

NHS Patient Survey Programme

**2017 Community Mental
Health Survey**

**Identifying outliers within
trust-level results**

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Summary

The 2017 Community Mental Health survey received feedback from more than 12,000 people and had a response rate of 26%.

Analysis of the national results is published on our [website](#). In this separate analysis, we identify the trusts whose patients' experience care that is better, or worse, than expected when we compare the survey results across trusts.

A new analysis methodology has been used for the 2017 Community Mental Health Survey (detailed in [appendix A](#) and [B](#)) to identify variation in results at trust-level. This new methodology is considered to be more robust, as all scored questions are analysed simultaneously and trust performance is no longer assessed using mean scores which can mask where experience is highly polarised. There is more information on the difference between approaches in the section on [outlier analysis and trust-level benchmark reports](#)'.

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

Our Deputy Chief Inspector of Hospitals, Dr Paul Lelliott, has written to all trusts identified as better, or worse, than expected within this report. The trusts identified as being worse will be asked to review their results and to outline what actions they will take to address the areas of concern. CQC will review their progress on their next planned inspections.

Our Deputy Chief Inspector of Hospitals, Dr Paul Lelliott, has written to all trusts that the survey identified as being better or worse than average and these letters have been shared with [NHS Improvement](#).^[1] We recognise that trusts may have been working locally to improve services since the survey took place, however, the trusts that have been identified as much worse, have been asked to review their results and to outline what actions they will take to continue 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. CQC will also review their progress during their next planned inspection. As part of our inspections, our inspection teams will be focusing on the areas raised in the survey where results suggest that people's experiences were worse than we would expect and looking for reassurance that appropriate action is being taken.

^[1] NHS Improvement oversees NHS trusts and independent providers that provide NHS-funded care. It supports providers to give patients consistently safe, high-quality, compassionate care within local health systems. NHS Improvement will use the results of the emergency department survey to inform quality and governance activities as part of its Oversight Model for NHS Trusts.

Much better than expected

No trusts have been categorised within the highest band, identified as '**much better than expected**' with results that indicate patient experience that was substantially better than elsewhere.

Better than expected

Patients from three trusts experienced care that was '**better than expected**':

- **2gether NHS Foundation Trust**
- **Humber NHS Foundation Trust**
- **Mersey Care NHS Foundation Trust**

Worse than expected

One trust, **Northamptonshire Healthcare NHS Foundation Trust**, has been identified as achieving '**worse than expected**' with results that indicate patient experience that was substantially worse than elsewhere.

Much worse than expected

One trust, **Isle of Wight NHS Trust**, has been identified as achieving '**much worse than expected**' results. This trust was also identified as achieving 'worse than expected' results in last year's survey, 2016 Community Mental Health Survey.

Interpreting the results

We have calculated the overall proportion of responses that each trust received for the 'most negative', 'middle' and 'most positive' answer option(s) across all of the scored questions in the survey has been calculated.¹

The following question from the 2017 Community Mental Health survey has been included to show how responses are categorised as either 'most negative', 'middle' and 'most positive'.

Q5. Were you given **enough time** to discuss your needs and treatment?

- Yes, definitely – **most positive**
- Yes, to some extent – **middle**
- No – **most negative**
- Don't know/can't remember- not included

Where a trust's patient experience is either 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.

Taking a hypothetical trust as an example, the trust's proportion of responses breaks down as: 'most negative' 24%, 'middle' 24% and 'most positive' 52%. This is then compared to the trust average of 'most negative' 20%, 'middle' 23% and 'most positive' 57%. The adjusted z-score for the difference between 'most negative' trust proportions is -1.73. This means despite a higher proportion of most negative responses than the trust average, this is not considered significant and the hypothetical trust is categorised as 'about the same'.

Finally, each table within the report includes the most recent trust-wide CQC rating. See [appendix B](#) for details of the analytical method used to calculate these results.

¹ Filter questions were not included in this analysis.

Difference between outlier analysis and trust-level benchmark reports

The approach used to analyse trust variation in this report is 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](#), which have already been sent to each trust. 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. However, trust benchmark reports do not attempt to look across all questions concurrently and therefore do not provide an overall assessment of the proportion of positive or negative patient experience reported across the entire survey.

Furthermore, being assigned a band of 'better' for Q40 within the Community mental health survey (overall experience) is not the same as being 'better than expected' across the entire survey. For comparison, [appendix D](#) details all trusts which were assigned a band of 'worse' or 'better' for Q40.

Historically, any trust which received a banding of 'worse/better' for at least 20% of scored survey questions was considered as being 'worse/better than expected' across the entire survey. The analysis methodology used in this report has replaced the 20% better/worse rules based method.

While both approaches are useful, analysis of individual questions can hide variation in people's experience as the scores are 'averaged' in that analysis. This new approach allows CQC to identify that variation and highlight potential concerns raised by some people across the survey.

Results

Trusts achieving 'better than expected' results

Three trusts were classed as 'better than expected' across the entire survey, all of which were 'about the same' in 2016.

	Historic results		Overall results			Overall CQC rating
	2016	2017	Most Negative (0/10)	Middle	Most Positive (10/10)	
Trust average			20	23	57	
2gether NHS Foundation Trust	S	B	15	22	63	G
Humber NHS Foundation Trust	S	B	14	22	64	RI
Mersey Care NHS Foundation Trust	S	B	16	20	64	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

Northamptonshire Healthcare NHS Foundation Trust was identified as 'worse than expected'. The trust was flagged as 'about the same' in 2016 and has been rated by CQC as good.

	Historical results		Overall results			Overall CQC rating
	2016	2017	Most Negative (0/10)	Middle	Most Positive (10/10)	
Trust average			20	23	57	
Northamptonshire Healthcare NHS Foundation Trust	S	W	25	23	52	G

Key:	Trust performance	About the same (S)	Worse (W)	Much worse (MW)
	CQC rating	Inadequate (I)	Requires Improvement (RI)	Good (G)

Trusts achieving 'much worse than expected' results

Isle of Wight NHS Trust was classed as 'much worse than expected'. The trust was flagged as 'worse than expected' in 2016 and has been rated by CQC as inadequate.

		Historical results		Overall results			Overall CQC rating
		2016	2017	Most Negative (0/10)	Middle	Most Positive (10/10)	
Trust average				20	23	57	
Isle of Wight NHS Trust		W	MW	32	23	45	I
Key:	Trust performance	About the same (S)	Worse (W)		Much worse (MW)		
	CQC rating	Inadequate (I)	Requires Improvement (RI)		Good (G)	Outstanding (O)	

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).²

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

The analysis uses z-scores which indicate how different a trust's poor experience proportion is from the average.

There are two thresholds for flagging trusts with concerning levels 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 used.

Identifying better than expected patient experience

To identify 'better than expected' patient experience, we calculate a count of the number of responses scored as '10' (the most positive option) for each trust.

This is then divided by the total number of responses scored as 0-10 to calculate the trust-level proportion of positive experience. A higher percentage of positive responses indicates 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

² Overall experience is excluded from the analysis due to the ambiguity around what should be classed as the 'most negative' (and 'most positive') option(s).

Weighting

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 its respondent profile.

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 trust results, but 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.

It is not appropriate to score all questions in the questionnaire as not all of the questions assess the trusts' performance.

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 respondent 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 respondent³

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 '0-10' 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 sex.

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.

³The 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.

6. Compute the z-score for the proportion

The Z-score formula used is:

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

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:

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

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

9. Adjust for overdispersion

If $\hat{\phi}$ 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:

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

where $s_i = (p_i - p_0)/z_i$, $w_i = 1/s_i^2$ and $\hat{\phi}$ is from (2). Once $\hat{\tau}$ has been estimated, the Z_D score is calculated as:

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

Appendix C: Overall experience questions – ‘better’ and ‘worse’ trusts

No trusts were identified as being ‘**better than expected**’ for Q40 overall experience. However, the Isle of Wight NHS Trust was identified as being ‘**worse than expected**’ for Q40 overall experience.

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