NHS Patient Survey Programme

2018 Urgent and Emergency Care Survey

Identifying outliers within trust-level results

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Summary

The 2018 urgent and emergency care survey received feedback from 42,707 people who attended a 'Type 1 department' (see below for definition) a response rate of 30%, and from 7,419 people who attended a 'Type 3 department', a response rate of 29%. One hundred and thirty two trusts took part in the survey of which 63 trusts had both a 'Type 1' and a 'Type 3' department and 69 had only a Type 1 department. Two questionnaires were used tailored to each service type.

Type 1: A major, consultant-led A&E department with full resuscitation facilities operating 24 hours a day, seven days a week.

Type 3: Other A&E/minor injury unit/urgent care centre treating minor injuries and illnesses. Can be doctor or nurse-led and accessed without appointment.

This report identifies trusts where patients report experiences of care that are better, or worse, than expected, when we compare survey results across trusts. The analysis methodology used in this report allows for an overall picture of performance across the urgent and emergency care survey as a whole, based on considering the results for all evaluative (scored) questions simultaneously. It supplements the approach used in trust level benchmark reporting, which provides results for individual questions.

Each trust has been assigned one of five bands: 'much worse than expected', 'worse than expected', 'about the same', 'better than expected' or 'much better than expected'.

The table below shows trusts whose patient feedback placed them in each category.

- This year no trusts achieved the highest band, '**much better than expected'**.
- Encouragingly, patients from three trusts in the Type 1 and the Type 3 surveys respectively experienced care that was '**better than expected'**.
- Eight trusts were identified as achieving '**worse than expected'** results in the Type 1 survey and three as achieving 'worse than expected' results in the Type 3 survey. One of these trusts (Croydon Health Services NHS Trust) achieved 'worse than expected' results in both the Type 1 and Type 3 survey.
- Two trusts were identified as achieving '**much worse than expected'** results in the Type 3 survey, one of which was also 'much worse than expected' for their Type 1 survey results (North Middlesex University Hospital NHS Trust).

Trust performance	Type 1	Type 3
Much better than expected	No trusts in this category	No trusts in this category
Better than expected	Dorset County Hospital NHS Foundation Trust Poole Hospital NHS Foundation Trust South Tees Hospitals NHS Foundation Trust	Harrogate and District NHS Foundation Trust Northern Devon Healthcare NHS Trust South Warwickshire NHS Foundation Trust
Worse than expected	Bradford Teaching Hospitals NHS Foundation Trust Barking, Havering and Redbridge University Hospitals NHS Trust Croydon Health Services NHS Trust East Kent Hospitals University NHS Foundation Trust East Lancashire Hospitals NHS Trust Lewisham and Greenwich NHS Trust United Lincolnshire Hospitals NHS Trust Worcestershire Acute Hospitals NHS Trust	Croydon Health Services NHS Trust King's College Hospital NHS Foundation Trust Northampton General Hospital NHS Trust
Much worse than expected	North Middlesex University Hospital NHS Trust	North Middlesex University Hospital NHS Trust Sandwell and West Birmingham Hospitals NHS Trust

CQC's Chief Inspector of Hospitals, Professor Ted Baker, has written to all trusts identified as better or worse in this report. We recognise that trusts may have been working locally to improve services since the survey took place. However, the trusts identified as being worse, or much worse, were asked to review their results and to outline what actions they will take to address the areas of concern. CQC will continue to reflect each trust's performance on this survey within our insight products as part of the wider information we have on how trusts are performing, and will review their progress on their next planned inspections.

Interpreting the results

The methodology is set out in appendix A and B. It is important to note that local service provision will affect the case-mix seen at a Type 1 department. While 69 trusts provided a Type 1 sample only, this does not necessarily mean that there are no other alternative urgent care services available locally. For example, there may be services outside of the scope of the survey, such as walk-in centres, an urgent care centre run by another provider, or an out-of-hours GP service. As it is not possible to account for this local variation in the analysis, it is important to take this into account when interpreting trust level results.

To provide a comprehensive picture of patient experience within each NHS trust, we have calculated the overall proportion of responses each trust received for the 'most negative', 'middle' and 'most positive' answer option(s) across most of the scored questions in the survey.[a]

The example below shows how responses are categorised as either 'most negative', 'middle' or 'most positive'.

Q15 (Type 1 questionnaire). Did the doctors and nurses listen to what you had to say?

- Yes, definitely – most positive
- Yes, to some extent – middle
- No – most negative

Where people's experiences of care are better or worse than elsewhere, there will be a significant difference between the trust's result and the average result across all trusts. Each trust is then assigned a banding of either 'much worse than expected', 'worse than expected', 'about the same', 'better than expected' or 'much better than expected' depending on how significant that variation is.

For example, a trust's proportion of responses breaks down as 'most negative' 12%, 'middle' 14% and 'most positive' 74%. This is then compared to the average of 'most negative' 16%, 'middle' 18% and 'most positive' 66% for all trusts. An 'adjusted z-score' is calculated for the difference between 'most negative' trust proportions, which in this example is -2.92.[b] This means this trust has a higher proportion of 'positive' responses than average, but not the 'most positive'. This is considered significant with a p-value of less than 0.25 but not less than 0.01. As a result, the trust is classed as 'better'.[c]

a. The analysis only includes questions that are able to be scored. Please see the scored questionnaires to see which questions these are.
[b] Z scores give an indication of how different a trust's proportion is from the average.
[c] P-value is the level of significance within a statistical hypothesis test

The tables on pages six to12 provide the results. They show trusts' survey banding (under the '2018' column header) and their CQC overall rating and core service rating (for urgent and emergency services).[d] The middle columns show the percentage of 'most positive' responses (scored 10/10), 'most negative' responses (scored 0/10) and 'middle' responses (scored on a scale between 0 and 10) achieved by the trust. The trust average is the average across all trusts. So for example, Dorset County Hospital NHS Foundation Trust achieved a survey banding of 'better than expected' for the survey, an overall CQC rating of good, and a core service rating of good. The trust achieved the most positive response options for 74% of all questions, the average for all trusts for this is 66%.

[d] If a trust has UEC services across more than one site, more than one core service rating is shown in the tables – however only the sites where patients returned questionnaires have ratings shown for them

Trusts achieving ‘better than expected’ results: Type 1 services

Three trusts were classed as ‘better than expected’ across the type 1 survey. No trusts achieved ‘much better than expected’.

Poole Hospital NHS Foundation Trust had the same rating in 2016, demonstrating consistently good levels of patient experience for these services. Two trusts have moved from ‘about the same’ in 2016 to ‘better’ in 2018.

	Historic results	Overall results (%)				UEC service rating			
	2016	2018	Most Positive (10/10)	Middle	Most Negative (0/10)	Site 1	Site 2	Site 3	Overall CQC rating
Trust average			**66**	**23**	**11**				
Dorset County Hospital NHS Foundation Trust	**S**	**B**	74	18	8	**G**			**G**
Poole Hospital NHS Foundation Trust	**B**	**B**	74	19	7	**G**			**G**
South Tees Hospitals NHS Foundation Trust	**S**	**B**	73	19	8	**RI**	**G**		**RI**

Key:

Trust performance	About the same (**S**)	Better (**B**)	Much better (**MB**)	
CQC rating	Inadequate (**I**)	Requires improvement (**RI**)	Good (**G**)	Outstanding (**O**)

Trusts achieving ‘better than expected’ results: Type 3 services

Three trusts were classed as ‘better than expected’ across the Type 3 survey. No trusts achieved ‘much better than expected’.

Trust level data for Type 3 services was not published in 2016.

	Overall results (%)				UEC service rating			
	2018	Most Positive (10/10)	Middle	Most Negative (0/10)	Site 1	Site 2	Site 3	Overall CQC rating
Trust average		**73**	**19**	**9**				
Northern Devon Healthcare NHS Trust	B	84	13	4	RI			RI
Harrogate and District NHS Foundation Trust	B	82	13	5	G			G
South Warwickshire NHS Foundation Trust	B	83	13	5	RI			G

Key:

Trust performance	About the same (**S**)	Better (**B**)	Much better (**MB**)	
CQC rating	Inadequate (**I**)	Requires improvement (**RI**)	Good (**G**)	Outstanding (**O**)

Trusts achieving ‘worse than expected’ results: Type 1 services

Eight trusts were ‘worse than expected’ across the Type 1 survey. Croydon Health Service were rated ‘worse than expected’ for Type 1 and Type 3 services. Six trusts have moved from ‘about the same’ in 2016 to ‘worse’ in 2018.

	Historic results	Overall results (%)				UEC service rating			
	2016	2018	Most Positive (10/10)	Middle	Most Negative (0/10)	Site 1	Site 2	Site 3	Overall CQC rating
Trust average			**66**	**23**	**11**				
Bradford Teaching Hospitals NHS Foundation Trust	**W**	**W**	57	27	16	**G**			**RI**
Barking, Havering and Redbridge University Hospitals NHS Trust	**W**	**W**	57	27	16	**RI**	**RI**		**RI**
Lewisham and Greenwich NHS Trust	**S**	**W**	59	26	15	**G**	**RI**		**RI**
Croydon Health Services NHS Trust	**S**	**W**	58	27	15	**G**			**RI**
East Kent Hospitals University NHS Foundation Trust	**S**	**W**	57	26	16	**RI**	**RI**		**RI**
United Lincolnshire Hospitals NHS Trust	**S**	**W**	63	23	15	**RI**	**G**	NR	**RI**
Worcestershire Acute Hospitals NHS Trust	**S**	**W**	60	25	15	**RI**	NR		**I**
East Lancashire Hospitals NHS Trust	**S**	**W**	59	25	16	**RI**			**G**

Key

Trust performance	About the same (**S**)	Worse (**W**)	Much worse (**MW**)	
CQC rating	Inadequate (**I**)	Requires improvement (**RI**)	Good (**G**)	Outstanding (**O**)
	Not yet rated (NR)			

Trusts achieving ‘worse than expected’ results: Type 3 services

Three trusts were classed as ‘worse than expected’ across the Type 3 survey. No trust level data was published in 2016.

	Overall results (%)				UEC service rating			
	2018	Most Positive (10/10)	Middle	Most Negative (0/10)	Site 1	Site 2	Site 3	Overall CQC rating
Trust average		**73**	**19**	**9**				
Croydon Health Services NHS Trust	**W**	62	24	14	**G**			**RI**
King's College Hospital NHS Foundation Trust	**W**	63	23	14	**RI**			**RI**
Northampton General Hospital NHS Trust	**W**	66	21	13	**G**			**G**

Key:

Trust performance	About the same (**S**)	Worse (**W**)	Much worse (**MW**)	
CQC rating	Inadequate (**I**)	Requires improvement (**RI**)	Good (**G**)	Outstanding (**O**)

Trusts achieving ‘much worse than expected’ results Type 1

North Middlesex University Hospital NHS Trust was classed as ‘much worse than expected’ across the Type 1 and Type 3 surveys. The trust has moved from being ‘worse’ in 2016 for Type 1 patient experience. It also been rated by CQC as ‘requires improvement’.

	Historic results	Overall results (%)			UEC service rating			
	2016	2018	Most Positive (10/10)	Middle	Most Negative (0/10)	Site 1	Site 2	Site 3	Overall CQC rating
Trust average			**66**	**23**	**11**				
North Middlesex University Hospital NHS Trust	**W**	**MW**	56	27	18	**RI**			**RI**

Key:

Trust performance	About the same (**S**)	Worse (**W**)	Much worse (**MW**)	
CQC rating	Inadequate (**I**)	Requires improvement (**RI**)	Good (**G**)	Outstanding (**O**)

Trusts achieving ‘much worse than expected’ results Type 3

Two trusts were classed as ‘much worse than expected’ across the Type 3 survey and have also been rated by CQC as requires improvement. North Middlesex was also rated as ‘much worse than expected’ for their Type 1 survey. Trust level data was not published in 2016.

	Overall results (%)				UEC service rating			
	2018	Most Positive (10/10)	Middle	Most Negative (0/10)	Site 1	Site 2	Site 3	Overall CQC rating
Trust average		**73**	**19**	**9**				
North Middlesex University Hospital NHS Trust	**MW**	53	28	19	**RI**			**RI**
Sandwell and West Birmingham Hospitals NHS Trust	**MW**	60	23	16	**RI**	**RI**		**RI**

Key:

Trust performance	About the same (**S**)	Worse (**W**)	Much worse (**MW**)	
CQC rating	Inadequate (**I**)	Requires improvement (**RI**)	Good (**G**)	Outstanding (**O**)

Core service rating for: urgent and emergency services

Further information

The results for the 2018 survey are available on the CQC website. Here you can find a statistical release proving the results for England, an A to Z list to view the results for each trust, the technical document, which outlines the methodology and the scoring applied to each question, and a quality and methodology document:
www.cqc.org.uk/uecsurvey

Benchmark reports for each trust are available on the NHS surveys website:
https://nhssurveys.org/all-files/03-urgent-emergency-care/05-benchmarks-reports/2018/

The results for the 2016 survey can be found below. From here you can also access results for surveys carried out in 2003, 2004, 2008, 2012, 2014. However, please note that due to redevelopment work carried out ahead of the 2016 survey, **results from 2018 are only comparable with 2016.**
https://nhssurveys.org/surveys/survey/03-urgent-emergency-care/year/2016/

Full details of the methodology for the survey, including questionnaires, letters sent to patients, instructions on how to carry out the survey and the survey development report, are available at:
https://nhssurveys.org/surveys/survey/03-urgent-emergency-care/

More information on the patient survey programme, including results from other surveys and a programme of current and forthcoming surveys is available at:
www.cqc.org.uk/surveys

More information about how CQC monitors hospitals is available on the CQC website at:
www.cqc.org.uk/content/monitoring-nhs-acute-hospitals

Appendix A: Analysis methodology

Identifying worse than expected patient experience

The analytical approach to identifying those trusts where patient experience was 'worse than expected' uses responses for all scored questions (except the overall experience question asked to parents).[e]

For each trust, we count the number of responses scored as '0' (the most negative option). This is then divided by the total number of responses scored as 0 to 10 to calculate the trust-level proportion of poor experience. A higher percentage of negative responses indicates a poor patient experience.

Within the analysis, we use z-scores that give an indication of how different a trust's poor experience proportion is from the average.

We use two thresholds to flag trusts that have a concerning level of poor patient experience:

- **Worse than expected**: z-score lower than -1.96
- **Much worse than expected**: z-score lower than -3.09

Appendix B provides full technical detail of the analytical process.

Identifying better than expected patient experience

In order to identify 'better than expected' patient experience, a count of the number of responses scored as '10' (the most positive option) is calculated for each trust.

This is then divided by the total number of responses scored as 0 to 10 to calculate the trust-level proportion of poor experience.

A higher percentage of positive responses is indicative of good patient experience.

Our analysis has found that those trusts with the highest proportion of positive responses also have the lowest proportion of negative responses.

There are two thresholds for identifying trusts with high levels of good patient experience:

- **Better than expected**: z-score lower than -1.96
- **Much better than expected**: z-score lower than -3.09

e. Overall experience is not included in the analysis because of the ambiguity around what should be classed as the 'most negative' (and 'most positive') option(s).

Standardisation

As in the benchmark results for each trust, results have been standardised by the age and gender of respondents to ensure that no trust will appear better or worse than another because of the profile of its respondents.

Standardisation enables a more accurate comparison of results from trusts with different population profiles. In most cases, this will not have a large impact on a trust's results. However, it does make comparisons between trusts as fair as possible.

Scoring

For each question in the survey, the individual (standardised) responses are converted into scores on a scale from 0 to 10. A score of 10 represents the best possible response and a score of 0 the worst. The higher the score for each question, the better the trust is performing.

Where a number of options lay between the negative and positive responses, they were placed at equal intervals along the scale. The example below shows the scoring for Q33 from the Type 1 questionnaire.

Q33. In your opinion, how clean was the A&E department?

Very clean	10
Fairly clean	6.7
Not very clean	3.3
Not at all clean	0
Can't say	Not applicable

For more detail, please see either the scored questionnaire or the technical document (see further information section).

It is not appropriate to score all questions in the questionnaire, as not all of them assess the trusts. For example, they may be descriptive questions such as asking respondents if they had any tests while in A&E or the urgent care centre.

Appendix B: Analytical stages of the outlier model

The analytical approach to identifying outliers is based on all evaluative items in the survey; these are the questions that are scored for benchmarking purposes. The scored variables are the source data, and are required at case level. These variables take values between 0 (representing the worst rating of experience) and 10 (representing the best rating). The approach also makes use of the standardisation weight for the survey.

1. Count the poor-care ratings made by each respondent[f]

Count of the '0' responses across the scored questions answered by each respondent (excluding the 'Overall…' question).

2. Count the questions given specific (scored) answers by each respondent

Count of all '0 to 10' responses across the scored questions answered by each respondent (excluding the 'Overall…' question).

3. Weight the data

Apply the standardisation weight for respondents. The weight adjusts the population of respondents within each trust to the national average proportions for age and gender.

4. Aggregate to trust-level and compute proportion of poor ratings

Obtain a weighted numerator and denominator for each trust. Divide the numerator by the denominator to obtain the trust-level proportion of poor care ratings, i.e. the overall percentage of responses which were scored as 0.

5. Compute the mean of the trust-level proportions

Sum all proportions and divide by the number of trusts to obtain the average trust-level proportion of poor care ratings.

6. Compute the z-score for the proportion

The Z-score formula used is:

f. The analytical approach used to identify positive patient experience uses a numerator count of the '10' responses across all scored questions (excluding the "overall…" question) to calculate the 'good-care ratings'. There are no other differences between the analytical approaches for identifying poor and good patient experience.

$$z_i = -2\sqrt{n_i}\left\{sin^{-1}\left(\sqrt{p_i}\right) - sin^{-1}\left(\sqrt{p_0}\right)\right\} \qquad (1)$$

where: n_i is the denominator for the trust

p_i is the trust proportion of poor care ratings

p_0 is the mean proportion for all trusts

7. Winsorize the z-scores

Winsorizing consists of shrinking in the extreme Z-scores to some selected percentile, using the following method:

1. Rank cases according to their naive Z-scores.
2. Identify Z_q and $Z_{(1-q)}$, the 100q% most extreme top and bottom naive Z-scores. For this work, we used a value of q=0.1
3. Set the lowest 10% of Z-scores to Z_q, and the highest 10% of Z-scores to $Z_{(1-q)}$. These are the Winsorized statistics.

This retains the same number of Z-scores but discounts the influence of outliers.

8. Calculate dispersion using Winsorized z-scores

An over dispersion factor $\hat{\phi}$ is estimated which allows us to say if the data are over dispersed or not:

$$\hat{\phi} = \frac{1}{I}\sum_{i=1}^{I} \boldsymbol{Z}_i^2 \quad (2)$$

Where I is the sample size (number of trusts) and zi is the Z score for the ith trust given by (1). The Winsorized Z scores are used in estimating $\hat{\phi}$.

9. Adjust for overdispersion

If I $\hat{\phi}$ is greater than (I - 1) then we need to estimate the expected variance between trusts. We take this as the standard deviation of the distribution of p_i (trust proportions) for trusts, which are on target, we give this value the symbol $\hat{\tau}$, which is estimated using the following formula:

$$\hat{\tau}^2 = \frac{I\hat{\phi} - (I-1)}{\sum_i w_i - \sum_i w_i^2 \Big/ \sum_i w_i} \qquad (3)$$

where $s_i = (p_i - p_o)/z_i$, $w_i = 1/s_i^2$ and $\hat{\phi}$ is from (2). Once $\hat{\tau}$ has been estimated, the Z_D score is calculated as:

$$\boldsymbol{z_i^D} = \frac{\boldsymbol{p_0 - p_i}}{\sqrt{\boldsymbol{s_i^2 + \hat{\tau}^2}}} \qquad (4)$$

Appendix C: Difference between outlier analysis and trust level benchmark reports

To analyse trust variation in this report, we focused on identifying significantly higher levels of better or worse patient experience **across the entire survey**.

This holistic approach is different to the technique used to analyse results within trust benchmarking reports. Within those reports trust results, for **each** scored question, are assigned bands of either 'better', 'worse' or 'about the same' when compared with the findings for all other trusts. This provides feedback on specific areas where trusts can target improvement. However, trust benchmark reports do not attempt to look across all questions concurrently and as a result do not provide an overall assessment of the proportion of positive or negative patient experience reported across the entire survey.

While both approaches are useful, analysing individual questions can hide variation in people's experience as the scores are 'averaged'. The approach used in this report allows CQC to identify that variation and highlight potential concerns raised by people across the survey in its entirety.

How to contact us

Call us on: 03000 616161

Email us at: enquiries@cqc.org.uk

Look at our website: www.cqc.org.uk

Write to us at: Care Quality Commission
Citygate
Gallowgate
Newcastle upon Tyne
NE1 4PA

Follow us on Twitter: @CareQualityComm