## Statistical Note: Ambulance Quality Indicators (AQI)

* The latest Systems Indicators for October 2016 for Ambulance Services in England (where data were available2) showed the standards in the Handbook[[1]](#footnote-1) to the NHS constitution were not met.

## A. Systems Indicators

### A1 Emergency response in 8 minutes (Figure 1)

In October 2016, of Category[[2]](#footnote-2),[[3]](#footnote-3) A Red 1 calls in England, resulting in an emergency response, the proportion arriving within 8 minutes was 67.3%. It should be noted that data on Category A calls are only available for 8 of the 11 Ambulance Trusts2.

In October 2016, of Category2, 3 A Red 2 calls in England resulting in an emergency response, the proportion arriving within 8 minutes was 62.9%. It should be noted that data on Category A calls are only available for 8 of the 11 Ambulance Trusts2.



The standard for Ambulance Services is to send an emergency response, with a defibrillator, within 8 minutes to 75% of Category A calls. Figure 1 shows that for England, Red 1 performance decreased to 67.3%[[4]](#footnote-4) in October 2016, although performance usually decreases in the last months of the year.

For Red 1, out of the eight trusts for which data is available, none met the 75% standard in October 2016. Only two trusts had proportions of greater than 70%: East of England (70.4%) and South Central (71.3%).

### A2 Dispatch on Disposition (DoD)

In January 2015, the Secretary of State for Health announced[[5]](#footnote-5) the introduction of Dispatch on Disposition (DoD), allowing up to two additional minutes for triage (to identify the clinical situation and take appropriate action). This was based upon clinical advice that it would be likely to improve the overall outcomes for ambulance patients. It does not apply to Red 1 calls.

For all other calls, the clock start time up until 10 February 2015 was the earliest of:

* chief complaint or NHS Pathways initial disposition (Dx) code obtained;
* first vehicle assigned;
* 60 seconds after call connect.

The third bullet changed from 60 seconds after call connect to the following:

|  |  |  |
| --- | --- | --- |
| North West (NWAS), East Midlands (EMAS), East of England (EastAmb), South East Coast (SECAmb) | From 4, 14, 4 and 18 October 2016 respectively: | 240 seconds |
| North East (NEAS) | From 8 October 2015:  From 1 September 2016: | 180 seconds  240 seconds |
| Yorkshire (YAS) | From 21 October 2015:  From 16 March 2016: | 180 seconds  240 seconds |
| West Midlands (WMAS) | From 19 October 2015:  From 8 June 2016: | 180 seconds  240 seconds |
| London (LAS) | From 10 February 2015:  From 4 October 2016: | 180 seconds  240 seconds |
| South Central (SCAS) | From 19 October 2015:  From 7 April 2016: | 180 seconds  240 seconds |
| South Western (SWAS) | From 10 February 2015:  From 5 October 2015:  From 14 December 2015:  From 2 March 2016: | 180 seconds  240 seconds  300 seconds  240 seconds |

### A3 Clinical Coding Review

The next stage of the Ambulance Response Programme (ARP)[[6]](#footnote-6) after DoD was a clinically led evidence based review of the current call coding categorisations. This re-categorisation of calls is to focus on ensuring patients receive the most appropriate response.

The existing Category A (Red 1 and Red 2), Green 1, Green 2, Green 3 and Green 4 categories were replaced with new categories that were not comparable with those used previously.

The new categorisations were piloted in SWAS, YAS and WMAS from 19 April, 21 April and 8 June respectively, so from these dates, data for the Red 1, Red 2 and Category A measures will no longer be available for these Trusts. This publication contains partial data for YAS and SWAS for April 2016 and for WMAS for June 2016.

### A4 Emergency Response in 8 minutes for Red 2 (Figure 2)

Figure 2 shows the Red 2 measure for England; and for the four trusts which, throughout, have used the same clock start and categories as each other.

### 

### A5 Category A Ambulance response in 19 minutes (Figure 3)

The other ambulance standard in the Handbook to the NHS Constitution is for trusts to send, within 19 minutes, a fully-equipped ambulance vehicle, able to transport the patient in a clinically safe manner, to 95% of Category A calls. For England[[7]](#footnote-7) (and for the four trusts that have kept the same clock start and categorisation and each other) this measure has followed the same trend as Red 2.



The numerators and denominators for Figures 2 and 3 are on the “DoD R2” tab and the “DoD A19” tab respectively, in the Systems Indicators Time Series spreadsheet at <http://bit.ly/NHSAQI>.

The ARP DoD and Clinical Coding Review do not affect how other indicators are measured, but it may lead to changes in the levels for other indicators. For example, a longer triage time may mean fewer ambulances dispatched, leading to better ambulance availability, and more timely responses to Red 1 calls. A longer triage time may also mean more calls are closed on the telephone. However, any such effects will be difficult to detect within the habitual variation of the many Ambulance Quality Indicators.

### A6 Systems Indicators: Ambulance volumes (Figure 4)

The number[[8]](#footnote-8) of emergency telephone calls presented to switchboard in October 2016 was 839,724, an average of 27 thousand per day. Figure 4 shows that month to month there is a fair amount of variation in call volume, however, in general an upward trend can be observed.

There were 591,874 emergency calls that received a face-to-face response from the ambulance service in October 2016, an average of 19.1 thousand per day.

There were 416,663 incidents with a patient transported to Type 1 or Type 2 A&E[[9]](#footnote-9) in October 2016, an average of 13.4 thousand per day.



### A7 Latest monthly data for other Systems Indicators, October 2016

| Indicator | England | Lowest Trust | | Highest Trust | |
| --- | --- | --- | --- | --- | --- |
| Calls abandoned before being answered | 1.6% | London | 0.2% | North West | 3.4 % |
| Calls resolved through telephone assessment | 10.2% | West Midlands | 5.0% | East Midlands | 16.2% |
| Calls resolved without transport to Type 1 or Type 2 A&E | 37.5% | East Midlands | 23.2% | South Western[[10]](#footnote-10) | 50.2% |
| Recontact rate following discharge by telephone advice | 5.8% | East Midlands | 1.0% | West Midlands | 13.8% |
| Recontact rate following face-to-face treatment at scene | 5.1% | Yorkshire | 1.3% | London | 9.3% |
| Incidents where a patient was transported | 416,663 | North  East10 | 20,414 | London | 67,322 |

Of emergency calls closed with telephone advice, the proportion that re-contacted via 999 within 24 hours in October 2016 was 5.8%; this is a significant improvement[[11]](#footnote-11) on the last twelve months and the lowest proportion ever recorded.

## B. Clinical Outcomes

No thresholds to denote “poor” care are set for Clinical Outcomes. Commissioners are expected to examine trends in these data, and work in collaboration with ambulance trusts to achieve sustained improvement in patient outcomes over time; but commissioners are not expected to use Clinical Outcomes to performance manage trusts, because there will be significant variations in the populations served.

### B1 Cardiac arrest: return of spontaneous circulation (ROSC)

Patients in cardiac arrest will typically have no pulse and will not be breathing. In July 2016, in England, resuscitation was commenced or continued by ambulance staff out-of-hospital for 2,367 such patients. Of these, 698 (29.5%) had ROSC, with a pulse, on arrival at hospital (Figure 5), above the England average for 2015-16 of 27.8%. The largest proportion in July 2016 was 35.8% for North West. The smallest proportion reported was 21.7% for South Western10.

The Utstein group[[12]](#footnote-12) 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. The Utstein group therefore have a better chance of survival.

There were 347 such patients in England, in July 2016, of which 187 (53.9%) had ROSC on arrival at hospital (Figure 5), above the average for 2015-16 of 50.5%. The largest proportion in the July 2016 was reported in North East with 80.0% and the smallest was 45.9% in South Western13.



### B2 Cardiac arrest: survival to discharge

The proportion of cardiac arrest patients in England discharged from hospital alive was 9.6% in July 2016 (Figure 6), slightly above the average for 2015-16 of 8.3%. The largest proportion in July 2016 was 16.3% for South Central; the smallest was 6.0% for South Western[[13]](#footnote-13).

For the Utstein group, survival to discharge in July 2016 was 30.3%, above the average for 2015-16 of 26.9%. The largest proportion was 53.3% for North East; the smallest was 18.4% for London14.



### B3 ST-Elevation myocardial infarction

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.

895 STEMI patients received primary angioplasty in July 2016, in England. Of these patients, 758 (84.7%) of them received it within 150 minutes of the call being connected to the ambulance service (Figure 7), below the average for 2015-16 of 87.0%. The largest proportion in July 2016 was 97.8% for East Midlands[[14]](#footnote-14) and the smallest was 74.0% for South Western.



In July 2016, of 1,552 patients with an acute STEMI in England, 1,246 (80.3%) received the appropriate care bundle[[15]](#footnote-15), above the average for 2015-16 of 78.6%. East of England had the largest proportion with 95.5% and the smallest was South East Coast with 64.7%.

### B4 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.

In July 2016, of 3,415 FAST positive patients in England, assessed face to face, and potentially eligible for stroke thrombolysis within agreed local guidelines, 1,843 (54.0%) arrived at hospitals with a hyperacute stroke unit within 60 minutes of an emergency call connecting to the ambulance service. The largest proportion for July 2016 was 67.2% for South East Coast and the smallest was 41.1% for South Western.

There were 7,277 stroke patients assessed face to face in July 2016 in England, and 7,102 (97.6%) received the appropriate care bundle, the same as June and the average for 2015-16. The highest proportion was recorded in East of England with 99.8% of patients receiving the appropriate care bundle; the lowest was South Western with 92.4%.



## C. Further information on AQI

### C1 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 document for those who supply the data;
* timetables for data collection and publication;
* text files and time series spreadsheets containing all data from April 2011 up to the latest month;
* links to individual web pages for each financial year.

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](http://www.gov.uk/government/statistics/announcements).

### C2 Revisions Timetable

Revisions usually follow a six-monthly cycle. The dates for past and future AQI scheduled revisions are below. The AQI Quality Statement above contains a more detailed revisions policy.

| Publication date |  | Series revised |  | Months affected |
| --- | --- | --- | --- | --- |
| 11 May 2017 |  | Systems Indicators |  | April 2016 to February 2017 |
| 9 March 2017 |  | Clinical Outcomes |  | April 2016 to September 2016 |
| 10 November 2016  8 September 2016  12 May 2016 |  | Systems Indicators  Clinical Outcomes  Systems Indicators |  | April 2016 to August 2016  April 2015 to April 2016  April 2015 to February 2016 |
| 10 April 2016 |  | Clinical Outcomes |  | April 2015 to September 2015 |
| 10 September 2015 |  | Clinical Outcomes |  | April 2014 to March 2015 |
| 4 June 2015 |  | Systems Indicators |  | April 2014 to February 2015 |
| 30 April 2015 |  | Systems Indicators |  | April 2014 to February 2015 |
| 5 March 2015 |  | Clinical Outcomes |  | April 2014 to September 2014 |
| 6 November 2014 |  | Systems Indicators |  | April 2013 to August 2014 |
| 5 September 2014 |  | Clinical Outcomes |  | April 2013 to March 2014 |
| 2 May 2014 |  | Systems Indicators |  | April 2013 to February 2014 |
| 7 March 2014 |  | Clinical Outcomes |  | April 2013 to September 2013 |
| 1 November 2013 |  | Systems Indicators |  | April 2013 to August 2013 |
| 2 August 2013 |  | Clinical Outcomes |  | April 2012 to March 2013 |
| 3 May 2013 |  | Systems Indicators |  | April 2012 to March 2013 |
| 1 February 2013 |  | Clinical Outcomes |  | April 2012 to August 2012 |
| 11 January 2013 |  | Systems Indicators |  | April 2011 to October 2012 |
| 31 August 2012 |  | Clinical Outcomes |  | April 2011 to March 2012 |

### C3 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 in section C1, calls made to NHS 111 are not included in the AQI measures for calls abandoned, re-contacts, frequent callers, time to answer calls and calls resolved by telephone advice.

All other Systems Indicators involve the dispatch of an ambulance, and include ambulances dispatched as a result of a call to NHS 111, as well as 999 or 112.

### C4 Related statistics in England

The AQI appear in a Clinical Dashboard, available from the AQI landing page. This presents an alternative layout for the same data, but NHS England is no longer updating this dashboard, because of the effects of the Ambulance Response Programme on the comparability of the data.

The AQI were also used in the “Ambulance Services” publications by NHS Digital, which included additional annual analysis and commentary. The April 2013 and earlier NHS Digital publications used the KA34 data collection, which was similar to the AQI Systems Indicators collection, but annual rather than monthly. The final two publications, before NHS Digital ended this publication, used AQI data. <http://content.digital.nhs.uk/article/2021/Website-Search?q=ka34>

Ambulance handover delays of over 30 minutes at each Emergency Department were collected and published by NHS England each winter until 2014-15: [www.england.nhs.uk/statistics/statistical-work-areas/winter-daily-sitreps](http://www.england.nhs.uk/statistics/statistical-work-areas/winter-daily-sitreps)

The AQI Quality Statement described in section C1 contains more information on the HSCIC publication. It also contains details of weekly ambulance situation reports that NHS England collected for six months from November 2010.

### C5 Rest of United Kingdom

Ambulance statistics for other countries of the UK can be found at the following websites. The AQI Quality Statement described in section C1 contains more information about the comparability of these statistics.

|  |  |
| --- | --- |
| Wales: | <http://wales.gov.uk/statistics-and-research/ambulance-services/?lang=en> |
| 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) |

### C6 Contact information

For press enquiries, please contact the NHS England press office on 0113 825 0958 or [nhsengland.media@nhs.net](mailto:nhsengland.media@nhs.net).

The person responsible for producing this publication is:

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### C7 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.

1. Page 34 of the July 2015 Handbook to the NHS Constitution has Ambulance response time standards, [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). [↑](#footnote-ref-1)
2. Due to the introduction of Clinical Coding Review, data for South Western, Yorkshire and West Midlands Ambulance Services are only available up to and including 18 April, 20 April and 7 June 2016 respectively. [↑](#footnote-ref-2)
3. On 1 July 2012, Category A (immediately life-threatening) calls was split into Red 1 and Red 2. Red 1 calls are the most time critical, and cover cardiac arrest patients who are not breathing and do not have a pulse, and other severe conditions such as airway obstruction. Red 2 calls are serious, but less immediately time critical, and cover conditions such as stroke and fits. [www.gov.uk/government/news/changes-to-ambulance-response-time-categories](http://www.gov.uk/government/news/changes-to-ambulance-response-time-categories)

   Due to the differences in clock start definitions for Red 1 and Red 2 it is not possible to aggregate them into a single proportion for Category A against the 8 minute standard. [↑](#footnote-ref-3)
4. England Red 1 data after April 2016 excludes YAS and SWAS and after June 2016 excludes WMAS. [↑](#footnote-ref-4)
5. Dispatch on Disposition announcement: [www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2015-01-16/HCWS201](http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2015-01-16/HCWS201) [↑](#footnote-ref-5)
6. Information on Ambulance Response Programme: [www.england.nhs.uk/ourwork/qual-clin-lead/arp](http://www.england.nhs.uk/ourwork/qual-clin-lead/arp/) [↑](#footnote-ref-6)
7. England Category A data after April 2016 excludes YAS and SWAS and after June 2016 excludes WMAS. [↑](#footnote-ref-7)
8. The number of emergency calls presented to switchboard does not usually include calls made to NHS 111 requiring an ambulance. 111 calls requiring an ambulance are usually transferred electronically direct to ambulance dispatch, and not routed via 999 call handlers. Occasionally, manual requests for ambulance are made between 111 and 999 call handlers, and such calls are included in the number of emergency calls presented to switchboard. [↑](#footnote-ref-8)
9. Type 1 are consultant-led 24 hour emergency departments with full resuscitation facilities.

   Type 2 offer a consultant-led speciality A&E service such as ophthalmology or dental.

   Type 3 is A&E / minor injury activity that may be doctor-led or nurse-led.

   Type 4 are NHS walk-in centres. ([www.datadictionary.nhs.uk/data\_dictionary/attributes/a/acc/](http://www.datadictionary.nhs.uk/data_dictionary/attributes/a/acc/accident_and_emergency_department_type_de.asp)  
   [accident\_and\_emergency\_department\_type\_de.asp](http://www.datadictionary.nhs.uk/data_dictionary/attributes/a/acc/accident_and_emergency_department_type_de.asp)) [↑](#footnote-ref-9)
10. Due to its small size, performance on Isle of Wight tends to vary more than other trusts. If it has the largest or smallest value, the Table in A7 shows the second largest or smallest value, but has a footnote marker to show that Isle of Wight is more extreme. The Clinical Outcomes in section B also uses this system. [↑](#footnote-ref-10)
11. Significance calculations used are t test with 95% significance. [↑](#footnote-ref-11)
12. 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> [↑](#footnote-ref-12)
13. Excluding Isle of Wight. See footnote 10 on page 6 [↑](#footnote-ref-13)
14. Excluding Isle of Wight. See footnote 10 on page 6 [↑](#footnote-ref-14)
15. Pages 27 to 30 of the specification guidance for data suppliers on the AQI landing page at [www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators](http://www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators) describe the care bundles, and certain exclusions, for the STEMI and stroke indicators. [↑](#footnote-ref-15)