Care Quality Commission (CQC)

Technical details – patient survey information
2013 Inpatient survey
March 2014

Contents

1. Introduction

This document outlines the methods used by the Care Quality Commission to score and analyse the results for the 2013 Inpatient Survey, as available on the Care Quality Commission website, and in the benchmark report for each trust.

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 done using a statistic called the **'expected range'** (see section 5.3). 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: **www.cqc.org.uk/Inpatientsurvey2013**

The CQC webpage also contains the national results for England, comparing against the results for the previous survey.

Results displayed in the benchmark report for each trust are a graphical representation of the results displayed for the public on the CQC website (see further information section). These have been provided to all trusts and will be available on the survey co-ordination centre website from 8th April 2014, at: **www.nhssurveys.org** The tables in the back of this report also highlight any statistically significant changes in the trust score between 2013 and 2012.

2. Selecting data for the reporting

The survey information used and published by the Care Quality Commission consists of the 'core questions' - i.e. those questions where results are available from every trust. There is a question bank from which trusts can select questions and add them into the questionnaire, though this information is not collected by the Care Quality Commission.

Of the core questions, 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 "Scoring individual questions" for more detail). Questions that are not presented in this way tend to be those included solely for 'filtering' respondents past any questions that may not be relevant to them (such as: 'Did you have an operation or procedure?') or those used for descriptive or information purposes.

The scores for each question are grouped on the website and in the benchmark reports according to the sections of the questionnaire as completed by respondents. For example, the Inpatients survey includes sections on 'the accident and emergency department', 'the hospital and ward' and 'care and treatment' amongst others. The average score for each trust, for each section, was calculated and will be presented on the website and in the benchmark report for each trust.

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

- Better
- About the same
- Worse

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

3. The CQC organisation search tool

The organisation search tool was previously referred to as the Care Directory, and survey data has been displayed in it since 2007. It is intended for a public audience, and 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, so that as well as meeting their needs, it presents the groupings of the trust results in a simple and fair way, to show 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 found from the A to Z link available at:
www.cqc.org.uk/Inpatientsurvey2013

Or by searching for a hospital from the CQC home page, then clicking on 'Patient survey information' on the right hand side then clicking on its NHS Trust name, then selecting the survey under the 'Reports and surveys about this organisation' tab.

4. The trust benchmark reports

Benchmark reports should be used by NHS trusts to identify how they are performing in relation to all other trusts that took part in the survey. They also show if a score has significantly increased or decreased compared with the last survey. From this, areas for improvement can be identified. The reports are available from the survey co-ordination centre website: **www.nhssurveys.org**

The graphs included in the reports display the scores for a trust, compared with the full range of results from all other trusts that took part in the survey. Each bar represents the range of results for each question across all trusts that took part in the survey. In the graphs, the bar is divided into three sections:

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

A black diamond represents the score for this trust. The black diamond (score) is not shown for questions answered by fewer than 30 people because the uncertainty around the result would be too great.

5. Interpreting the data

5.1 Scoring

The 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 score of 0 was assigned to all responses that reflect considerable scope for

improvement, whereas a response that was assigned a score of 10 referred to the most positive patient experience reported. Where a number of options lay between the negative and positive responses, they were placed at equal intervals along the scale. Where options were provided that did not have any bearing on the trust's performance in terms of patient experience, the responses were classified as "not applicable" and a score was not given. Where respondents stated they could not remember or did not know the answer to a question, a score was 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 patients 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 patients. 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.

The inpatients survey is standardised by age, gender and method of admission (emergency or elective).

5.3 Expected range

The better / about the same / worse categories are based on the 'expected range' that 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 B for more details). Analysing the survey information in such a way allows for fairer conclusions to be made in terms of each trust's performance. This approach presents the findings in a way that takes account of all necessary factors, yet is presented in a simple manner.

As the 'expected range' calculation takes into account 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 Comparing scores across or within 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 want to use the scored data in another way, to compare scores (either as trend data for an individual trust or between different trusts) you will need to undertake an appropriate statistical test to ensure that any changes are 'statistically significant'. 'Statistically significant' means that you can be very confident that any change between scores is real and not due to chance.

The benchmark report for each trust includes a comparison to the 2012 survey scores and indicates whether the change is statistically significant. However, to

compare back to earlier surveys (where possible) you would need to undertake a similar significance test.

5.5 Conclusions made on performance

It should be noted that the data only show performance relative to other trusts: there are no absolute thresholds for 'good' or 'bad' performance. Thus, a trust may score lowly relative to others on a certain question whilst still performing very well on the whole. This is particularly true on questions where the majority of trusts score very highly.

The better / worse categories are intended to help trusts identify areas of good or poor performance. However, when looking at scores within a trust over time, it is important to be aware that they are relative to the performance of other trusts. If, for example, a trust was 'better' for one question, then 'about the same' the following year, it may not indicate an actual decrease in the performance of the trust, but instead may be due to an improvement in many other trusts' scores, leaving the trust to appear more 'average'. Hence it is more accurate to look at actual changes in scores and to test for statistically significant differences.

It is also important to remember that there is no overall indicator or figure for 'patient experience', so it is not accurate to say that a trust is the 'best in the country' or 'best in the region' *overall*. Adding up the number of 'better' and 'worse' categories to find out which trust did better or worse overall is misleading. The number of questions on each topic in the survey varies, and often so does trusts' performance across these. So if you counted across all of them, some topics will have more influence on the overall average than others, when in fact some might not be so important.

6. Further information

The full national results are on the CQC website, together with an A to Z list to view the results for each trust (alongside the technical document outlining the methodology and the scoring applied to each question):
www.cqc.org.uk/Inpatientsurvey2013

The results for the adult inpatient surveys from 2002 to 2012 can be found at:
http://www.nhssurveys.org/surveys/425

Full details of the methodology of the survey can be found at:
http://www.nhssurveys.org/surveys/705

More information on the programme of NHS patient surveys is available at:
www.cqc.org.uk/public/reports-surveys-and-reviews/surveys

More information on CQC's Intelligent Monitoring is available on the CQC website at:
http://www.cqc.org.uk/public/hospital-intelligent-monitoring

Appendix A: Scoring for the 2013 Inpatients survey results

The following describes the scoring system applied to the evaluative questions in the survey. Taking question 24 as an example (Figure A1), it asks respondents whether the doctor answered their questions in a way they could understand. 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, always', as it reflects a positive patient experience. The remaining option, 'Yes, sometimes', was assigned a score of 5 as the patient had their questions answered, they answer was not always understandable. Hence it was placed on the midpoint of the scale.

If the patient did not have any questions to ask, 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 24 (2013 Inpatient Survey)

Q24. When you had important questions to ask a doctor, did you get answers that you could understand?	
Yes, always	10
Yes, sometimes	5
No	0
I had no need to ask	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 17 asks respondents how clean the hospital room or ward they were in was, in their opinion (Figure A2). The following response options were provided:

- Very clean
- Fairly clean
- Not very clean
- Not at all clean

A score of 10 was assigned to the option 'Very clean', as this represents best outcome in terms of patient experience. A response that the room or ward 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 17 (2013 Inpatient Survey)

Q17. In your opinion, how clean was the hospital room or ward that you were in?	
Very clean	10
Fairly clean	6.7
Not very clean	3.3
Not at all clean	0

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. A document describing this can be found at:
www.nhssurveys.org/Filestore/Inpatient_2013/IP13_DataCleaningGuidance_v2.pdf.

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. However, please note that when scoring the data, there are **exceptions to this rule** for questions eleven and thirteen, and questions fifty-one and fifty-two. This is because these questions have composite scoring, meaning the results from two or more questions are used to create a single score. If a trust has fewer than thirty responses to a question used in composite scoring, that information is retained during the calculation of the composite score, to enable fairer scoring.

For example, Q11 and Q13 are scored together to provide a score based on if a respondent ever shared a sleeping area with patients of the opposite sex. If a respondent answered 'yes' to either Q11 or Q13 a trust will receive a score of 0.

The scoring rules for Q11 and Q13 state that if either Q11 or Q13 is missing, the other is used for the scoring.

If fifty respondents answered Q11, but only twenty of these said they were moved to a different ward (at Q12), this means that only twenty respondents answer Q13 which asks if they had to share a sleeping area with patients of the opposite sex after being moved to another ward. Following the cleaning rules, these responses would be cleaned out due to being less than thirty. However, fifteen of these respondents may have said that after moving wards they did share a sleeping area with patients of the opposite sex. If these responses had been cleaned out, the trust would therefore have received a more positive score than they should have.

For clarity, please note that in any instances of low numbers of respondents to questions included in composite scoring, these responses would be cleaned out in for all other outputs, so for example they do not contribute the national results, nor are they included in the data set submitted to the UK Data Archive.

The below details the scoring allocated to each scorable question.

Section 1: The Accident and Emergency Department (A&E)

3. While you were in the A&E Department, 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
Don't know / Can't remember	Not applicable

Answered by those who went to the A&E department

4. Were you given enough privacy when being examined or treated in the A&E Department?	
Yes definitely	10
Yes, to some extent	5
No	0
Don't know / Can't remember	Not applicable

Answered by those who went to the A&E department

Section 2: waiting lists and planned admissions

6. How do you feel about the length of time you were on the waiting list before your admission to hospital?	
I was admitted as soon as I thought was necessary	10
I should have been admitted a bit sooner	5
I should have been admitted a lot sooner	0

Answered by those who had a planned admission

7. Was your admission date changed by the hospital?	
No	10
Yes, once	6.7
Yes, 2 or 3 times	3.3
Yes, 4 times or more	0

Answered by those who had a planned admission

8. In your opinion, had the specialist you saw in hospital been given all of the necessary information about your condition or illness from the person who referred you?	
Yes, definitely	10
Yes, to some extent	5
No	0
Don't know / can't remember	Not applicable

Answered by those who had a planned admission

Section 3: waiting to get to a bed on a ward

9. From the time you arrived at the hospital, did you feel that you had to wait a long time to get to a bed on a ward?	
Yes, definitely	0
Yes, to some extent	5
No	10

Answered by all

Section 4: the hospital and ward

11. When you were first admitted to a bed on a ward, did you share a sleeping area, for example a room or bay, with patients of the opposite sex? AND 13. After you moved to another ward (or wards), did you ever share a sleeping area, for example a room or bay, with patients of the opposite sex?	
Yes	0
No	10

Filtered to exclude respondents who said that they stayed in a critical care area at Q10 as the majority of patients in these areas are exempt from the mixed sex accommodation guidelines due to the necessity for clinical needs to be prioritised.

Q11 and Q13 are scored together to provide a single score on whether patients who have not stayed in a critical care area have ever shared a sleeping area with members of the opposite sex.

Q11 and Q13 are not scored if option 1 ("Yes") is selected to Q10.

Q11 and Q13 score "10" if the respondent did not ever share a sleeping area with patients of the opposite sex, i.e. selected option 2 ("No") to Q11 AND option 2 ("No") to Q13.

If option 1 ("Yes") is selected for EITHER Q11 or Q13 then a score of "0" is assigned.

If ONE of Q11 & Q13 is missing, the other is used for scoring.

The two trusts providing services for women only are excluded from this question

If a trust has less than 30 respondents to Q13, responses are not cleaned out to enable fairer scoring.

14. While staying in hospital, did you ever use the same bathroom or shower area as patients of the opposite sex?	
Yes	0
Yes, because it had special bathing equipment that I needed	10
No	10
I did not use a bathroom or shower	Not applicable
Don't know / Can't remember	Not applicable

Answered by all
Note: the two trusts providing services for women only are excluded from this question

15. Were you ever bothered by noise at night from other patients?	
Yes	0
No	10

Answered by all

16. Were you ever bothered by noise at night from hospital staff?	
Yes	0
No	10

Answered by all

17. In your opinion, how clean was the hospital room or ward that you were in?	
Very clean	10
Fairly clean	6.7
Not very clean	3.3
Not at all clean	0

Answered by all

18. How clean were the toilets and bathrooms that you used in hospital?	
Very clean	10
Fairly clean	6.7
Not very clean	3.3
Not at all clean	0
I did not use a toilet or bathroom	Not applicable

Answered by all

19. Did you feel threatened during your stay in hospital by other patients or visitors?	
Yes	0
No	10

Answered by all

20. Were hand-wash gels available for patients and visitors to use?	
Yes	10
Yes, but they were empty	0
I did not see any hand-wash gels	0
Don’t know / Can’t remember	Not applicable

Answered by all

21. How would you rate the hospital food?	
Very good	10
Good	6.7
Fair	3.3
Poor	0
I did not have any hospital food	Not applicable

Answered by all

22. Were you offered a choice of food?	
Yes always	10
Yes sometimes	5
No	0

Answered by all

23. Did you get enough help from staff to eat your meals?

Yes, always	10
Yes, sometimes	5
No	0
I did not need help to eat meals	Not applicable

Answered by all

Section 5: Doctors

24. When you had important questions to ask a doctor, did you get answers that you could understand?

Yes, always	10
Yes, sometimes	5
No	0
I had no need to ask	Not applicable

Answered by all

25. Did you have confidence and trust in the doctors treating you?

Yes, always	10
Yes, sometimes	5
No	0

Answered by all

26. Did doctors talk in front of you as if you weren't there?

Yes, often	0
Yes, sometimes	5
No	10

Answered by all

Section 6: Nurses

27. When you had important questions to ask a nurse, did you get answers that you could understand?

Yes, always	10
Yes, sometimes	5
No	0
I had no need to ask	Not applicable

Answered by all

28. Did you have confidence and trust in the nurses treating you?

Yes, always	10
Yes, sometimes	5
No	0

Answered by all

29. Did nurses talk in front of you as if you weren't there?

Yes, often	0
Yes, sometimes	5
No	10

Answered by all

30. In your opinion, were there enough nurses on duty to care for you in hospital?

There were always or nearly always enough nurses	10
There were sometimes enough nurses	5
There were rarely or never enough nurses	0

Answered by all

Section 7: Care and Treatment

31. Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you?

Yes, often	0
Yes, sometimes	5
No	10

Answered by all

32. 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

Answered by all

33. How much information about your condition or treatment was given to you?

Not enough	0
The right amount	10
Too much	0

Answered by all

34. Did you find someone on the hospital staff to talk to about your worries and fears?

Yes definitely	10
Yes, to some extent	5
No	0
I had no worries or fears	Not applicable

Answered by all

35. Do you feel you got enough emotional support from hospital staff during your stay?	
Yes, always	10
Yes, sometimes	5
No	0
I did not need any emotional support	Not applicable

Answered by all

36. Were you given enough privacy when discussing your condition or treatment?	
Yes, always	10
Yes, sometimes	5
No	0

Answered by all

37. Were you given enough privacy when being examined or treated?	
Yes, always	10
Yes, sometimes	5
No	0

Answered by all

39. 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

Answered by those who said they were ever in any pain

40. How many minutes after you used the call button did it usually take before you got the help you needed?	
0 minutes / right away	10
1-2 minutes	7.5
3-5 minutes	5.0
More than 5 minutes	2.5
I never got help when I used the call button	0
I never used the call button	Not Applicable

Answered by all

Section 8: Operations and Procedures

42. Beforehand, did a member of staff explain the risks and benefits of the operation or procedure in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not want an explanation	Not Applicable

Answered by those who had an operation or procedure during their stay in hospital

43. Beforehand, did a member of staff explain what would be done during the operation or procedure?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not want an explanation	Not Applicable

Answered by those who had an operation or procedure during their stay in hospital

44. Beforehand, did a member of staff answer your questions about the operation or procedure in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not have any questions	Not Applicable

Answered by those who had an operation or procedure during their stay in hospital

45. Beforehand, were you told how you could expect to feel after you had the operation or procedure?	
Yes, completely	10
Yes, to some extent	5
No	0

Answered by those who had an operation or procedure during their stay in hospital

47. Before the operation or procedure, did the anaesthetist or another member of staff explain how he or she would put you to sleep or control your pain in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0

Answered by those who had an operation or procedure during their stay in hospital and were given an anaesthetic or medication to put them to sleep or control their pain

48. After the operation or procedure, did a member of staff explain how the operation or procedure had gone in a way you could understand?	
Yes, completely	10
Yes, to some extent	5
No	0

Answered by those who had an operation or procedure during their stay in hospital

Section 9: Leaving Hospital

49. Did you feel you were involved in decisions about your discharge from hospital?	
Yes definitely	10
Yes, to some extent	5
No	0
I did not want to be involved	Not Applicable

Answered by all

50. Were you given enough notice about when you were going to be discharged?	
Yes, definitely	10
Yes, to some extent	5
No	0

Answered by all

51. On the day you left hospital, was your discharge delayed for any reason?	
Yes	0
No	10

Answered by all
Note: Scored using responses from Q52.

52. What was the MAIN reason for the delay? (Tick ONE only)	
I had to wait for medicines	0
I had to wait to see the doctor	0
I had to wait for an ambulance	0
Something else	Not Applicable

Answered by those who said that their discharge was delayed

If response to Q51 is 2 (discharge WAS NOT delayed), Q52 is scored 10.

If response to Q51 is 1 (discharge WAS delayed), and response to Q52 is 1, 2, 3 or 4, the scores above are assigned to Q52. If Q51 is missing, Q52 is not scored. If Q52 is missing, scoring is as per Q51.

If a trust has less than 30 respondents to Q52, responses are not cleaned out to enable fairer scoring.

53. How long was the delay?	
Up to 1 hour	7.5
Longer than 1 hour but no longer than 2 hours	5
Longer than 2 hours but no longer than 4 hours	2.5
Longer than 4 hours	0

Answered by those who said that their discharge was

If response to Q52 is 4 (some other reason for the delay), Q53 is not scored.
If response to Q51 is 2 (discharge WAS NOT delayed), Q53 is scored 10.
If response to Q51 is 1 (discharge WAS delayed) AND the response to Q52 is 1, 2 or 3, the scores above are assigned to Q53.
If response to Q51 is 1 (discharge WAS delayed) AND the response to Q52 is missing, the scores above are assigned to Q53.
If response to Q51 is 1 (discharge WAS delayed) AND the response to Q53 is missing, Q53 is not scored.
If response to Q51 is missing, Q53 is not scored

If a trust has less than 30 respondents to Q53, responses are not cleaned out to enable fairer scoring.

54. Before you left hospital, were you given any written or printed information about what you should or should not do after leaving hospital?	
Yes	10
No	0

Answered by all

55. Did a member of staff explain the purpose of the medicines 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	Not Applicable
I had no medicines	Not Applicable

Answered by all

56. Did a member of staff tell you about medication side effects to watch for when you went home?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need an explanation	Not Applicable

Answered by those who were prescribed medication to take home

57. Were you told how to take your medication in a way you could understand?	
Yes, definitely	10
Yes, to some extent	5
No	0
I did not need to be told how to take my medication	Not Applicable

Answered by those who were prescribed medication to take home

58. Were you given clear written or printed information about your medicines?	
Yes, completely	10
Yes, to some extent	5
No	0
I did not need this	Not Applicable
Don’t know / Can’t remember	Not Applicable

Answered by those who were prescribed medication to take home

59. Did a member of staff tell you about any danger signals you should watch for after you went home?	
Yes, completely	10
Yes, to some extent	5
No	0
It was not necessary	Not Applicable

Answered by all

60. Did hospital staff take your family or home situation into account when planning your discharge?	
Yes, completely	10
Yes, to some extent	5
No	0
It was not necessary	Not Applicable
Don't know / Can't remember	Not Applicable

Answered by all

61. Did the doctors or nurses give your family or someone close to you all the information they needed to help care for you?	
Yes, definitely	10
Yes, to some extent	5
No	0
No family or friends were involved	Not Applicable
My family or friends did not want or need information	Not Applicable

Answered by all

62. Did hospital staff tell you who to contact if you were worried about your condition or treatment after you left hospital?	
Yes	10
No	0
Don't know / Can't remember	Not Applicable

Answered by all

63. Did hospital staff discuss with you whether you would need any additional equipment in your home, or any adaptations made to your home, after leaving hospital?	
Yes	10
No, but I would have liked them to	0
No, it was not necessary to discuss it	Not Applicable

Answered by all

64. Did hospital staff discuss with you whether you may need any further health or social care services after leaving hospital? (e.g. services from a GP, physiotherapist or community nurse, or assistance from social service or the voluntary sector)	
Yes	10
No, but I would have liked them to	0
No, it was not necessary to discuss it	Not Applicable

Answered by all

65. Did you receive copies of letters sent between hospital doctors and your family doctor (GP)?	
Yes, I received copies	10
No, I did not receive copies	0
Not sure / don't know	Not Applicable

Answered by all

66. Were the letters written in a way that you could understand?

Yes, definitely	10
Yes, to some extent	5
No	0
Not sure / don't know	Not Applicable

Answered by those who received copies of letters sent between the hospital doctor and their GP

Section 10: Overall Experiences

67. Overall, did you feel you were treated with respect and dignity while you were in the hospital?

Yes, always	10
Yes, sometimes	5
No	0

Answered by all

68. Overall…

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
I had a very good experience	10

Answered by all

69. During your hospital stay, were you ever asked to give your views on the quality of your care?

Yes	10
No	0
Don't know / Can't remember	Not Applicable

Answered by all

70. Did you see, or were you given, any information explaining how to complain about the care you received?

Yes	10
No	0
Not sure / Don't know	Not Applicable

Answered by all

Appendix B: Calculating the trust score and category

Calculating trust scores

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

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

Weighting survey responses

The first stage of the analysis involved calculating national age/ sex/ admission method 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.

All respondents at both Birmingham and Liverpool Women’s NHS Foundation Trusts are coded as ‘female’, even where self-reported gender is coded as male. These trusts are then weighted using the national all female population as a reference.

The questionnaire asked respondents to state their year of birth. The approximate age of each patient was then calculated by subtracting the figure given from 2013. The respondents were then grouped according to the categories shown in Figure B1.

If a patient did not fill in their year of birth or sex on the questionnaire, this information was inputted from the sample file. If information on a respondent’s age and/or sex was missing from both the questionnaire and the sample file, the patient was excluded from the analysis.

Question 1 asked “Was your most recent hospital stay planned in advance or an emergency?”. Respondents that ticked “emergency or urgent” were classed as emergency patients for the purpose of the weightings. Those who ticked “waiting list or planned in advance” were classed as elective patients. However, if respondents ticked “something else” or did not answer question 1, information was taken from other responses to the questionnaire to determine the method of admission.

<u>Emergency admission:</u>

- If the respondent answered "emergency or urgent" at question 1.

Or

- If the respondent answered “something else” or did not respond to question 1, and answered ‘yes’ to question 2.

Or

- If the respondent answered “something else” or did not respond to question 1, did not answer question 2, but responded to one or more of questions 3 or 4.

Elective admission:

- If the respondent answered "waiting list or planned in advance" at question 1.

Or

- If the respondent answered “something else” or did not respond to question 1, and answered ‘no’ to question 2.

Or

- If the respondent answered "something else" or did not respond to question 1, did not answer questions 2, 3 and 4 and gave at least one response to questions 5, 6, 7 and 8.

All other combinations of responses for questions 1 to 8 resulted in the respondent being excluded from the analysis, as it was not possible to determine admission method.

The national age/sex/admission method proportions relate to the proportion of men, and women of different age groups who had emergency or elective admission. As shown in Figure B1, the proportion of respondents who were male, admitted as emergencies, and aged 51 to 65 years is 0.069; the proportion who were women, admitted as emergencies, and aged 51 to 65 years is 0.065, etc.

Figure B1 National Proportions

Admission Method	Sex	Age Group	National proportion 2013
Emergency	Men	≤35	0.015
		36-50	0.031
		51-65	**0.069**
		66+	0.175
	Women	≤35	0.031
		36-50	0.038
		51-65	**0.065**
		66+	0.189
Elective	Men	≤35	0.008
		36-50	0.016
		51-65	0.048
		66+	0.102
	Women	≤35	0.015
		36-50	0.035
		51-65	0.062
		66+	0.099

Note: All proportions are given to three decimals places for this example. The analysis included these figures to nine decimal places, and can be provided on request from the CQC surveys team at patient.survey@cqc.org.uk.

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

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

If, for example, a lower proportion of men who were admitted as emergencies aged between 51 and 65 years within Trust A responded to the survey, 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	Admission	Age Group	National Proportion	Trust A Proportion	Trust A Weight (National/Trust A)
Men	Emergency	≤35	0.015	0.018	0.833
		36-50	0.031	0.035	0.886
		51-65	0.069	0.047	1.468
		66+	0.175	0.095	1.842
Women	Emergency	≤35	0.031	0.045	0.689
		36-50	0.038	0.057	0.667
		51-65	0.065	0.085	0.765
		66+	0.189	0.117	1.615
Men	Elective	≤35	0.008	0.018	0.444
		36-50	0.016	0.035	0.457
		51-65	0.048	0.047	1.021
		66+	0.102	0.095	1.074
Women	Elective	≤35	0.015	0.045	0.333
		36-50	0.035	0.057	0.614
		51-65	0.062	0.085	0.729
		66+	0.099	0.119	0.832

Note: All proportions are given to three decimals places for this example. The analysis included these figures to nine decimal places, and can be provided on request from the CQC surveys team at patient.survey@cqc.org.uk.

Likewise, if a considerably higher proportion of women admitted as emergency patients aged between 36 and 50 years from Trust B responded to the survey (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	Admission	Age Group	National Proportion	Trust B Proportion	Trust B Weight (National/Trust B)
Men	Emergency	≤35	0.015	0.016	0.938
		36-50	0.031	0.029	1.069
		51-65	0.069	0.062	1.113
		66+	0.175	0.091	1.923
Women	Emergency	≤35	0.031	0.034	0.912
		36-50	0.038	0.075	0.507
		51-65	0.065	0.080	0.813
		66+	0.189	0.110	1.718
Men	Elective	≤35	0.008	0.016	0.500
		36-50	0.016	0.029	0.552
		51-65	0.048	0.062	0.774
		66+	0.102	0.097	1.052
Women	Elective	≤35	0.015	0.034	0.441
		36-50	0.035	0.075	0.467
		51-65	0.062	0.080	0.775
		66+	0.099	0.110	0.900

Note: All proportions are given to three decimals places for this example. The analysis included these figures to nine decimal places, and can be provided on request from the CQC surveys team at patient.survey@cqc.org.uk.

To prevent the possibility of excessive weight being given to respondents in an extremely underrepresented group, the maximum value for any weight was set at five.

Calculating question scores

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

The responses given by each respondent were entered into a dataset using the 0-10 scale described in section 3. 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 B6).

Figure B4 Scoring for the 'A&E Department' section, 2013 Inpatients survey, Trust B

Respondent	Scores		Weight
	Q3	Q4	
1	10	0	0.938
2	5	10	1.718
3	.	5	0.774

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 the 'A&E' section, 2013 Inpatients survey, Trust B

Respondent	Scores		Weight
	Q3	Q4	
1	9.380	0.000	0.938
2	8.590	17.180	1.718
3		3.870	0.774

Obtaining the denominators for each domain score

A second dataset was then created. This contained a column for each question, grouped into domains, 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 B8).

Figure B6 Values for non-missing responses, 'A&E' section, 2013 Inpatients survey, Trust B

Respondent	Scores		Weight
	Q3	Q4	
1	1	1	0.938
2	1	1	1.718
3		1	0.774

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 B9). 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 B8).

Figure B7 Denominators for the "A&E" section, 2013 Inpatients survey, Trust B

Respondent	Score		Weight
	Q3	Q4	
1	0.938	0.938	0.938
2	1.718	1.718	1.718
3		0.774	0.774

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 three questions that contributed to the 'A&E' section of the questionnaire.

Q3: $\frac{9.380 + 8.590}{0.938 + 01.718} = 6.766$

Q4: $\frac{0.000 + 17.180 + 3.870}{0.938 + 1.718 + 0.774} = 6.137$

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 'Accident & Emergency' section of the Inpatients survey would be calculated as:

(6.766 + 6.137) / 2 = 6.451

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[1],
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 national 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 national average) than what would be expected based on the national distribution of trust scores.

However, for measures where there is a high level of precision (the survey indicators sample sizes average around 400 to 500 per trust) in the estimates, 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

[1] Calculated using the method in Appendix C.

standard error in the denominator of (1). In effect, rather than comparing each trust simply to one national target value, we are comparing them to a national distribution.

The Z_D score for each question and section was calculated as the trust score minus the national 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 national 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 are outlined below.

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=0.2

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 if the data for that indicator 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 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 variance 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:

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

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:

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

Appendix C: Calculation of standard errors

Calculation of standard errors

In order 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/sex 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:

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

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:

$$Y_{id} = \frac{\sum Y_{ikd}}{Q}$$

Calculating standard errors

Standard errors are calculated for both sections and questions.

The variance of question X_{ijk} at the individual level is given by:

$$V_{ijk} = \frac{\sum w_{ij}\left(X_{ijk} - Y_{ik}\right)^2}{\sum w_{ij}}$$

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:

$$V_{ik} = \frac{\sum w_{ij}\left(X_{ijk} - Y_{ik}\right)^2}{\left(\sum w_{ij}\right)^2}$$

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

$$COV_{ik.im}. = \frac{\sum w_{ij}\left(X_{ijk} - Y_{ik}\right)\left(X_{ijm} - Y_{im}\right)}{\left(\sum w_{ij}\right)^2}$$

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

If questions *k* and *m* comprise a two-item section *d*, then the score for section *d* is a weighted sum of the separate question scores, with each question weighted by ½. The trust level variance for the section score *d* for trust *i* is therefore given by:

$$V_{id} = \frac{V_{ik}}{(2)^2} + \frac{V_{im}}{(2)^2} + 2.\frac{COV_{ik.im}}{(2)^2}.$$

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.