Statistical Note: Ambulance Quality Indicators (AQI)

For categories C1-C4, all average and 90th centile response times in February 2022 have increased compared to January 2022, however, response times are still lower than they were from October to December 2021.

Today we publish revisions to Ambulance Clinical Outcomes data from January to September 2021. For patients with STEMI (a type of heart attack), the times from 999 call to clinical intervention were longer in October 2021 than in the previous three years.

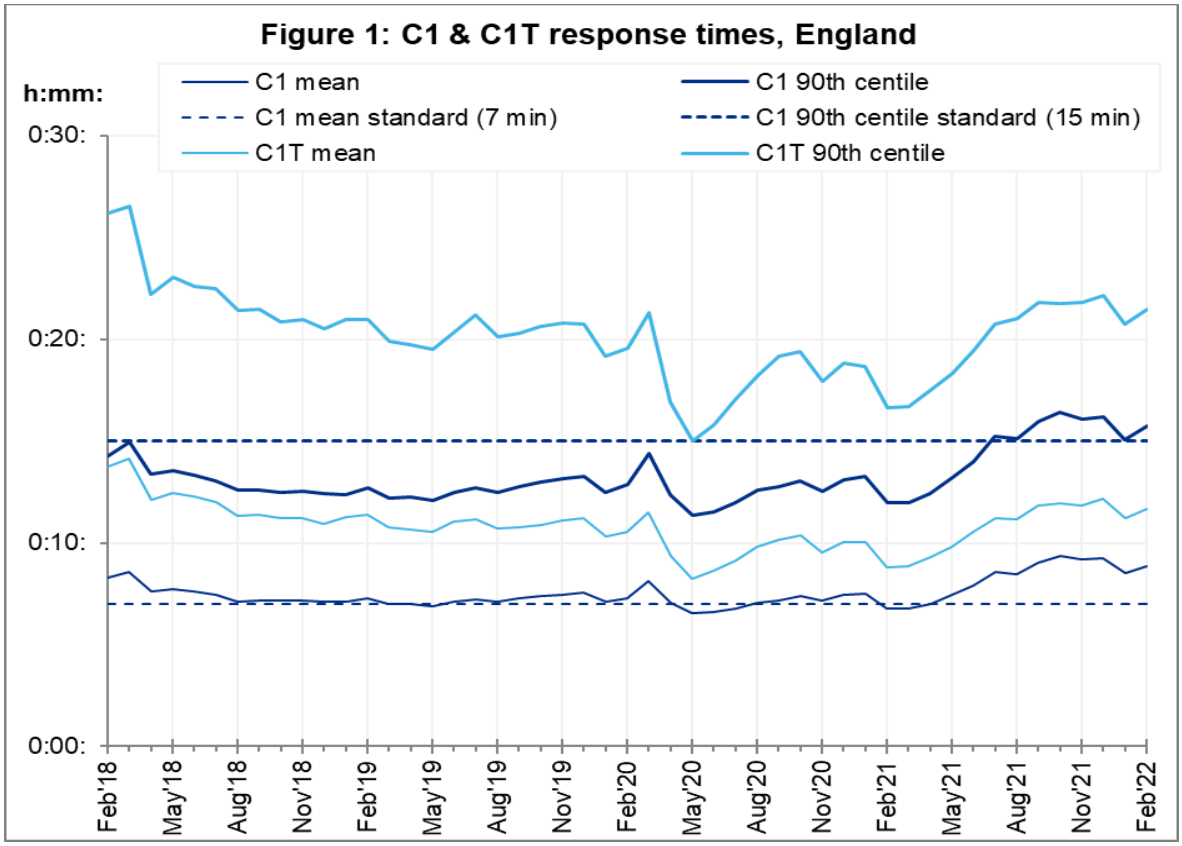
1. Ambulance Systems Indicators

1.1 Response times

In February 2022, the England mean average response time for Category C1, the most urgent incidents, was 8:51, and the C1 90th centile was 15:43, so neither the 7-minute mean nor the 15-minute 90th centile standards[1] were met.

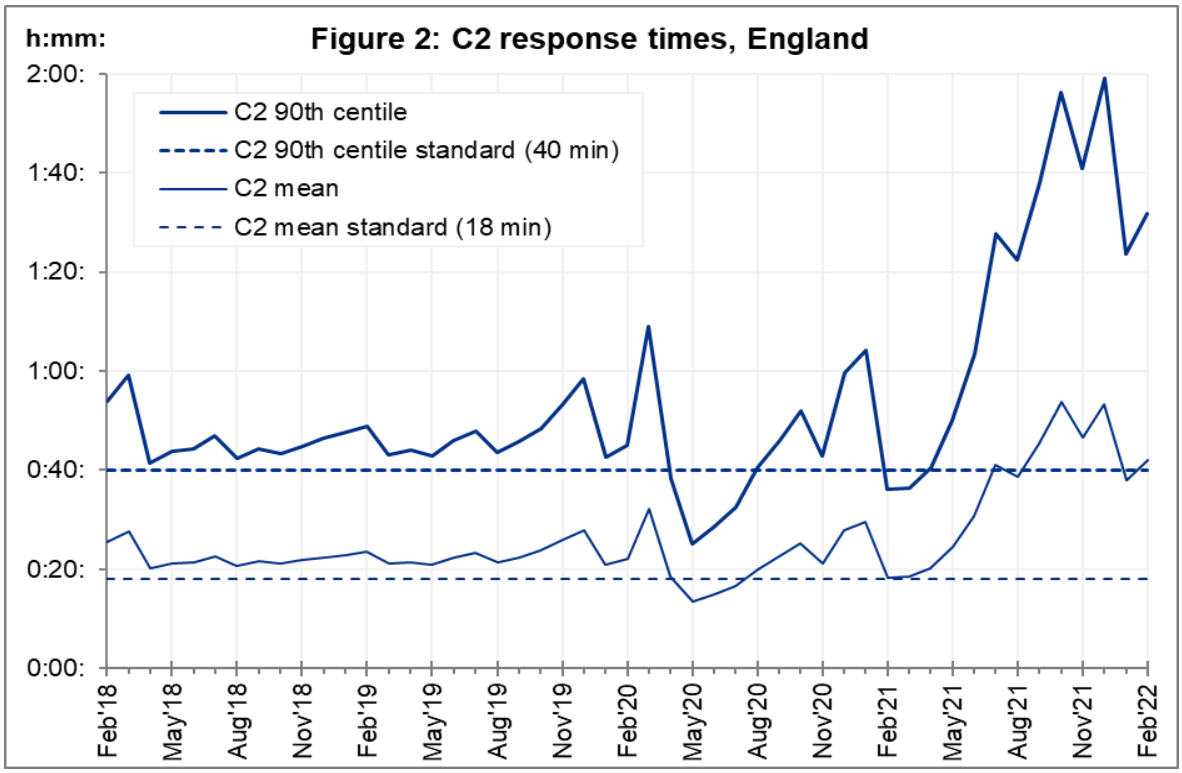
For C1T (response times for arrival of transporting vehicle, for C1 patients transported), the mean was 11:41, and the 90th centile was 21:29 (Figure 1).

Figure 1: C1 & C1T response times, England

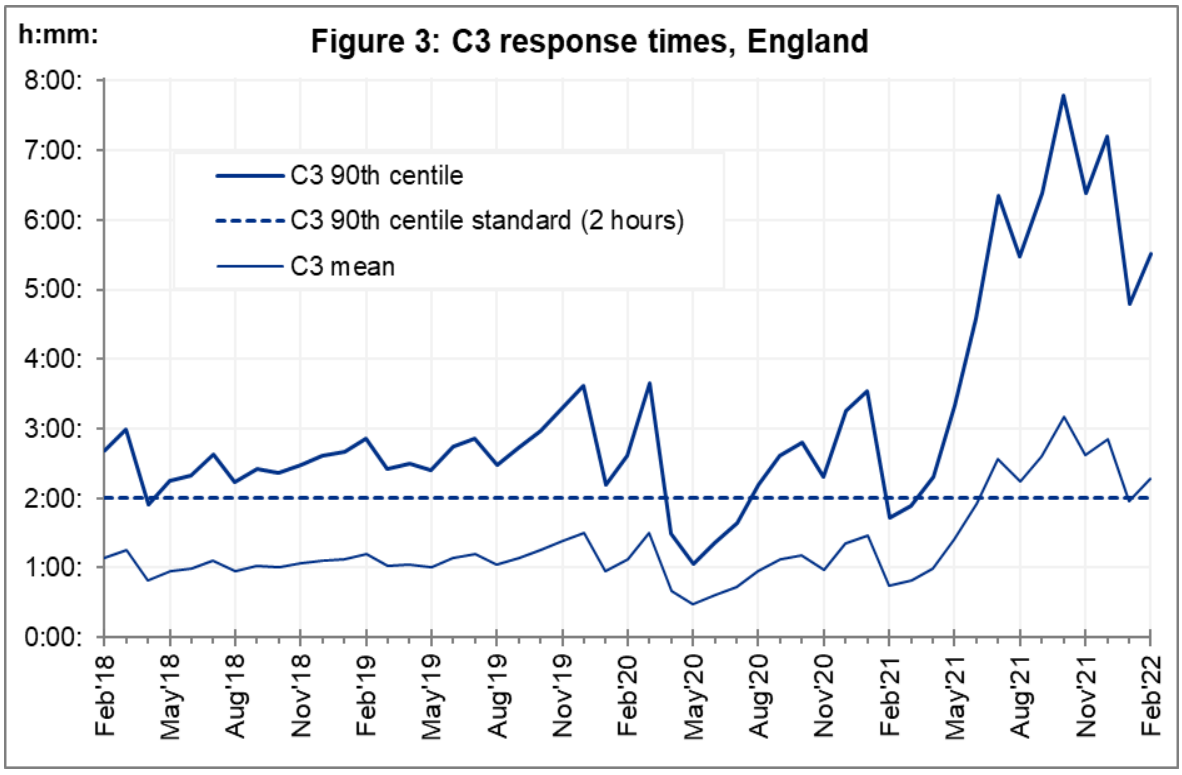


[1] Standards in the NHS Constitution Handbook: www.gov.uk/government/publications/supplements-to-the-nhs-constitution-for-england/the-handbook-to-the-nhs-constitution-for-england

For C2 the England average response time in February 2022 was 42:07, and the 90th centile was 1:31:54, so the 18- and 40-minute standards were not met (Figure 2).



For C3, the February 2022 mean average response time was 2:16:13. The 90th centile was 5:30:21, so the two-hour standard was not met (Figure 3).



C4 data are unavailable for June to November 2021 for North West Ambulance Service (NWAS) but available again from December 2021 onwards. For February 2022, mean average response time was 3:01:28 and the 90th centile was 6:52:23, so the three-hour standard was not met.

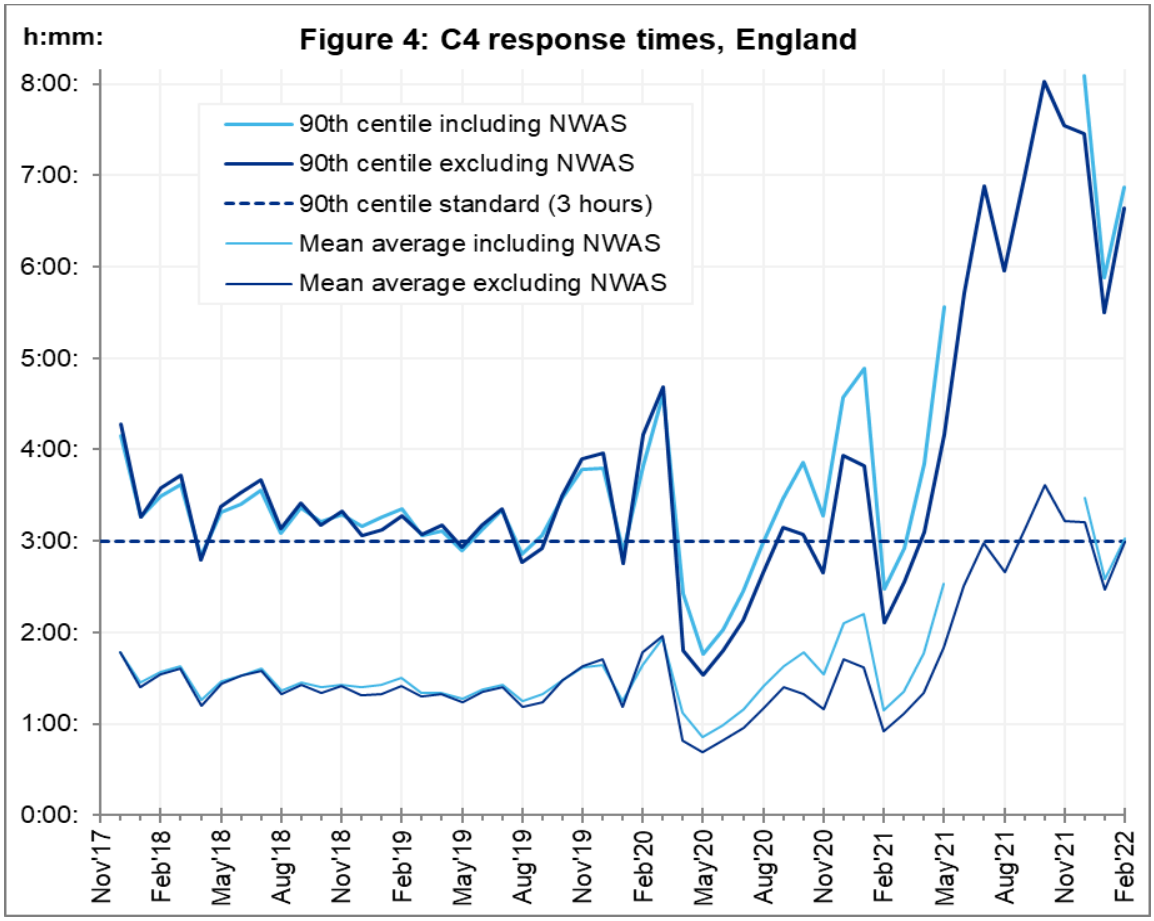


Figure 4: C4 response times, England

1.2 Other Systems Indicators

In February 2022, per day, there were (Figure 5):

- 27.3 thousand calls to 999 answered, 6% more than in January 2022, 32% more than in February 2021, and 13% more than in February 2020;
- 23.0 thousand incidents received a response (whether on the telephone or on the scene) from an ambulance service, 0.3% more than in January 2022;
- 12.1 thousand incidents where a patient was conveyed to an Emergency Department (ED), 2% more than in January 2022.

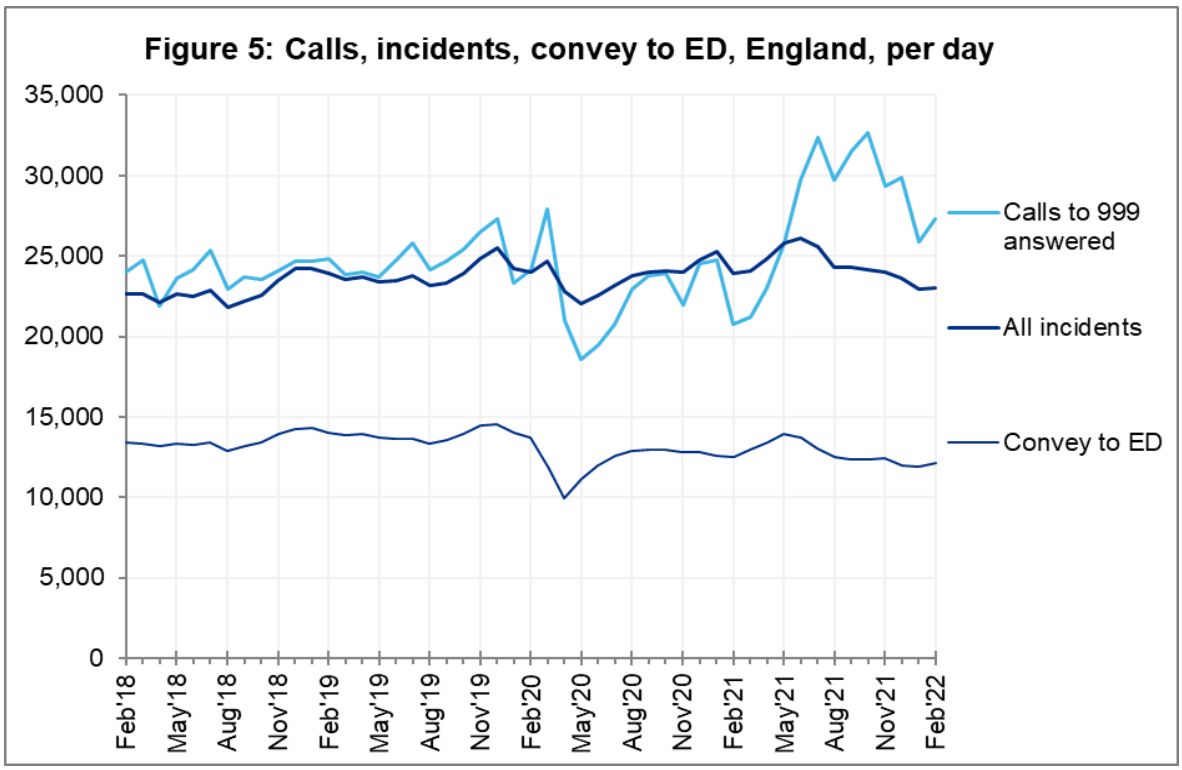
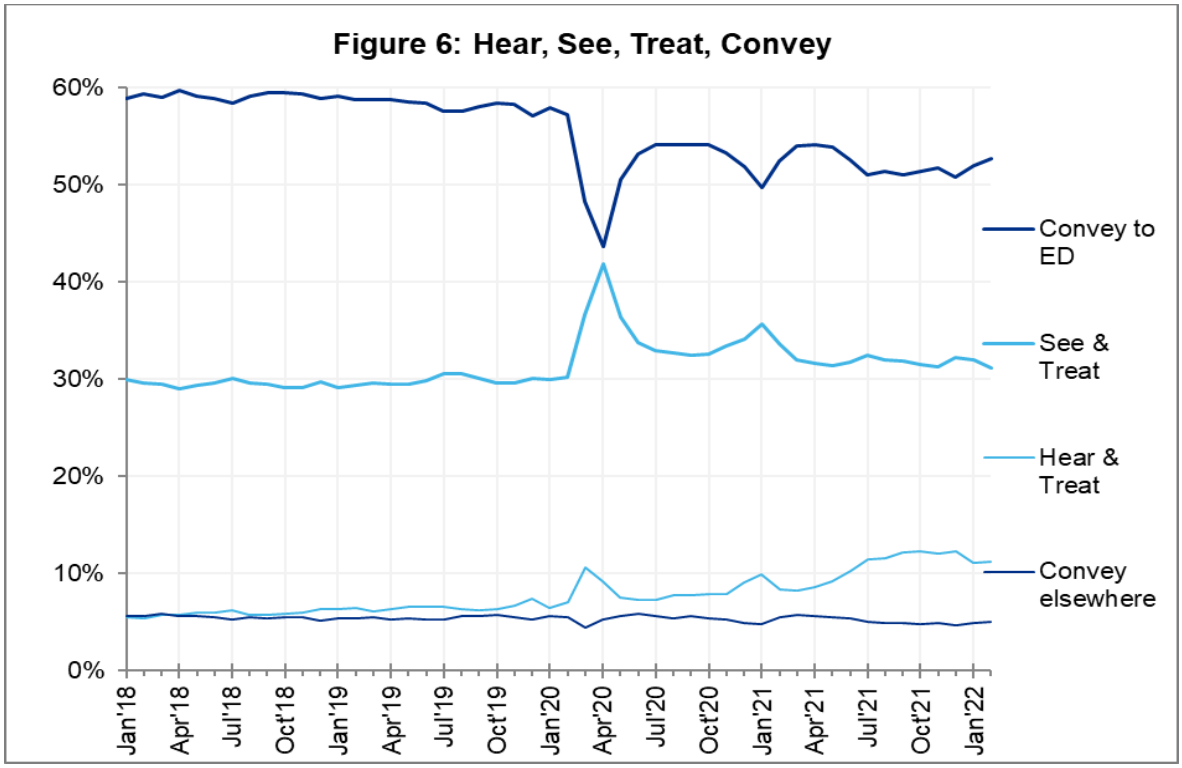


Figure 6 shows that in February 2022, the proportion of incidents resolved on the scene (See & Treat) decreased to 31.1% from 32.0% in January 2022, and conveyance to ED increased to 52.6% from 52.0% in January 2022. Other proportions changed less, with conveyance to non-ED at 5.0% and Hear & Treat (resolved on the telephone) at 11.2% in February 2022.



2. Ambulance Clinical Outcomes (AmbCO)

Today, alongside the latest AmbCO data for October 2021, we publish revisions from January to September 2021.

We continue to summarise data for STEMI (a type of heart attack) and cardiac arrest in this Statistical Note when we publish January, April, July, or October AmbCO data; stroke data in the following month; and sepsis data in the month after that.

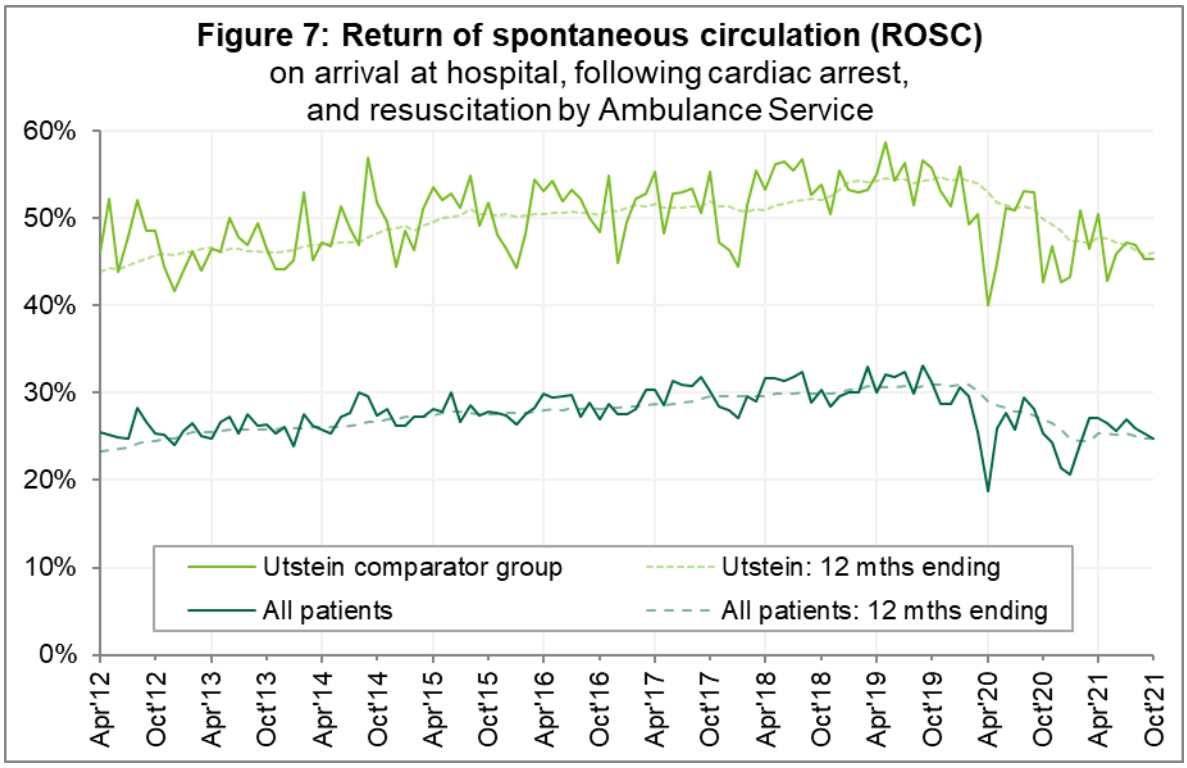
2.1 Return of spontaneous circulation (ROSC) after cardiac arrest (Figure 7)

For the 3,087 patients in October 2021 with cardiac arrest and resuscitation by an ambulance service in England, 765 (25%) had ROSC on arrival at hospital, practically the same as for the year ending September 2021.

The Utstein comparator group comprises patients with an out-of-hospital cardiac arrest of presumed cardiac origin, where the initial rhythm was Ventricular Fibrillation or Ventricular Tachycardia, and the arrest was bystander witnessed. This group therefore have a better chance of survival. In October 2021, of the 3,087 cardiac arrest patients, 444 met the Utstein criteria, and of those, 201 (45%) had ROSC on arrival at hospital, not significantly[2] different to the proportion for the year ending September 2021 (46%).

Revisions to these proportions for England are all less than 0.5 percentage points. Revisions would not be discernible in Figures 7 to 11.

Figure 7: Return of spontaneous circulation (ROSC) on arrival at hospital, following cardiac arrest, and resuscitation by Ambulance Service

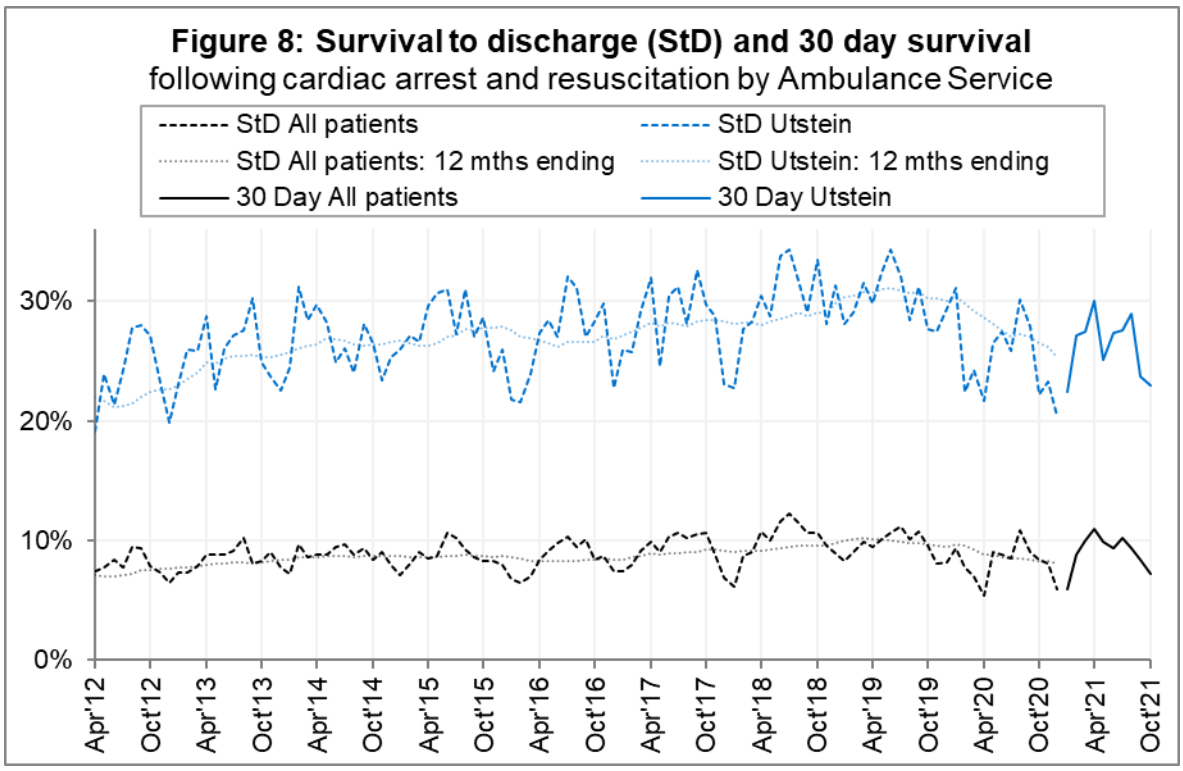


[2] Significance tests in this document use Student's t-test with 95% significance.

2.2 Survival following cardiac arrest (Figure 8)

Of 3,020 resuscitated cardiac arrest patients in England in October 2021, 219 (7%) survived for 30 days. For the Utstein group, 97 of 423 (23%) survived for 30 days. Each proportion was lower than in each previous month in 2021-22, although Figure 8 shows that survival from cardiac arrest is higher in summer.

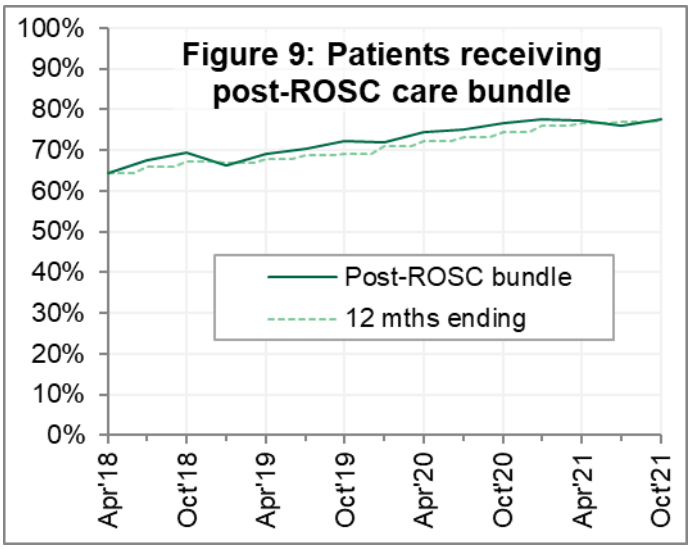
At England level, the largest revision to the Utstein proportion is for April 2021, from 29.2% to 30.0%. Revisions to the proportion for all patients are all 0.2 percentage points or less.



2.3 Cardiac arrest care bundle (Figure 9)

There were 1044 resuscitated cardiac arrest patients who had ROSC on scene (and not necessarily on arrival at hospital) in October 2021, of which 809 (77%) received the appropriate care bundle, practically the same as for the year ending September 2021.

The January and April 2021 proportions for England have been revised by less than 1 percentage point at England level.

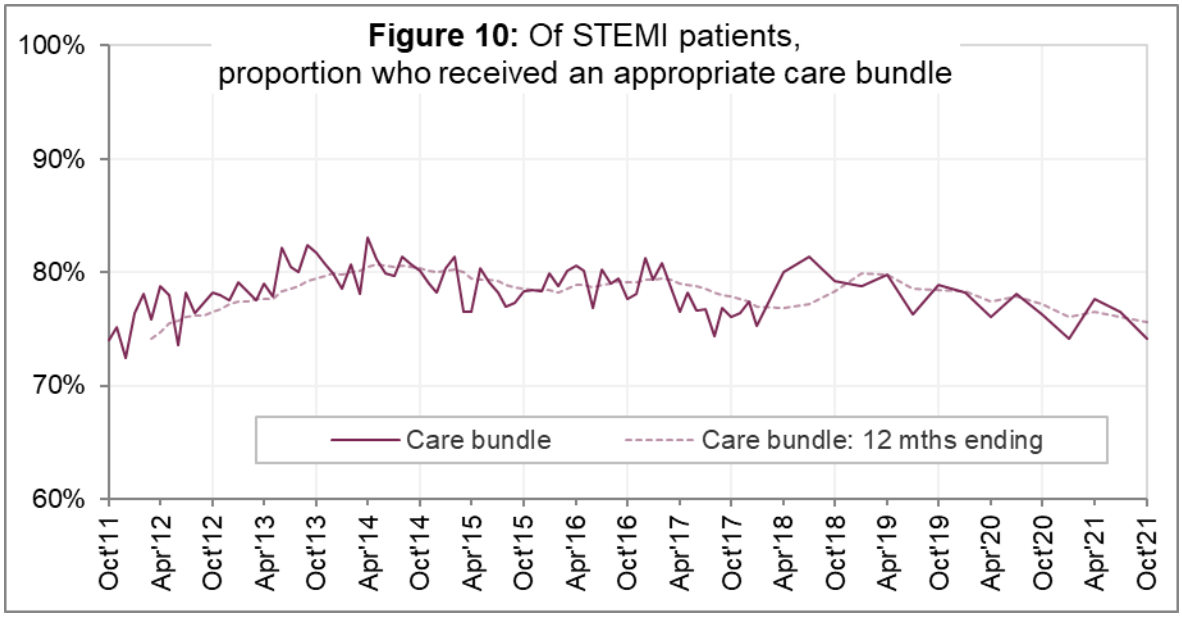


2.4 ST-segment elevation myocardial infarction (STEMI)

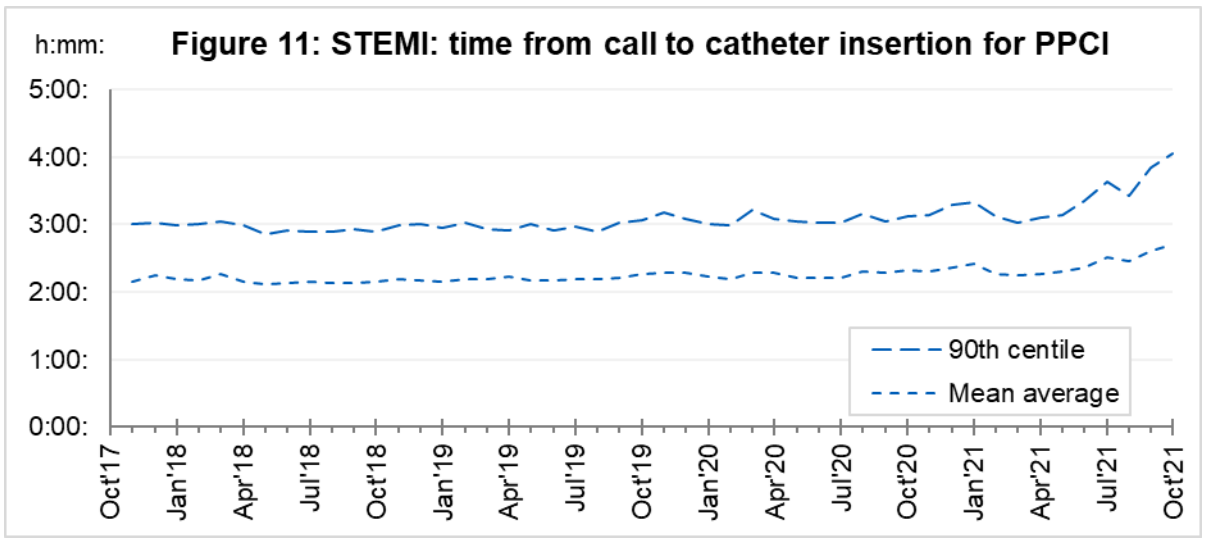
STEMI is a type of heart attack, determined by an electrocardiogram (ECG) test. Early access to reperfusion, where blocked arteries are opened to re-establish blood flow, and other assessment and care interventions, are associated with reductions in STEMI mortality and morbidity.

Of 1510 patients with an acute STEMI in England in October 2021, 1120 (74%) received an appropriate care bundle from the ambulance service (Figure 10), not significantly different to the 76% for the year ending September 2021.

STEMI bundle data were not revised except for April 2021 in London (64% to 65%).



For STEMI patients, the Myocardial Ischaemia National Audit Project (MINAP) collects 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. (Figure 11)



In England in October 2021, the mean average time from call to catheter insertion was 2 hours 42 minutes, and the 90th centile was 4 hours 3 minutes.

From their first collection in this publication in April 2018, and up until June 2021, the longest times had been a mean of 2:25 and a 90th centile of 3:20. However, both measures have exceeded those durations in each of the subsequent four months. (Figure 11)

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 section 3.5 below).

Publication dates are also at 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 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 the call indicators, A1 to A6 and A114.

3.3 Centiles

The centile data for England in this document, also published in spreadsheets alongside this document, are not precise centiles calculated from national record-level data. Instead, they are the centiles calculated from each individual trust's record-level data, weighted by their incident count, and averaged across England. So, if England only had two trusts, with centiles of 7:10 and 7:40, and the former had twice as many incidents as the latter, the England centile would be 7:20.

3.4 Related statistics

NHSEI publishes ambulance handover delays at Emergency Departments of over 30 minutes during winter 2012-13 to 2014-15 and winter 2017-18 to 2021-22 at 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 by NHS Digital https://digital.nhs.uk/data-and-information/publications/statistical/ambulance-services, with data from before 2000, to 2014-15;
- 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
Northern Ireland:	www.health-ni.gov.uk/articles/emergency-care-and-ambulance-statistics

3.5 Contact information

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

The person responsible for producing this publication is Ian Kay; Performance Analysis Team; Finance, Performance and Planning Directorate; NHS England and NHS Improvement (NHSEI); england.nhsdata@nhs.net; 0113 825 4606.

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.