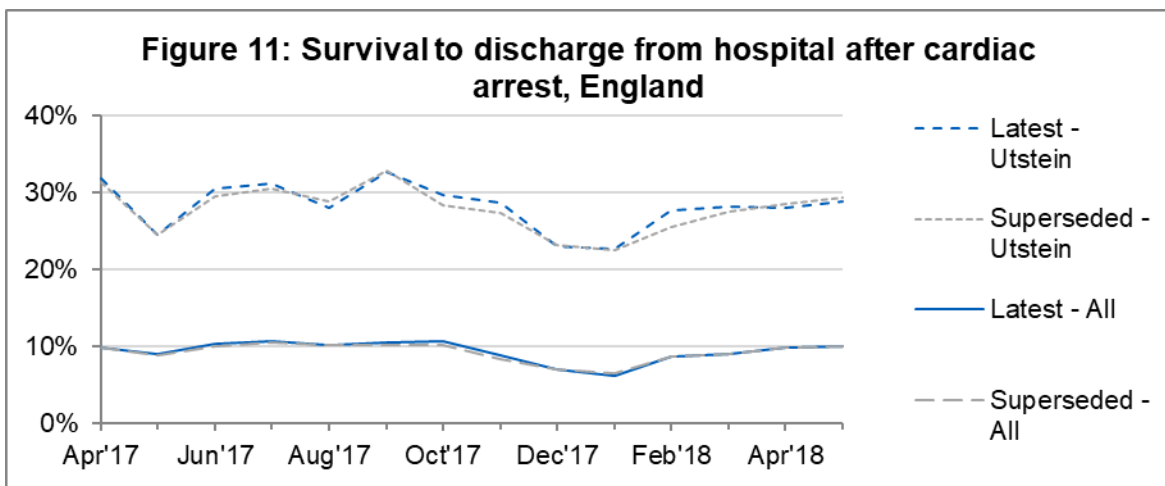
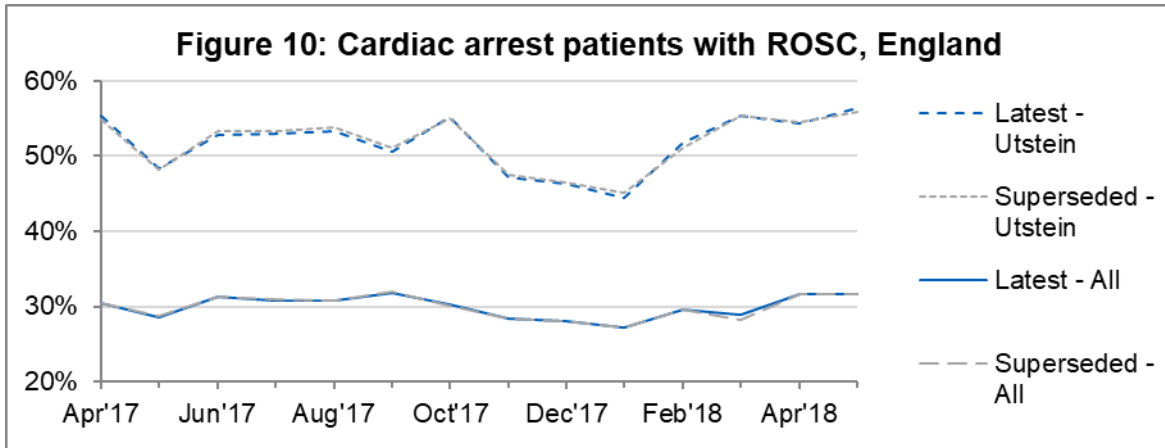
3. Clinical Outcome Revisions

All eleven Ambulance Services have revised to data within the period April 2017 to April 2018, ranging from a single month (IOW) to all thirteen months (EMAS, LAS and WMAS) revised. LAS also revised May 2018 cardiac arrest data. These revised data are used in Section 2 above, and summarised below.

Times from hospital arrival to CT scan and thrombolysis for stroke in this publication are finalised data supplied by the Sentinel Stroke National Audit Programme (SSNAP) and are not revised.

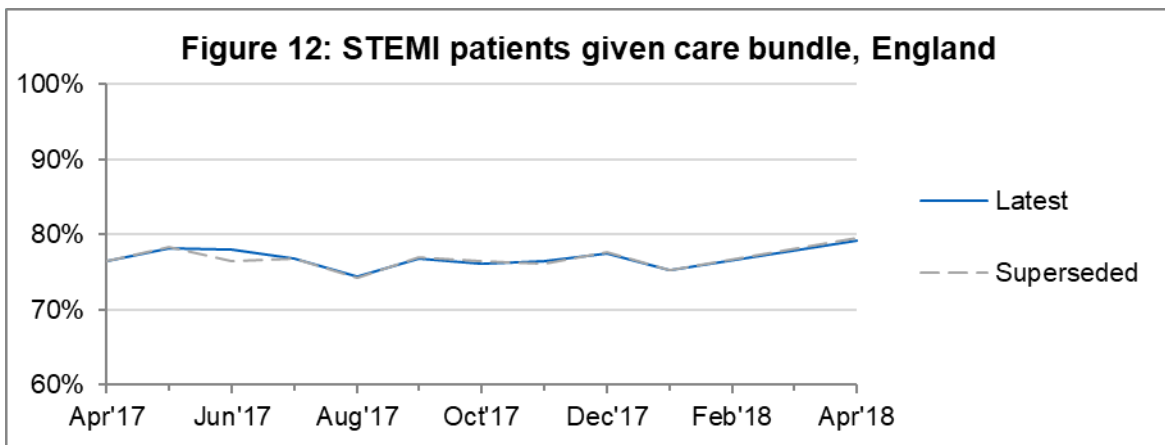
3.1 Cardiac arrest (Figures 10 and 11)

At England level, the only cardiac arrest proportions revised by more than 1 percentage point were survival to discharge from hospital (Figure 11), for the Utstein group, for October 2017, November 2017 and February 2018.

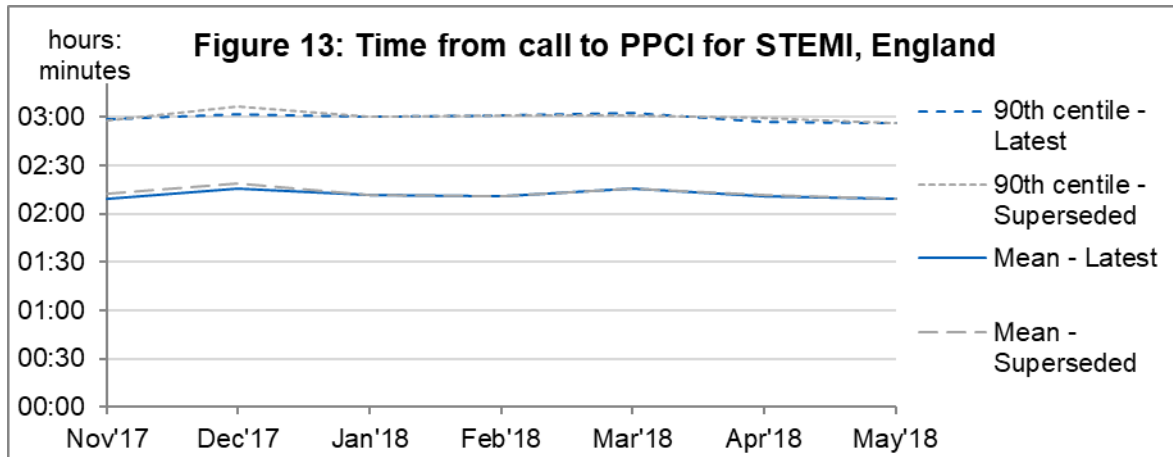


3.2 STEMI

For the proportion of STEMI patients given a care bundle, at England level (Figure 12), only June 2017 data was revised by more than 1 percentage point.

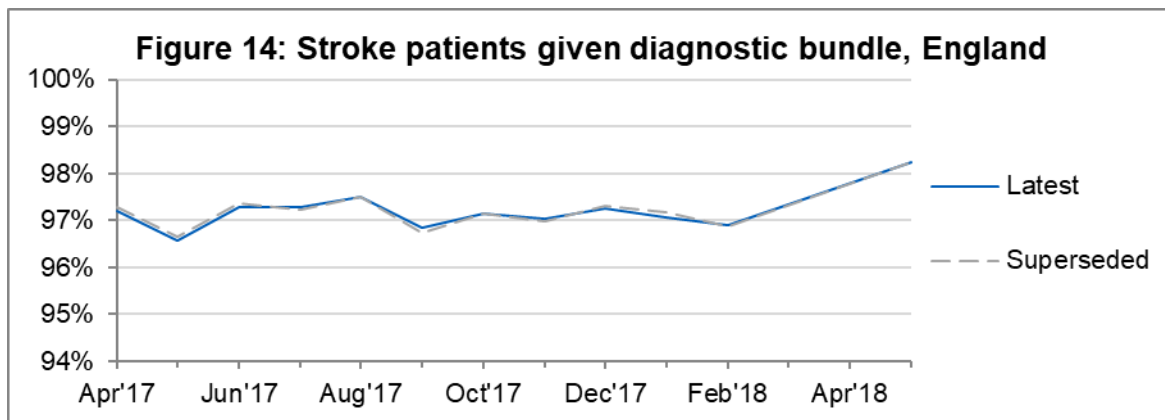


At England level, the mean average times from call to PPCI for STEMI were revised by more than 2 percentage points for November and December 2017, and so was the 90th centile time for December (Figure 13).

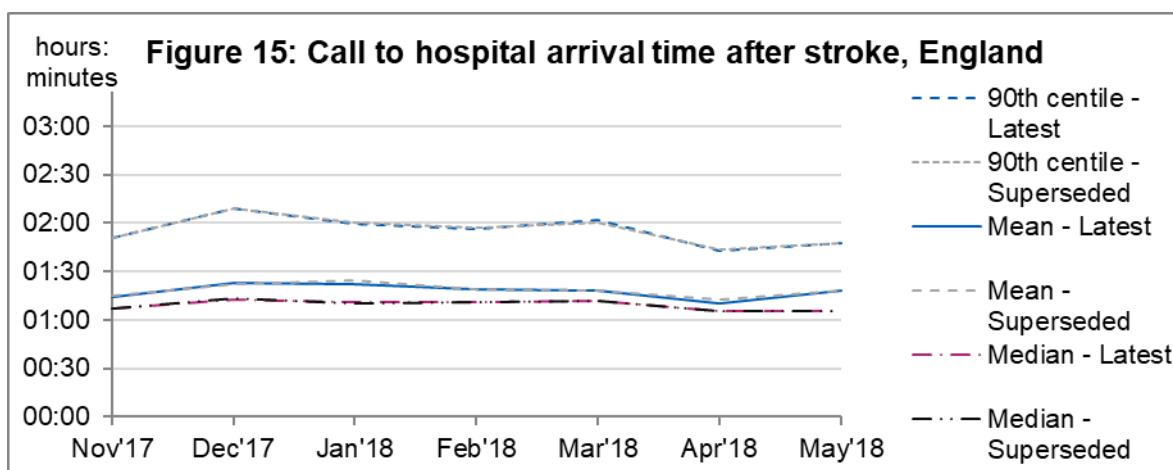


3.3 Stroke

Revisions to the provision of a diagnostic bundle for stroke patients at England level were all 0.1 percentage points or less.



At England level, the January and April 2018 mean times from call to hospital arrival for stroke were each revised by more than 2%; and the March 90th centile time was revised by more than 1%.



3.4 Revisions of more than 10%, or 10% points, to Ambulance Service proportions or times

Trust	Indicator	Month	From	To	Revision
EMAS	Mean time for stroke	Jan 2018	1:35	1:20	-15.1%
	Median time for stroke	Jan 2018	1:21	1:34	17.1%
NEAS	Mean time for PPCI	Dec 2017	1:34	1:48	14.5%
	90th centile time for PPCI	Dec 2017	1:58	2:27	24.9%
	Mean time for stroke	Dec 2017	1:16	1:29	18.4%
		Jan 2018	1:10	1:17	10.7%
Median time for stroke	Dec 2017	1:26	1:16	-11.0%	
NWAS	Mean time for PPCI	Nov 2017	2:29	2:11	-11.8%
		Dec 2017	2:59	2:22	-20.4%
	90th centile time for PPCI	Dec 2017	4:33	3:17	-27.8%
	Mean time for stroke	Jan 2018	1:24	1:11	-15.5%
		Apr 2018	1:30	1:12	-20.0%
YAS	90th centile time for PPCI	Nov 2017	2:49	3:06	10.5%

In the tables in sections 3.4 and 3.5:

Time for stroke = time from call to hospital arrival

Time for PPCI = time from call to PPCI for STEMI

3.5 Revisions of more than 1%, or 1% point, to England-level proportions or times

Indicator	Month	From	To	Revision
Cardiac arrest survival (Utstein)	Oct 2017	28.3%	29.8%	1.4%
	Nov 2017	27.3%	28.8%	1.4%
	Feb 2018	25.5%	27.7%	2.2%
STEMI care bundle	Jun 2017	76.5%	77.9%	1.4%
Mean time for PPCI	Nov 2017	2:12	2:09	-2.7%
	Dec 2017	2:18	2:15	-2.2%
90th centile time for PPCI	Dec 2017	3:07	3:02	-2.8%
Mean time for stroke	Jan 2018	1:24	1:22	-2.8%
	Apr 2018	1:12	1:10	-2.7%
90th centile for stroke	Mar 2018	2:00	2:01	1.2%

4. Further information on AQI

4.1 The AQI landing page and Quality Statement

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 4.4 below).

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.

Publication dates are also at

www.gov.uk/government/statistics/announcements?keywords=ambulance.

4.2 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 guidance mentioned in section 4.1, calls made to NHS 111 are included in all Systems Indicators except data on calls, items A1 to A6.

4.3 Related statistics in England

Ambulance handover delays of over 30 minutes at each Emergency Department were published by NHS England for winter 2012-13, 2013-14, 2014-15 and 2017-18 at www.england.nhs.uk/statistics/statistical-work-areas/winter-daily-sitreps.

The Quality Statement described in section 4.1 has more information on the AQI. This includes a dashboard on the AQI landing page, which has an alternative layout for the AQI data up until April 2016. The Statement also describes the "Ambulance Services" publications⁵ by NHS Digital, with data from before 2000, to 2013-14; and has information on the comparability of data for other countries of the UK:

Wales: <http://wales.gov.uk/statistics-and-research/ambulance-services>

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

Northern Ireland: www.health-ni.gov.uk/articles/emergency-care-and-ambulance-statistics

⁵ <https://digital.nhs.uk/data-and-information/publications/statistical/ambulance-services>



4.4 Contact information

Media: NHS England Media team, nhsengland.media@nhs.net, 0113 825 0958.

The person responsible for producing this publication is Ian Kay, Operational Information for Commissioning (Central), NHS England, Room 5E24, Quarry House, Leeds, LS2 7UE; 0113 825 4606; i.kay@nhs.net

4.5 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.