NHS Patient Survey Programme

Urgent & Emergency Care (UEC) Survey 2018

Technical details for analysing trust-level results

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Contents

1. Introduction

This document outlines the methods used by the Care Quality Commission (CQC) to score and analyse the trust-level results for the 2018 Urgent & Emergency Care (UEC) Survey, which are available on the **CQC website** and in the **benchmark reports** for each trust.

The 2018 survey of people who used UEC services involved 132 NHS trusts with a Type 1 accident and emergency (A&E) department[1]. Sixty-three of these trusts also had direct responsibility[2] for running a Type 3 department.[3] Two separate questionnaires were used: one for Type 1 services and one for Type 3 services.

The survey results are available for each trust on the **CQC website**. The survey data is shown in a simplified way, identifying whether a trust performed 'better' or 'worse' or 'about the same' as the majority of other trusts for each question. This analysis is based on a statistic called the **'**expected range' (see section 6.3). On publication of the survey, an A-to-Z list of trust names will be available at the link below, containing further links to the survey data for all NHS trusts that took part in the survey. Results for Type 1 and Type 3 services are provided separately.

The CQC webpage also contains a statistical release document containing England-level results, alongside relevant national policy and comparisons with the results from the 2016 survey. Further information on the survey is available in the **Quality and Methodology report**.

A Type 1 benchmark report is also available for each participating trust, and a Type 3 benchmark report is available for the 63 trusts who had direct responsibility for running a Type 3 department. Results displayed in the benchmark report are a graphical representation of the results displayed for the public on the CQC website (see further information section 6). These have been provided to all trusts and will be available on the **NHS Patient Surveys website.**

2. Selecting data for reporting

Scores are assigned to responses to questions that are of an evaluative nature: in other words, those questions where results can be used to assess the performance of a trust (see section 5.1 for more detail). Questions that are not presented in this way tend to be those included solely for 'routing' respondents past any questions that may not be relevant to them (such as Q26 (Type 1)) 'Did you have any tests (such as x-rays, scans or blood tests) when you visited A&E?') or those used for descriptive or information purposes (such as Q2 (Type 1)) 'Before going to this A&E department, where do you go to, or contact, for help with your condition?').

[1] A Type 1 department is a major, consultant led A&E Department with full resuscitation facilities operating 24 hours a day, 7 days a week.
[2] The survey only includes Type 3 departments that are run directly by acute trusts, and not those run in collaboration with, or exclusively by others, for example, that are managed by a Clinical Commissioning Group (CCG).
[3] A Type 3 department is an A&E/minor injury unit with designated accommodation for the reception of accident and emergency patients. The department may be doctor or nurse-led, treats at least minor injuries and illnesses and can be routinely accessed without appointment.

The scores for each question are grouped on the website, and in the benchmark reports for each trust, according to the sections of the questionnaire.

Alongside both the question and section scores on the website are one of three statements:

- Better
- About the same
- Worse

This analysis is based on a statistic called the **'expected range'** (see section 5.3)

3. The CQC organisation search tool

The organisation search tool contains information from various areas within the Care Quality Commission's functions. The presentation of the survey data was designed using feedback from people who use the data. As well as meeting data user needs, it presents the groupings of the trust results in a simple and fair way, showing where we are more confident that a trust's score is 'better' or 'worse' than we'd expect, when compared with most other trusts.

The survey data can be accessed through the **A to Z link** or by searching for a provider on the **CQC home page** and then clicking on 'Surveys'**.** Results for Type 1 and Type 3 services are provided separately.

4. The trust benchmark reports

A Type 1 benchmark report is also available for each participating trust, and a Type 3 benchmark report is available for the 63 trusts who had direct responsibility for running a Type 3 department.

Benchmark reports should be used by NHS trusts to identify how they performed in comparison to most other trusts that took part in the survey. Tables at the end of the Type 1 benchmark report show if a score has significantly increased or decreased compared with the last UEC survey in 2016. From this information, areas for improvement can be identified. Comparisons with 2016 are not provided in the Type 3 reports as no trust level data was published in 2016. These reports are available on the **NHS Patient Surveys Website**.

The graphs included in the reports display the trust's scores, compared with the full range of results from all other trusts that took part in the survey. A separate graph is present for each scored question. The black diamond represents the trust's score on the question, for this year's survey. The bar represents the range of results for the question across all trusts that took part in the survey. The bar is divided into three sections:

- If a trust score lies in the grey section of the graph, the trust's score is 'about the same' as most other trusts in the survey.
- If a trust scores lies in the orange section of the graph, the trust score is 'worse' than expected when compared with most other trusts in the survey.

- If a score lies in the green section of the graph, the trust score is ‘better’ than expected when compared with most other trusts in the survey.

If fewer than 30 respondents have answered a question, no score will be displayed for that question (or the corresponding section) and the black diamond (the trust’s score) will not be shown. This is because the uncertainty around the result is too great.

5. Interpreting the data

5.1 Scoring

Questions are scored on a scale from 0 to 10. Details of the scoring for this survey are available in **Appendix A** at the end of this document.

The scores represent the extent to which the patient’s experience could be improved. A response assigned a score of 0 refers to the most negative patient experience we can measure, and a response assigned a score of 10 refers to the most positive patient experience we can measure.

Where a number of options lay between the most negative and most positive responses, they are placed at equal intervals along the scale. Where options are provided that did not have any bearing on the trust’s performance in terms of peoples’ experience, the responses are classified as ‘not applicable’ and a score is not given. Similarly, where respondents state that they could not remember, or did not know the answer to a question, a score is not given.

5.2 Standardisation

Results are based on standardised data. We know that the views of a respondent can reflect not only their experience of NHS services, but can also relate to certain demographic characteristics, such as their age and sex. For example, older respondents tend to report more positive experiences than younger respondents, and women tend to report less positive experiences than men. Because the mix of people using services varies across trusts (for example, one trust may serve a considerably older population than another), this could potentially lead to the results for a trust appearing better or worse than they would if they had a slightly different profile of people using services. To account for this we ‘standardise’ the data. Standardising data adjusts for these differences and enables the results for trusts to be compared more fairly than could be achieved using non-standardised data. In most cases this will not have a large impact on trust results; it does, however, make comparisons between trusts as fair as possible.

The results for the 2018 UEC Survey are standardised by **age and gender** (see **Appendix B**).

5.3 Expected range

The ‘better’, ‘about the same’, and ‘worse’ categories are based on the 'expected range’, which is calculated for each question for each trust. This is the range within

which we would expect a particular trust to score if it performed about the same as most other trusts in the survey. The range takes into account the number of respondents from each trust, as well as the scores for all other trusts, and allows us to identify which scores we can confidently say are 'better' or 'worse' than the majority of other trusts (see **Appendix C** for more details). Analysing the survey information in such a way allows for fairer conclusions on each trust's performance. This approach presents the findings simply and in a way that takes account of multiple factors.

As the 'expected range' calculation accounts for the number of respondents at each trust who answer a question, it is not necessary to present confidence intervals around each score for the purposes of comparing across all trusts.

5.4 Conclusions made on performance

It should be noted that the data only show performance relative to other trusts; we have not set absolute thresholds for 'good' or 'bad' performance. Thus, a trust may have a low score for a specific question, while still performing very well on the whole. This is particularly true on questions where the majority of trusts exhibit a high score.

A separate 'outliers' report, which explores how overall results between trusts vary across the country, is available on the **CQC website**. This report focuses on identifying significantly higher levels of better or worse patient experience **across the entire survey**, rather than considering performance on individual questions.

5.5 Comparing scores across trusts or across survey years

The expected range statistic is used to arrive at a judgement of how a trust is performing compared with all other trusts that took part in the survey. However, if you wish to use the scored data in another way—for example, to compare scores between two different trusts or subsets of trusts—you will need to apply an appropriate statistical test to ensure that any differences are 'statistically significant'. 'Statistically significant' means that it is very unlikely that any difference between scores is due to chance.

Please note that redevelopment work carried out ahead of the 2016 survey means that **the results for 2018 are only comparable with 2016** and not with any earlier surveys.

6. Further information

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

Benchmark reports for each trust are available on the NHS Patient 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/year/2018/

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: Scoring for the 2018 UEC Survey

In 2018 the survey included two separate questionnaires: one for Type 1 services and one for Type 3 services.

The following describes the scoring system applied to the evaluative questions in the survey. Taking question 16 from the Type 1 questionnaire as an example (Figure A1), it asks respondents whether doctors and nurses listened to patients. The option of “No” was allocated a score of 0, as this suggests that the experiences of the patient need to be improved. A score of 10 was assigned to the option ‘Yes, completely’, as it reflects a positive patient experience. The remaining option, ‘Yes, to some extent’, was assigned a score of 5 as the patient felt their fears were somewhat discussed – either sometimes but not always, or some aspects of their anxieties were discussed but not others. Hence it was placed on the midpoint of the scale.

If the patient did not have any anxieties or fears, this was classified as a ‘not applicable' response, as this option was not a direct measure of the explanations that had been given.

Figure A1 Scoring example:
Question 16 (2018 UEC Survey Type 1 questionnaire)

If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not have anxieties or fears	Not applicable

Where a number of options lay between the negative and positive responses, they were placed at equal intervals along the scale. For example, question 33 from the Type 1 questionnaire asks respondents how clean the A&E was (Figure A2). The following response options were provided:

- Very clean
- Fairly clean
- Not very clean
- Not at all clean
- Can’t say

A score of 10 was assigned to the option ‘Very clean’, as this represents best outcome in terms of patient experience. A response that A&E was ‘not at all clean’ was given a score of 0. The remaining two answers were assigned a score that reflected their position in terms of quality of experience, spread evenly across the scale. Hence the option ‘fairly clean’ was assigned a score of 6.7, and ‘not very clean’ was given a score of 3.3.

Figure A2 Scoring example:
Question 33 (2018UEC Survey Type 1 questionnaire)

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

Details of the method used to calculate the scores for each trust, for individual questions and each section of the questionnaire, are available in **Appendix B**. This also includes an explanation of the technique used to identify scores that are better, worse or about the same as most other trusts.

All analysis is carried out on a 'cleaned' data set. 'Cleaning' refers to the editing process that is undertaken on the survey data. As part of the cleaning process, responses are removed from any trust that has fewer than 30 respondents to a question. This is because the uncertainty around the result is too high, and very low numbers would risk respondents being recognised from their responses. For more information please see the **data cleaning document.**

The below details the scoring allocated to each scorable question by questionnaire type. The sections relate to how questions are ordered in the trust benchmark reports and the data on the CQC website which does not necessarily follow the questionnaire structure: Q32 in the Type 1 questionnaire and Q29 in the Type 3 questionnaire on pain relief are included in the 'care and treatment' section. Q45 and Q46 in the Type 1 questionnaire, and Q42 and Q43 in the Type 3 questionnaire asking about being treated with respect and dignity and overall rating of care respectively, are reported in separate sections.

TYPE 1 QUESTIONNAIRE SCORING

Section 1: Arrival

Q5. Once you arrived at A&E, how long did you wait with the ambulance crew before your care was handed over to the A&E staff?	
I did not have to wait	10
Up to 15 minutes	10
16 - 30 minutes	6.7
31 - 60 minutes	3.3
More than 1 hour but no more than 2 hours	0
More than 2 hours	0
Don't know/ can't remember	-

Answered by those who arrived by ambulance

Q6: Were you given enough privacy when discussing your condition with the receptionist?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not discuss my condition with a receptionist	-

Answered by all

Section 2: Waiting

Q8: How long did you wait before you first spoke to a nurse or doctor?	
0 -15 minutes	10
16-30 minutes	6.7
31-60 minutes	3.3
More than 60 minutes	0
Don't know/ can't remember	-

Answered by all

Q9: Sometimes, people will first talk to a nurse or doctor and be examined later. From the time you arrived, how long did you wait before being examined by a doctor or nurse?	
I did not have to wait	10
1 - 30 minutes	8
31 - 60 minutes	6
More than 1 hour but no more than 2 hours	4
More than 2 hours but no more than 4 hours	2
More than 4 hours	0
Don't know / can't remember	-

Answered by all

Q10: Were you informed how long you would have to wait to be examined?	
Yes, but the wait was shorter	10
Yes, and I had to wait about as long as I was told	10
Yes, but the wait was longer	5
No, I was not informed	0
Don't know/ can't remember	-

Answered by those who waited to see a doctor or nurse

Q11: While you were waiting, were you able to get help from a member of staff?	
Yes	10
No	0
I did not need any help	-

Answered by those who waited to see a doctor or nurse

Q12: Overall, how long did your visit to A&E last?	
Up to 1 hour	10
More than 1 hour but no more than 2 hours	10
More than 2 hours but no more than 4 hours	8
More than 4 hours but no more than 6 hours	6
More than 6 hours but no more than 8 hours	4
More than 8 hours but no more than 12 hours	2
More than 12 hours	0
Can't remember	-

Answered by all

Section 3: Doctors and nurses

Q13: Did you have enough time to discuss condition with the doctor or nurse?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q14: While you were in A&E, did a doctor or nurse explain your condition and treatment in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need an explanation	-

Answered by all

Q15: Did the doctors and nurses listen to what you had to say?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q16: If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not have anxieties or fears	-

Answered by all

Q17: Did you have confidence and trust in the doctors and nurses examining and treating you?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q18: Did doctors or nurses talk to each other about you as if you weren't there?	
Yes, definitely	0
Yes, to some extent	5
No	10

Answered by all

Q20: If a family member, friend or carer wanted to talk to a doctor, did they have enough opportunity to do so?	
Yes, definitely	10
Yes, to some extent	5
No	0
This was not necessary	-

Answered by those who had a family member, friend or carer with them

Section 4: Care and treatment

Q21: While you were in A&E, how much information about your condition or treatment was given to you?	
Not enough	5
Right amount	10
Too much	5
I was not given any information about my condition or treatment	0

Answered by all

Q22: Were you given enough privacy when being examined or treated?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q23: If you needed attention, were you able to get a member of medical or nursing staff to help you?	
Yes, always	10
Yes, sometimes	5
No, I could not find a member of staff to help me	0
A member of staff was with me all the time	10
I did not need attention	-

Answered by all

Q24: Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you in the emergency department?	
Yes, definitely	0
Yes, to some extent	5
No	10

Answered by all

Q25: Were you involved as much as you wanted to be in decisions about your care and treatment?	
Yes, definitely	10
Yes, to some extent	5
No	0
I was not well enough to be involved in decisions about my care	-

Answered by all

Q26: If you were feeling distressed while you were in the emergency department, did a member of staff help to reassure you?	
Yes, definitely	10
Yes, to some extent	5
No	0
I was not distressed	-
Not sure/ can't remember	-

Answered by all

Q32: Do you think the hospital staff did everything they could to help control your pain?	
Yes, definitely	10
Yes, to some extent	5
No	0
Can't say/ don't know	-

Answered by those who were in pain

Note: this question is in the 'Care & Treatment' section, as it was the only scorable question in the 'Pain' section.

Section 5: Tests

Q27: Did a member of staff explain why you needed these test(s) in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0

Answered by those who had tests

Q28: Before you left A&E, did you get the results of your tests?	
Yes	10
No	0
I was told the results of the tests would be given to me at a later date	-
Don't know / can't remember	-

Answered by those who had tests

Q29: Did a member of staff explain the results of the tests in a way you could understand?	
Yes, definitely	10
Yes, to some extent	5
No	0
Not sure/ can't remember	-

Answered by those who received their test results before they left

Q30: If you did not get the results of the tests when you were in A&E, did a member of staff explain how you would receive them?	
Yes	10
No	0
Don't know / can't remember	-

Answered by those who did not receive their test results before they left

Section 6: Hospital environment and facilities

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	-

Answered by all

Q34: While you were in A&E, did you feel threatened by other patients or visitors?	
Yes, definitely	0
Yes, to some extent	5
No	10

Answered by all

Q35: Were you able to get suitable food or drinks when you were in A&E?	
Yes	10
No	0
I was told not to eat or drink	10
I did not know if I was allowed to eat or drink	0
I did not want anything to eat or drink	-

Answered by all

Section 7: Leaving A&E

Q38: Did a member of staff explain the purpose of the medications you were to take at home in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need an explanation	-

Answered by those who were not admitted to hospital and who were prescribed medication

Q39: Did a member of staff tell you about medication side effects to watch for?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital and who were prescribed medication

Q40: Did a member of staff tell you when you could resume your usual activities, such as when to go back to work or drive a car?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital

Q41. Did hospital staff take your family or home situation into account when you were leaving the emergency department?	
Yes, completely	10
Yes, to some extent	5
No	0
It was not necessary	-
Don't know / can't remember	-

Answered by those who were not admitted to hospital

Q42: Did a member of staff tell you about what symptoms to watch for regarding your illness or treatment after you went home?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital

Q43: Did hospital staff tell you who to contact if you were worried about your condition or treatment after you left A&E?	
Yes	10
No	0
Don't know/ can't remember	-

Answered by those who were not admitted to hospital

Q44: Did hospital staff give you enough information to help you care for your condition at home?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital

Section 8: Respect and dignity

Q45: Overall, did you feel you were treated with respect and dignity while you were in A&E?	
Yes, all of the time	10
Yes, some of the time	5
No	0

Answered by all

Section 9: Experience overall

Q45: Overall...	
0 (I had a very poor experience)	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10 (I had a very good experience)	10

Answered by all

TYPE 3 QUESTIONNAIRE SCORING

The results for four questions are not able to be reported due to a large number of trusts having less than 30 respondents and are therefore not shown here. These are:

Q10: While you were waiting, were you able to get help from a member of staff?
Q35: Did a member of staff explain the purpose of the medications you were to take at home in a way you could understand?
Q36: Did a member of staff tell you about medication side effects to watch for?
Q38: Did a member of staff take your family or home situation into account when you were leaving the urgent care centre?

Section 1: Arrival

Q4: Were you given enough privacy when discussing your condition with the receptionist?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not discuss my condition with a receptionist	-

Answered by all

Section 2: Waiting

Q7 and Q8 are only scored for people who said they **did not have an appointment** at Q6 *(Did you have an appointment on your most recent visit to the urgent care centre?).*[4] This is because there are different principles around waiting times for people attending with an appointment who should usually be seen quicker.[5] However, the number of people at each trust who had an appointment was too low to be able to analyse that data.

Q7: How long did you wait before you first spoke to a health professional?	
0 -15 minutes	10
16-30 minutes	7.5
31-60 minutes	5
More than 1 hour but no more than 2 hours	2.5
More than 2 hours	0
Don't know/ can't remember	-

Answered by all
Note: this question is only scored for people who **did not have an appointment** when they attended the Urgent Care Centre.

[4] If the response to Q6 is missing, or the respondent did not know/could not remember, Q7 and Q8 are not scored. For more information please see the scored questionnaire and the technical document (see 'Further Information' section).
[5] Urgent Treatment Centres principles and standards sets out expectations for Urgent Treatment Centres which NHS England plan will replace the current UEC choices by December 2019. It states that patients who have a pre-booked appointment should be seen and treated within 30 minutes of their appointment time.

Q8: Sometimes, people will first talk to a health professional and be examined later. From the time you arrived, how long did you wait before being examined?	
I did not have to wait	10
Up to 15 minutes	8
16-30 minutes	6
31-60 minutes	4
More than 1 hour but no more than 2 hours	2
More than 2 hours	0
Don't know / can't remember	-

Answered by all

Note: this question is only scored for people who **did not have an appointment** when they attended the Urgent Care Centre.

Q9: Were you informed how long you would have to wait to be examined?	
Yes, but the wait was shorter	10
Yes, and I had to wait about as long as I was told	10
Yes, but the wait was longer	5
No, I was not informed	0
Don't know/ can't remember	-

Answered by those who waited to see a health professional

Q11: Overall, how long did your visit to the urgent care centre last?	
Up to 1 hour	10
More than 1 hour but no more than 2 hours	6.7
More than 2 hours but no more than 4 hours	3.3
More than 4 hours but no more than 6 hours	0
Can't remember	-

Answered by all

Section 3: Seeing the health professionals

Q12: Did you have enough time to discuss your condition with the health professional?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q13: While you were in the urgent care centre, did a health professional explain your condition and treatment in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need an explanation	-

Answered by all

Q14: Did the health professional listen to what you had to say?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q15: If you had any anxieties or fears about your condition or treatment, did a health professional discuss them with you?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not have anxieties or fears	-

Answered by all

Q16: Did you have confidence and trust in health professional examining and treating you?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q17: Did health professionals talk to each other about you as if you weren't there?	
Yes, definitely	0
Yes, to some extent	5
No	10
Not applicable	-

Answered by all

Q19: If a family member, friend or carer wanted to talk to a health professional did they have enough opportunity to do so?	
Yes, definitely	10
Yes, to some extent	5
No	0
This was not necessary	-

Answered by those who had a family member, friend or carer with them

Section 4: Care and treatment

Q20: While you were in the urgent care centre, how much information about your condition or treatment was given to you?	
Not enough	5
Right amount	10
Too much	5
I was not given any information about my condition or treatment	0

Answered by all

Q21: Were you given enough privacy when being examined or treated?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

Q22: Sometimes a member of staff will say one thing and another will say something quite different. Did this happen to you?	
Yes, definitely	0
Yes, to some extent	5
No	10

Answered by all

Q23: Were you involved as much as you wanted to be in decisions about your care and treatment?	
Yes, definitely	10
Yes, to some extent	5
No	0
I was not well enough to be involved in decisions about my care	-

Answered by all

Q29: Do you think the staff did everything they could to help control your pain?	
Yes, definitely	10
Yes, to some extent	5
No	0
Can't say/ don't know	-

Answered by those who were in pain

Note: this question is in the 'Care & Treatment' section, as it was the only scorable question in the 'Pain' section.

Section 5: Tests

Q25: Did a member of staff explain why you needed these test(s) in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0

Answered by those who had tests

Q26: Before you left the urgent care centre, did you get the results of your tests?	
Yes	10
No	0
I was told the results of the tests would be given to me at a later date	-
Don't know / can't remember	-

Answered by those who had tests

Q27: Did a member of staff explain the results of the tests in a way you could understand?	
Yes, definitely	10
Yes, to some extent	5
No	0
Not sure/ can't remember	-

Answered by those who received their test results before they left

Section 6: Environment and facilities

Q30: In your opinion, how clean was the urgent care centre?	
Very clean	10
Fairly clean	6.7
Not very clean	3.3
Not at all clean	0
Can't say	-

Answered by all

Q31: While you were in the urgent care centre, did you feel threatened by other patients or visitors?	
Yes, definitely	0
Yes, to some extent	5
No	10

Answered by all

Q32: Were you able to get suitable food and drink while you were at the urgent care centre?	
Yes	10
No	0
I was told not to eat or drink	10
I did not know if I was allowed to eat or drink	0
I did not want anything to eat or drink	-

Answered by all

Section 7: Leaving the urgent care centre

Q37: Did a member of staff tell you when you could resume your usual activities, such as when to go back to work or drive a car?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital or referred to A&E

Q39: Did a member of staff tell you about what symptoms to watch for regarding your illness or treatment after you went home?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital or referred to A&E

Q40: Did a member of staff tell you who to contact if you were worried about your condition or treatment after you left the urgent care centre?	
Yes	10
No	0
Don't know/ can't remember	-

Answered by those who were not admitted to hospital or referred to A&E

Q41: Did staff give you enough information to help you care for your condition at home?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not need this type of information	-

Answered by those who were not admitted to hospital or referred to A&E

Section 8: Respect and dignity

Q42: Overall, did you feel you were treated with respect and dignity while you were in the urgent care centre?	
Yes, all of the time	10
Yes, some of the time	5
No	0

Answered by all

Section 9: Experience overall

Q43: Overall...	
0 (I had a very poor experience)	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10 (I had a very good experience)	10

Answered by all

Appendix B: Calculating the trust score and category

Calculating trust scores

The question and section scores for each trust, for each report, were calculated using the method described below.

Please note that special scoring rules are applied to two questions in the Type 3 questionnaire and this is detailed at the **end of this section**.

Weights were calculated to adjust for any variation between trusts that resulted from differences in the age and gender groupings of respondents. A weight was calculated for each respondent by dividing the national proportion of respondents in their age/gender group by the corresponding trust proportion. The reason for weighting the data was that younger people tend to be more critical in their responses than older people women tend to be more critical in their responses than men. If a trust had a large population of young females, for example, their performance might be judged more harshly than if there was a more consistent distribution of age and gender of respondents.

Weighting survey responses

The first stage of the analysis involved calculating the national age/gender proportions. It must be noted that the term ‘national proportion’ is used loosely here as it was obtained from pooling the survey data from all trusts, and was therefore based on the respondent population rather than the entire population of England.

The questionnaire asked respondents to state their gender and their year of birth. The approximate age of each respondent was then calculated by subtracting the year given from 2018. The respondents were then grouped according to the categories shown in Figure B1.

If a respondent did not fill in their gender or year of birth on the questionnaire, this information was taken from the sample file. If information on a respondent’s gender and age was missing from both the questionnaire and the sample file, it was not possible to assign a weight and the respondent was excluded from the analysis.

The national age/sex proportions relate to the proportion of men and women of different age groups. As shown in Figure B1, the proportion of Type 1 respondents who were male, and aged 51 to 65 years is 0.115; the proportion of Type 3 respondents who were women and aged 51 to 65 years is 0.172, etc.

This process was done separately for the Type 1 and Type 3 data.

Figure B1 National Proportions:

Sex	Age Group	National proportion 2018 (Type 1)	National proportion 2018 (Type 3)
Men	≤35	0.046	0.056
	36-50	0.055	0.063
	51-65	0.115	0.122
	66+	0.236	0.179
Women	≤35	0.070	0.082
	36-50	0.073	0.099
	51-65	0.133	0.172
	66+	0.272	0.226

These proportions were calculated for each trust, using the same procedure.

The next step was to calculate the weighting for each individual. Age/sex weightings were calculated for each respondent by dividing the national proportion of respondents in their age/sex group by the corresponding trust proportion.

If, for example, a lower proportion of men aged between 51 and 65 years within Trust A responded to the Type 1 questionnaire, in comparison with the national proportion, then this group would be under-represented in the final scores. Dividing the national proportion by the trust proportion results in a weighting greater than “1” for members of this group (Figure B2). This increases the influence of responses made by respondents within that group in the final score, thus counteracting the low representation.

Figure B2 Proportion and Weighting for Trust A

	Sex	Age Group	National proportion 2018	Trust A Proportion	Trust A Weight (National/Trust A)
Type 1	Men	≤35	0.046	0.036	1.278
		36-50	0.055	0.071	0.776
		51-65	**0.115**	**0.094**	**1.224**
		66+	0.236	0.189	1.247
	Women	≤35	0.070	0.092	0.758
		36-50	0.073	0.114	0.643
		51-65	0.133	0.168	0.792
		66+	0.272	0.236	1.152
Type 3	Men	≤35	0.056	0.050	1.127
		36-50	0.063	0.090	0.702
		51-65	0.122	0.154	0.792
		66+	0.179	0.265	0.676
	Women	≤35	0.082	0.200	0.408
		36-50	0.099	0.037	2.688
		51-65	0.172	0.114	1.510
		66+	0.226	0.127	1.781

Likewise, if a considerably higher proportion of women aged between 36 and 50 years from Trust B responded to the Type 1 questionnaire (Figure B3), then this group would be over-represented within the sample, compared with national

representation of this group. Subsequently this group would have a greater influence over the final score. To counteract this, dividing the national proportion by the proportion for Trust B, results in a weighting of less than one for this group.

Figure B3 Proportion and Weighting for Trust B

	Sex	Age Group	National proportion 2018	Trust B Proportion	Trust B Weight (National/Trust B)
Type 1	Men	≤35	0.046	0.032	1.438
		36-50	0.055	0.058	0.950
		51-65	0.115	0.124	0.928
		66+	0.236	0.188	1.254
	Women	≤35	0.070	0.068	1.026
		36-50	**0.073**	**0.207**	**0.354**
		51-65	0.133	0.112	1.188
		66+	0.272	0.211	1.288
Type 3	Men	≤35	0.056	0.048	1.174
		36-50	0.063	0.112	0.564
		51-65	0.122	0.099	1.232
		66+	0.179	0.284	0.631
	Women	≤35	0.082	0.090	0.906
		36-50	0.099	0.075	1.326
		51-65	0.172	0.181	0.950
		66+	0.226	0.111	2.038

To prevent the possibility of excessive weight being given to respondents in an extremely under-represented group, the maximum value for any weight was set at 5. There was no minimum weight for respondents as applying very small weights to over-represented groups does not have the same potential to give excessive impact to the responses of small numbers of individual respondents.

Calculating question scores

The trust score for each question displayed on the website and in the benchmark reports was calculated by applying the weighting for each respondent to the scores allocated to each response.

The below is a working example of this process for the ‘Hospital environment and facilities’’ section of the Type 1 questionnaire which, for simplicity, uses three respondents.

The responses given by each respondent were entered into a dataset using the 0-10 scale described in section 5.1 and outlined in **Appendix A**. Each row corresponded to an individual respondent, and each column related to a survey question. For those questions that the respondent did not answer (or received a ‘not applicable’ score for) the relevant cell remained empty. Alongside these were the weightings allocated to each respondent (Figure B4).

Figure B4: Scoring for 'Hospital environment and facilities' Type 1 questionnaire Trust B

Respondent	Scores			Weight
	Q33	Q34	Q35	
1	10	.	0	1.438
2	6.7	10	10	0.354
3	3.3	5	0	1.288

Respondents' scores for each question were then multiplied individually by the relevant weighting, in order to obtain the numerators for the trust scores (Figure B5).

Figure B5: Numerators for 'Hospital environment and facilities' Type 1 questionnaire Trust B

Respondent	Scores			Weight
	Q33	Q34	Q35	
1	14.375		0.000	1.438
2	2.373	3.542	3.542	0.354
3	4.250	6.440	0.000	1.288

Obtaining the denominators for each domain score

A second dataset was then created. This contained a column for each question, and again with each row corresponding to an individual respondent. A value of one was entered for the questions where a response had been given by the respondent, and all questions that had been left unanswered or allocated a scoring of 'not applicable' were set to missing (Figure B6).

Figure B6 Values for non-missing responses 'Hospital environment and facilities' Type 1 questionnaire Trust B

Respondent	Scores			Weight
	Q33	Q34	Q35	
1	1	.	1	1.438
2	1	1	1	0.354
3	1	1	1	1.288

The denominators were calculated by multiplying each of the cells within the second dataset by the weighting allocated to each respondent. This resulted in a figure for each question that the respondent had answered (Figure B7). Again, the cells relating to the questions that the respondent did not answer (or received a 'not applicable' score for) remained set to missing.

Figure B7 Denominators for 'Hospital environment and facilities' Type 1 questionnaire Trust B

Respondent	Score			Weight
	Q33	Q34	Q35	
1	1.438		1.438	1.438
2	0.354	0.354	0.354	0.354
3	1.288	1.288	1.288	1.288

The weighted mean score for each trust, for each question, was calculated by dividing the sum of the weighted scores for a question (i.e. numerators), by the weighted sum of all eligible respondents to the question (i.e. denominators) for each trust.

Using the example data for trust B, we first calculated weighted mean scores for each of the five questions that contributed to the 'care in hospital after the birth' section of the Type 1 questionnaire.

Q33: $\frac{14.375 + 2.373 + 4.250}{1.438 + 0.354 + 1.288} = 6.818$

Q43: $\frac{3.542 + 6.440}{0.354 + 1.288} = 6.078$

Q35: $\frac{0.000 + 3.542 + 0.000}{1.438 + 0.354 + 1.288} = 1.150$

Calculating section scores

A simple arithmetic mean of each trust's question scores was then taken to give the score for each section. Continuing the example from above, then, Trust B's score for the 'Hospital environment and facilities' section of the Type 1 questionnaire would be calculated as:

(6.818 + 6.078 + 1.150) / 3 = 4.682

Appendix C: Calculation of the expected ranges

Z statistics (or *Z* scores) are standardized scores derived from normally distributed data, where the value of the *Z* score translates directly to a *p*-value. That *p*-value then translates to what level of confidence you have in saying that a value is significantly different from the mean of your data (or your 'target' value).

A standard *Z* score for a given item is calculated as:

$$z_i = \frac{y_i - \theta_0}{s_i} \quad (1)$$

where: s_i is the standard error of the trust score[6],
y_i is the trust score
θ_0 is the mean score for all trusts

Under this banding scheme, a trust with a *Z* score of < -1.96 is labeled as 'Worse' (significantly below average; *p* <0.025 that the trust score is below the England average), -1.96 < *Z* < 1.96 as 'About the same', and *Z* > 1.96 as 'Better' (significantly above average; *p*<0.025 that the trust score is above the England average) than what would be expected based on the distribution of trust scores for England.

However, for measures where there is a high level of precision in the estimates (the survey sample sizes average around 400 to 500 per trust), the standard *Z* score may give a disproportionately high number of trusts in the significantly above/ below average bands (because s_i is generally so small). This is compounded by the fact that all the factors that may affect a trust's score cannot be controlled. For example, if trust scores are closely related to economic deprivation then there may be significant variation between trusts due to this factor, not necessarily due to factors within the trusts' control. In this situation, the data are said to be 'over dispersed'. That problem can be partially overcome by the use of an 'additive random effects model' to calculate the *Z* score (we refer to this modified *Z* score as the Z_D score). Under that model, we accept that there is natural variation between trust scores, and this variation is then taken into account by adding this to the trust's local standard error in the denominator of (1). In effect, rather than comparing each trust simply to one target value for England, we are comparing them to an England distribution.

The Z_D score for each question and section was calculated as the trust score minus the England mean score, divided by the standard error of the trust score plus the variance of the scores between trusts. This method of calculating a Z_D score differs from the standard method of calculating a *Z*-score in that it recognizes that there is likely to be natural variation between trusts which one should expect, and accept. Rather than comparing each trust to one point only (i.e. the England mean score), it compares each trust to a distribution of acceptable scores. This is achieved by adding some of the variance of the scores between trusts to the denominator.

The steps taken to calculate Z_D scores, based on the method presented in Spiegelhalter et al. (2012), are outlined below.

[6] Calculated using the method in Appendix D.

Winsorising Z-scores

The first step when calculating Z_D is to 'Winsorise' the standard Z scores (from (1)). Winsorising 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 100q% of Z-scores to Z_q, and the highest 100q% of Z-scores to $_{(1-q)}$. These are the Winsorised statistics.

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

Estimation of over-dispersion

An over dispersion factor $\hat{\phi}$ is estimated for each indicator which allows us to say whether the data for that indicator 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 Winsorised *Z*-scores are used in estimating $\hat{\phi}$.

An additive random effects model

If *I* $\hat{\phi}$ is greater than (*I* - 1) then we need to estimate the expected variation between trusts. We take this as the standard deviation of the distribution of θ_i (trust means) 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 $w_i = 1 / s_i^2$ and $\hat{\phi}$ is from (2). Once $\hat{\tau}$ has been estimated, the Z_D score is calculated as:

$$z_i^D = \frac{y_i - \theta_0}{\sqrt{s_i^2 + \hat{\tau}^2}} \quad (4)$$

References

Spiegelhalter, D., Sherlaw-Johnson, C., Bardsley, M., Blunt, I., Wood, C., & Grigg, O. (2012). Statistical methods for healthcare regulation: Rating, screening and surveillance. *Journal of the Royal Statistical Society (Series A)*, *175*(1), 1-47.

Appendix D: Calculation of standard errors

To calculate statistical bandings from the data, it is necessary for CQC to have both trusts' scores for each question and section and the associated standard error. Since each section is based on an aggregation of question mean scores that are based on question responses, a standard error needs to be calculated using an appropriate methodology.

For the patient experience surveys, the z-scores are scores calculated for section and question scores, which combines relevant questions making up each section into one overall score, and uses the pooled variance of the question scores.

Assumptions and notation

The following notation will be used in formulae:

X_{ijk}	is the score for respondent *j* in trust *i* to question *k*
Q	is the number of questions within section *d*
w_{ij}	is the standardization weight calculated for respondent *j* in trust *i*
Y_{ik}	is the overall trust *i* score for question *k*
Y_{id}	is the overall score for section *d* for trust *i*

Associated with the subject or respondent is a weight w_{ij} corresponding to how well the respondent's age/parity is represented in the survey compared with the population of interest.

Calculating mean scores

Given the notation described above, it follows that the overall score for trust *i* on question *k* is given as:

$$Y_{ik} = \frac{\sum_j w_{ij} X_{ijk}}{\sum_j w_{ij}}$$

The overall score for section *d* for trust *i* is then the average of the trust-level question means within section *d*. This is given as:

$$Y_{id} = \frac{\sum_{k=1}^{Q} Y_{ikd}}{Q}$$

Calculating standard errors

Standard errors are calculated for both questions and sections.

For questions, the variance of the trust score is estimated with the Taylor series linearization method (see e.g. Lee & Forthofer, 2006; Lumley, 2004). The standard error of the trust score, s_i, is the square root of the Taylor series estimate of variance.

For sections, the variance within trust *i* on question *k* is given by:

$$\hat{\sigma}_{ik}^2 = \frac{\sum_j w_{ij}\left(X_{ijk} - Y_{ik}\right)^2}{\sum_j w_{ij}}$$

This assumes independence between respondents.

For ease of calculation, and as the sample size is large, we have used the biased estimate for variance.

The variance of the trust-level average question score, is then given by:

$$V_{ik} = Var(Y_{ik}) = Var\left(\frac{\sum_j w_{ij} X_{ijk}}{\sum_j w_{ij}}\right)$$

$$= \frac{Var\left(\sum_j w_{ij} X_{ijk}\right)}{\left(\sum_j w_{ij}\right)^2}$$

$$= \frac{\hat{\sigma}_{ik}^2 \sum_j w_{ij}^2}{\left(\sum_j w_{ij}\right)^2}$$

Covariances between pairs of questions (here, *k* and *m*) can be calculated in a similar way:

$$COV_{ik.im}. = Cov(Y_{ik}, Y_{im}) = \frac{\hat{\sigma}_{ikm} \sum_j w_{ij}^2}{\left(\sum_j w_{ij}\right)^2}$$

Where $\hat{\sigma}_{ikm} = \dfrac{\sum_j w_{ij}(X_{ijk} - Y_{ik})(X_{ijm} - Y_{im})}{\sum_j w_{ij}}$

Note: w_{ij} is set to zero in cases where patient *j* in trust *i* did not answer both questions *k* and *m*.

The trust-level variance for the section score *d* for trust *i* is given by:

$$V_{id} = Var(Y_{id}) = \frac{1}{Q^2}\left\{\sum_{k=1}^{Q} V_{ik} + 2\sum_{k=2}^{Q}\sum_{m=1}^{k-1} COV_{ik,im}\right\}$$

The standard error of the section score is then:

$$SE_{id} = \sqrt{V_{id}}$$

This simple case can be extended to cover sections of greater length.

References

Lee, E. S., & Forthofer, R. N. (2006). *Analyzing complex survey data* (2nd ed.). Thousand Oaks, CA: Sage. http://dx.doi.org/10.4135/9781412983341

Lumley, T. (2004). Analysis of complex survey samples. *Journal of Statistical Software*, *9*. doi: 10.18637/jss.v009.i08