

Statistical Note: Ambulance Quality Indicators (AQI)

The latest Systems Indicators for April 2018 for Ambulance Services in England showed that three of the six response standards in the Handbook¹ to the NHS constitution were met.

Clinical Outcome data for December 2017 showed a decrease in survival following cardiac arrest.

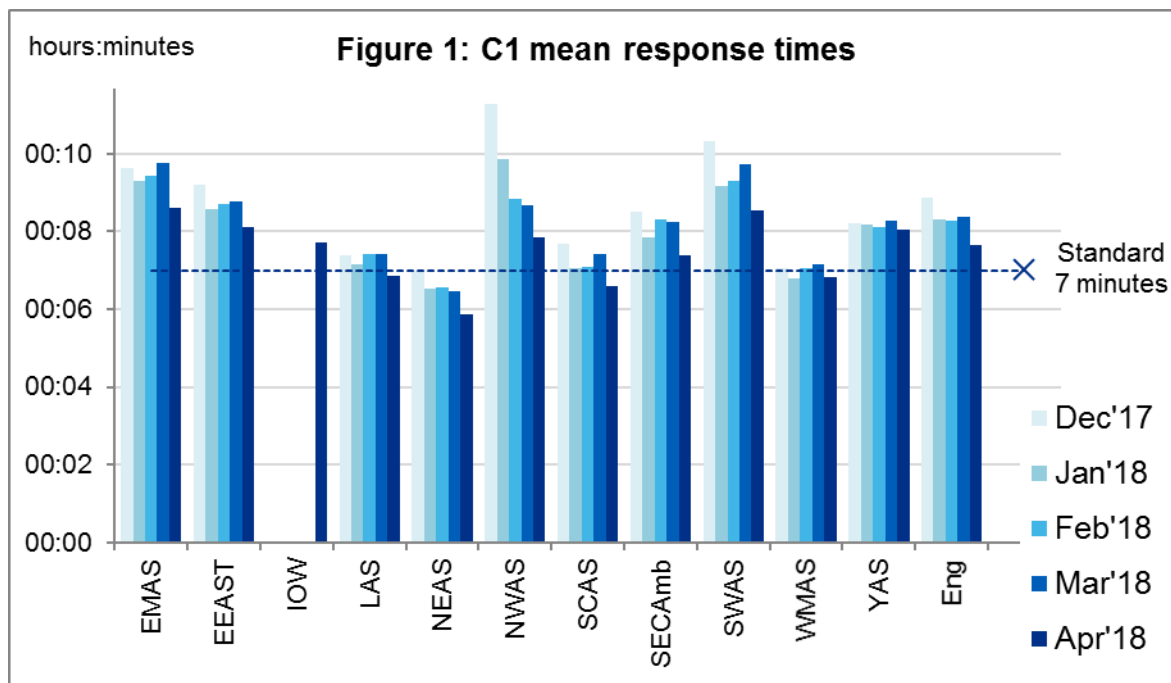
1. Systems Indicators

1.1 Response times

April 2018 was the first month when the Isle of Wight (IOW) Ambulance Services reported against the new standards. In Section 1, Systems Indicators, IOW data are displayed in Figures 1 to 6, but they are excluded from all commentary, to enable consistent comparisons with previous months.

Response times decreased between March and April 2018 against all six standards for every Ambulance Service.

For Category² C1, the most life-threatening incidents, the mean average response time was 7 minutes 38 seconds in April 2018, 44 seconds fewer than in March. Four Services met the mean standard of 7 minutes; London Ambulance Service (LAS), North East Ambulance Service (NEAS), South Central Ambulance Service (SCAS), and West Midlands Ambulance Service (WMAS).



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 Categories introduced nationwide in 2017: www.england.nhs.uk/urgent-emergency-care/arp

The standard for the 90th centile response time for Category C1 (Figure 2) is 15 minutes. Performance varied in April from 10:05 for NEAS to 15:50 for South Western Ambulance Service (SWAS). Eight Services met the standard in April, up from six in March.

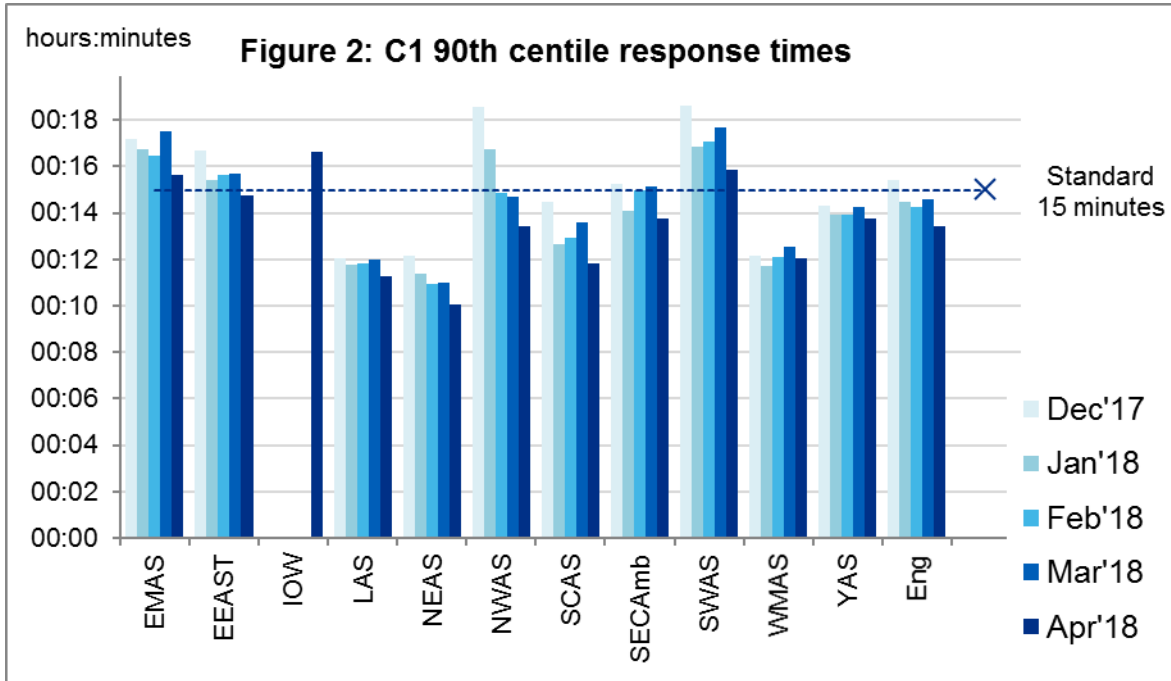
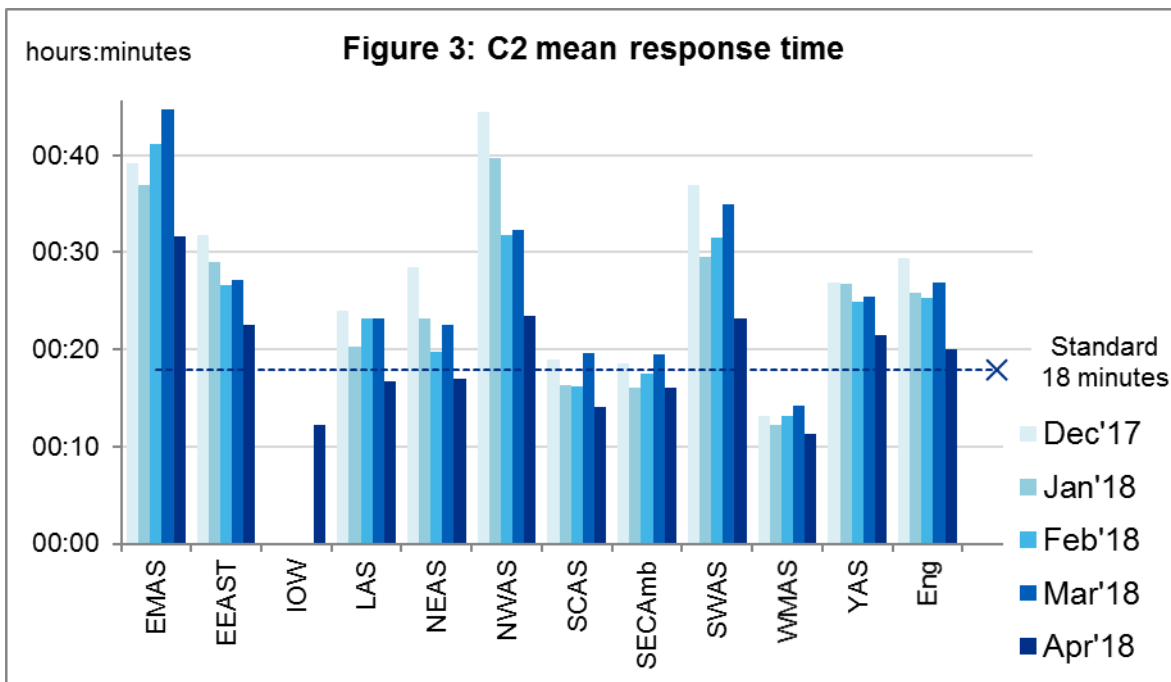
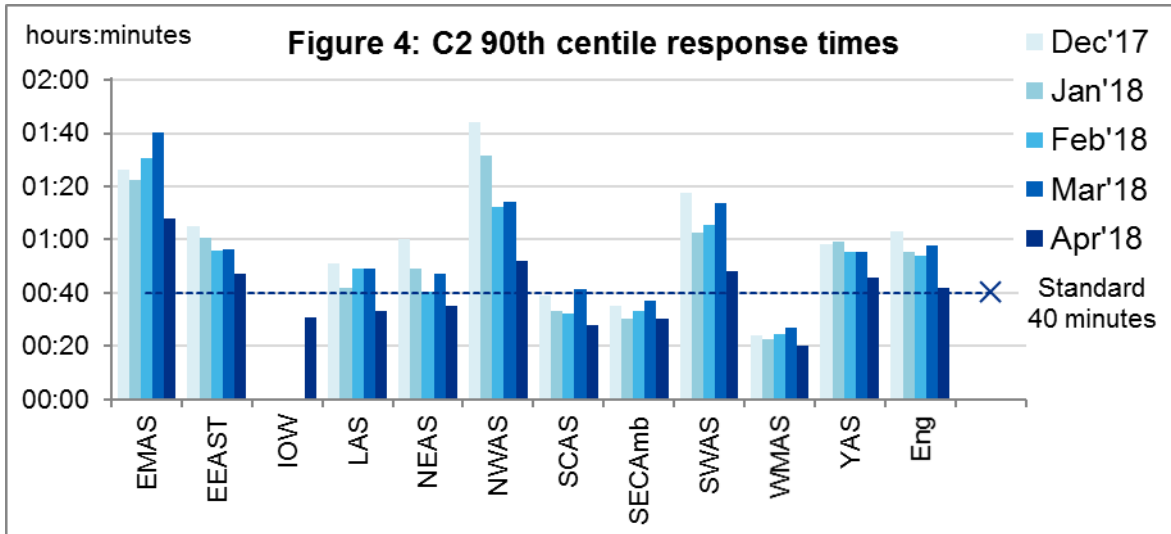


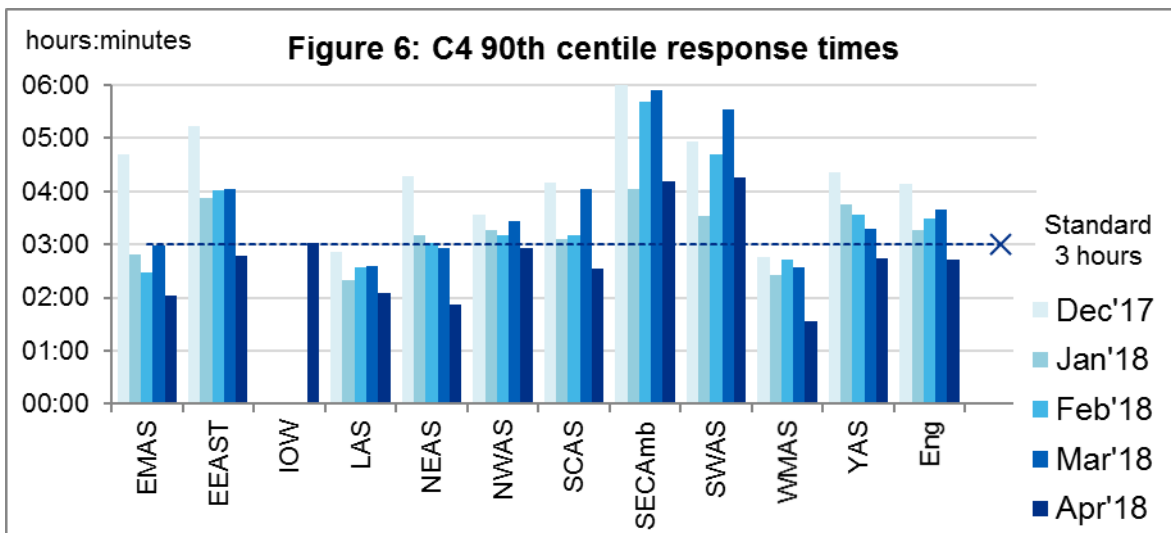
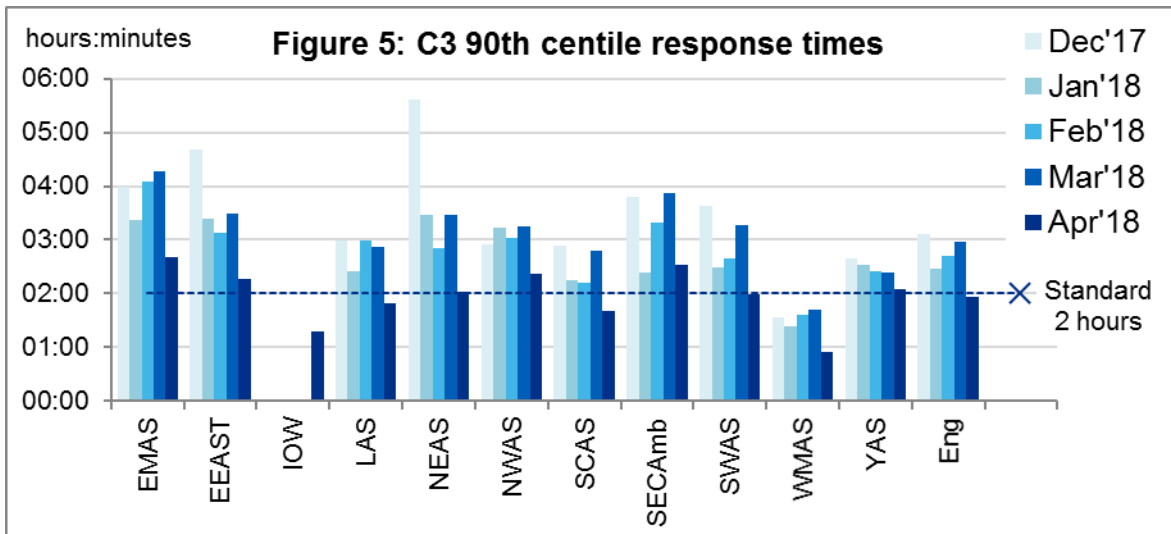
Figure 3 shows that five Services met the C2 mean response time standard of 18 minutes in April: LAS, NEAS, SCAS, South East Coast Ambulance Service (SECAmb), and WMAS, compared with just WMAS in March.

Figure 4 shows that the same five Services met the C2 90th centile standard of 40 minutes.





Between December 2017 and March 2018, only WMAS met the C3 90th centile standard of 2 hours (Figure 5), but in April 2018, LAS, SCAS, and SWAS also met the standard. For the C4 90th centile (Figure 6), eight Services met the standard of 3 hours, up from four in March. Response times ranged from 1:32:40 to 4:15:42.



1.2 Other Systems Indicators

The mean average call answer time fell from 15 seconds in March 2018 to 6 seconds in April.

In April 2018 there were 21.9 thousand calls to 999 answered per day, a decrease of 12% on March.

In April 2018 there were 22.0 thousand incidents per day that received a response from an Ambulance Service, a decrease of 2% on March.

In April 2018 there were 13.1 thousand incidents per day where a patient was transported to an Emergency Department (ED), a decrease of 1% on March.

The proportion of incidents where a patient was transported to ED was 60% in April. Other incidents comprised 6% where a patient was transported elsewhere, 29% where patients were attended but not transported, and 5% resolved on the telephone. None of these changed more than 1 percentage point from March.

1.3 Revisions to Systems Indicators

We asked Ambulance Services if they had revisions to make to Systems Indicators from April to December 2017.

For the previous specification including Red 1 and Red 2 response times (v1.31 at www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators), North East Ambulance Service (NEAS) revised many indicators across all months; while North West Ambulance Service (NWAS) and Yorkshire Ambulance Service (YAS) made small revisions, to calls resolved at scene, and telephone call count respectively, from September onwards.

For the latest specification 20170926 including the new categories C1 to C4, for which data collection started in August 2017, only IOW, LAS, SECamb, and WMAS did not revise data.

Many of the current data items were changed, in particular incidents transported (A53 to A55) for NEAS, SCAS and SWAS in November and December; and calls from clinicians before responses on scene (A20 and A23) for YAS and East of England Ambulance Service (EEast), from September onwards.

Revisions of more than 5% to C1 to C4 mean and 90th centile response times were:

- Increases in EEast C1T times in November and December;
- Increases in NEAS C3 and C4 times in November and December;
- Decreases in SWAS C4 times in November;
- Decreases in YAS C2 times for September to November.

We published a full history of AQI revisions in the 14 December 2017 Statistical Note. We will publish our next Systems Indicators revisions in the second half of 2018.

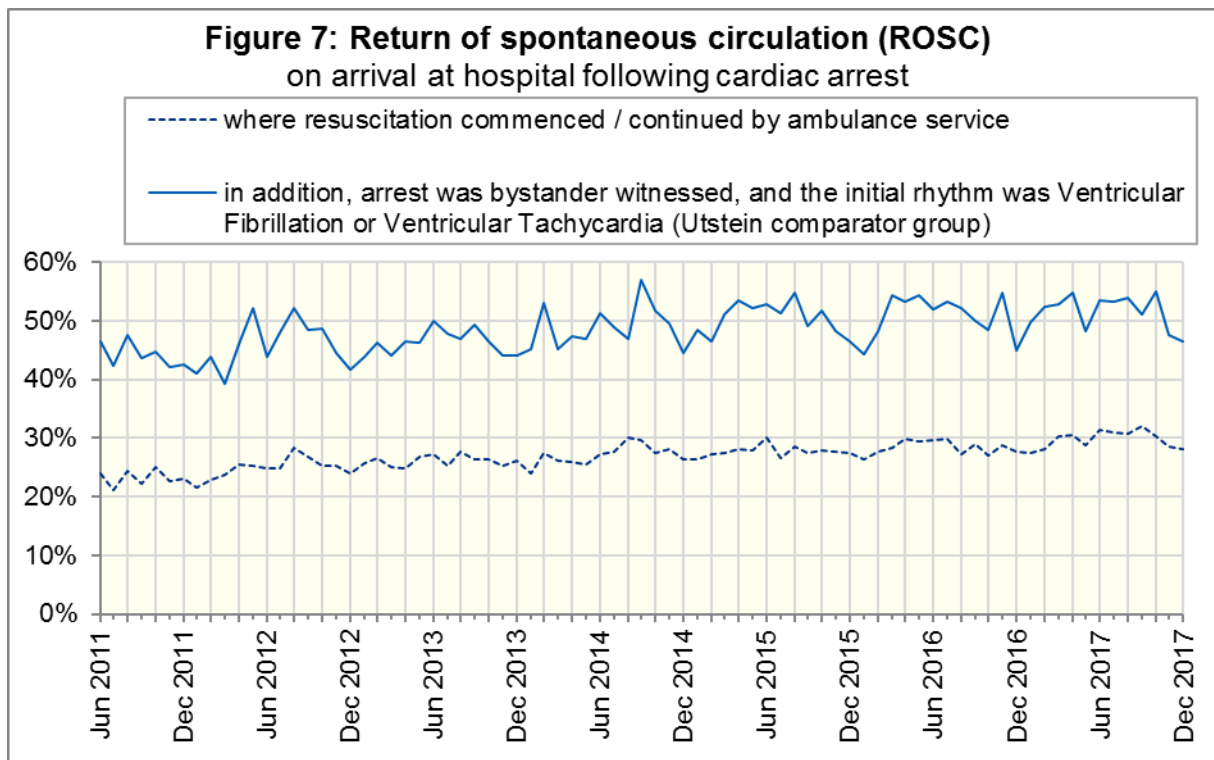
2. Clinical Outcomes

We continue to publish new Clinical Outcomes data in spreadsheets each month, but only describe them in this Statistical Note once a quarter.

2.1 Cardiac arrest: return of spontaneous circulation (ROSC)

Patients in cardiac arrest will typically have no pulse and will not be breathing. Figure 7 shows, of patients for whom resuscitation was commenced or continued by ambulance staff out-of-hospital, how many had ROSC, with a pulse, on arrival at hospital.

Figure 7 shows that between October and December 2017, the proportion of patients with ROSC (dotted line) was stable. In December, 28% of such patients had ROSC, a similar proportion to the average for the year ending September (29%).



The Utstein comparator group³ 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.

The proportion of these with ROSC in December 2017 was 46%, but because the Utstein group is small, this was not significantly⁴ different to the year ending September (51%).

³ 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>

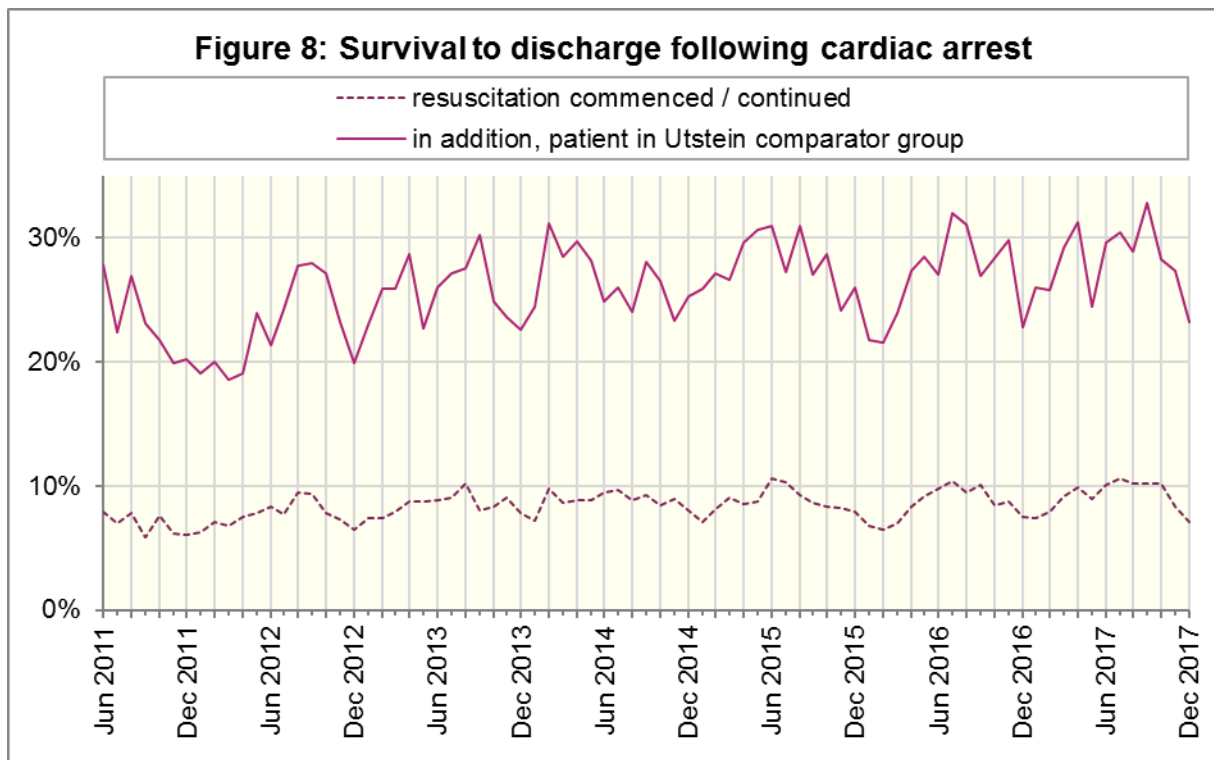
⁴ Significance calculations in this document are Student's t-test with 95% significance.

2.2 Cardiac arrest: survival to discharge

Figure 8 shows that the proportion of cardiac arrest patients in England discharged from hospital alive (dotted line) fell from 10% in October to 7% in December.

This was a significantly lower proportion than the twelve months to September (9%), but was consistent with a regular fall at that time of the year.

For the Utstein comparator group (solid line), survival to discharge was also lower in October to December compared with the previous three months. However, the proportion of 23% in December 2017 for this small group of patients was not significantly lower than the 12 months to September (28%).



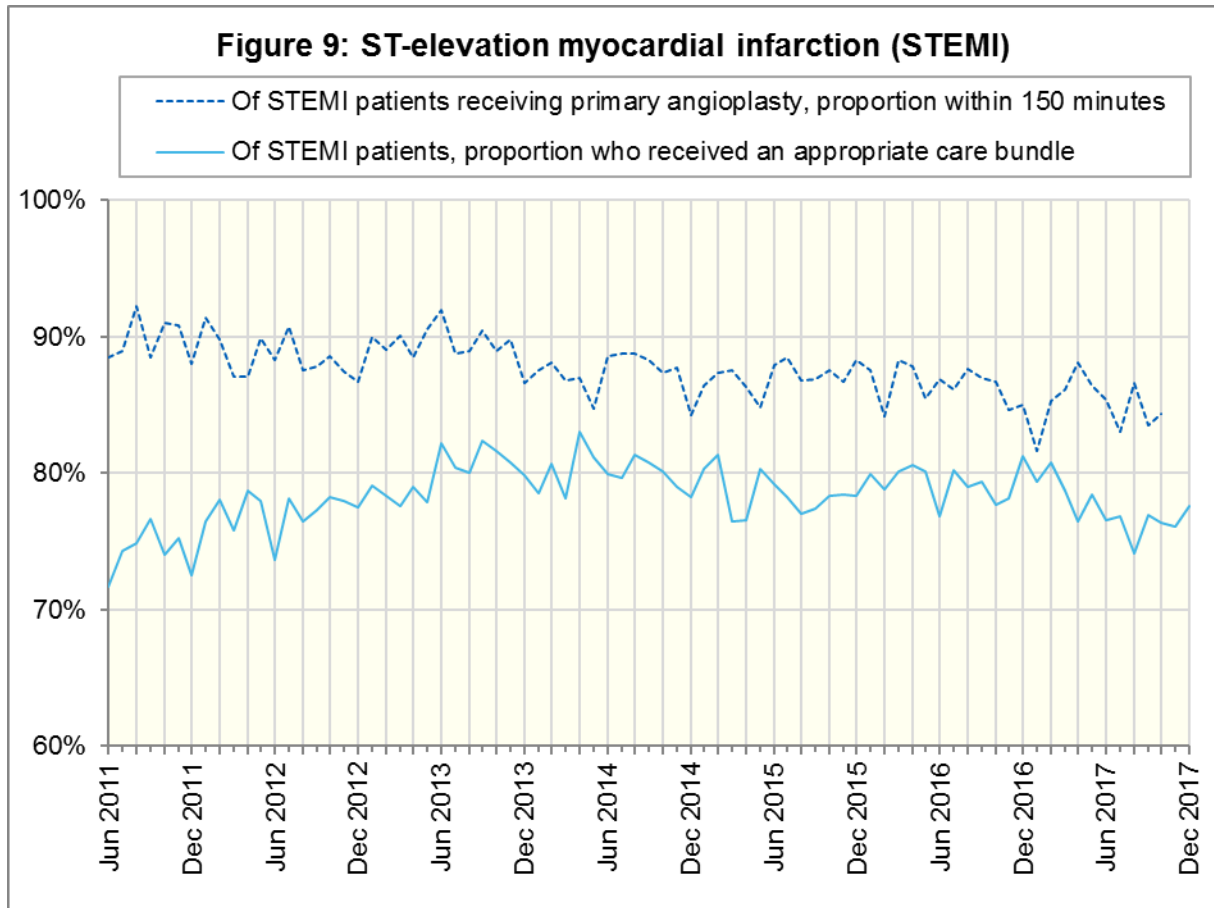
2.3 ST-segment elevation myocardial infarction (Figure 9)

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.

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

The mean average time across England for patients transported by an Ambulance Service in December 2017 was 2 hours 18 minutes, 6 minutes more than in November 2017. The average of the Ambulance Services' 90th centile times also increased a little from 2:58 to 3:07.

The proportion of patients with acute STEMI that received an appropriate care bundle (solid line) was stable between October and December 2017, and was 78% in December, the same as for the 12 months to September 2017.



2.4 Stroke

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

- **F**acial weakness: can the person smile? Has their mouth or eye drooped?
- **A**rm weakness: can the person raise both arms?
- **S**peech problems: can the person speak clearly and understand what you say?
- **T**ime to call 999 for an ambulance if you spot any one of these signs.

We continue to collect the new stroke timeliness measures introduced for November 2017 data, and described in the 10 April 2018 AQI Statistical Note:

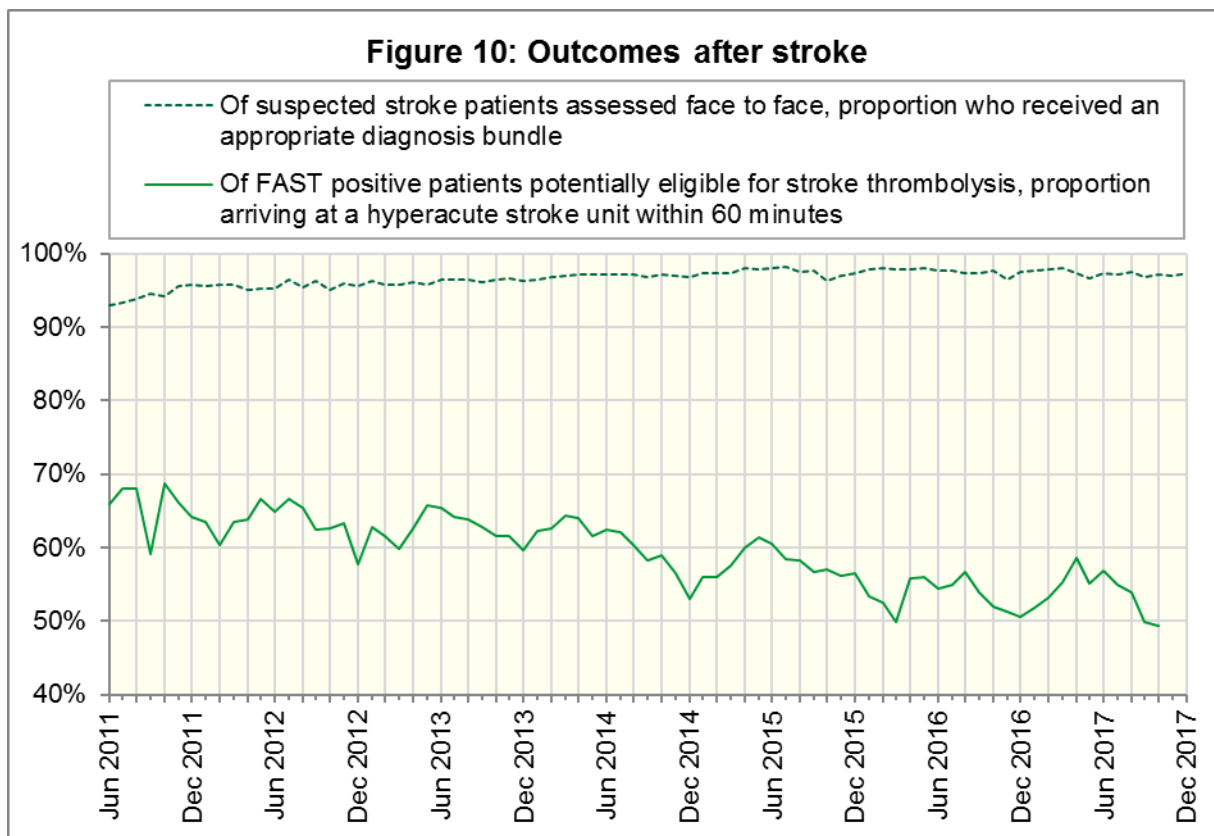
- time from ambulance call to arrival at hospital;
- time from hospital arrival to CT scan;
- time from hospital arrival to thrombolysis.

However, the Stroke Sentinel National Audit Programme (SSNAP) data collection timetable for does not yet allow for reporting of December 2017 times from hospital arrival in today's publication. We will publish the three measures above for December 2017, alongside data for January 2018, in summer 2018, and work with SSNAP to improve the timeliness of reporting in future.

In October 2017, of FAST positive patients in England, assessed face to face, and potentially eligible for stroke thrombolysis within agreed local guidelines, the proportion of those patients that arrived at hospitals with a hyperacute stroke unit within 60 minutes of an emergency call connecting to the ambulance service (solid line) decreased to 49% (1,908 out of 3,869 patients) in October 2017.

In our time series back to April 2011, this was the lowest monthly proportion, and significantly lower than the average for the year ending September 2017 (54%).

Of stroke patients assessed face-to-face, the proportion that received an appropriate diagnostic bundle (dotted line) has stayed above 96% since May 2013.



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, 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 3.5 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.

3.2 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 3.1, calls made to NHS 111 are included in all Systems Indicators except data on contacts and calls, items A0 to A6.

3.3 Related statistics in England

The AQI for 2013-14 and 2014-15 were used in the “Ambulance Services” publications⁵ by NHS Digital, which included additional annual analysis and commentary. The Quality Statement described in section 3.1 has more information on this publication. The Quality Statement also contains details of weekly ambulance situation reports that NHS England collected for six months from November 2010.

A dashboard on the AQI landing page presents an alternative layout for the AQI data. Because of the lack of comparability due to the Ambulance Response Programme (see the 14 December 2017 AQI Statistical Note), NHS England last updated the dashboard in April 2016.

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: www.england.nhs.uk/statistics/statistical-work-areas/winter-daily-sitreps.

3.4 Rest of United Kingdom

Ambulance statistics for other countries of the UK can be found at the following websites. The Quality Statement described in section 3.1 contains more information about the comparability of these statistics.

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

3.5 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

⁵ NHS Digital *Ambulance Services*: <https://digital.nhs.uk/search?query=ka34&sort=date>



3.6 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.