

**NHS Patient Survey Programme**

**2015 Inpatient Survey:  
Quality and Methodology  
Report**

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# 1. Introduction

The 2015 Inpatient Survey involved 150 NHS trusts (one trust was excluded after fieldwork was completed for a total of 149 trusts who had useable data) in England, who sent questionnaires to a total of 185,325 patients. Responses were received from 83,116 patients, a response rate of 46.8%.<sup>1</sup> Inpatients who had been discharged in July 2015 from an NHS trust were invited to take part (with smaller trusts sampling back as far as January 2015 if necessary).

The survey was first carried out in 2002, then annually from 2004 onwards. To reflect changes in policy and best practice, and to reflect feedback from stakeholders, the survey questionnaire has been adjusted over time. We aim to keep the surveys as comparable as possible, but as some new questions have been added and some existing questions have been modified for 2015, this means not all questions are comparable across years.

This report provides detailed information on key quality and methodological issues relating to the 2015 Inpatient Survey. It covers the development, implementation and analysis of the survey. This document also describes the quality of the data and statistics and details any points that should be noted when using the outputs. More detail on development of the survey and errors made during the sampling process can also be found at <http://www.nhssurveys.org/surveys/833>.

An overview of our approach to Quality within the Survey Programme is available in the 'Statistics: Quality Statement', available from the link to the right of the webpage [here](#).

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<sup>1</sup> Please note: we report the 'adjusted' response rate. The adjusted base is calculated by subtracting the number of questionnaires returned as undeliverable or if someone had died, from the total number of questionnaires sent out. The adjusted response rate is then calculated by dividing the number of returned useable questionnaires by the adjusted base.

## 2. Survey development

### Survey design and implementation

The NHS Patient Survey Programme implements general principles of good survey practice. The programme has put in place a number of measures to help maximise response rates, including:

- Development of questions that are relevant to all or most people in the sample.
- Questionnaires are written using simple and clear language.
- Use of cognitive interviewing to rigorously test the questions and response options with people who have used services, in order to ensure that they are easily understood and are relevant.
- Reassurances of anonymity and confidentiality.
- Up to two reminders are sent to non-responders.
- Long fieldwork period to encourage lesser heard groups, such as minority ethnic groups, to respond
- A Freephone language line provides translation services.
- MENCAP provides support for people with learning difficulties.
- A Quality Assurance Framework ensuring all survey materials and results are reliable and accurate.

For the Inpatient Survey in 2015, a pilot study has been conducted looking at improving response rates (please see section 3).

Like most surveys in the NHS Patient Survey Programme, the Inpatient Survey uses a postal survey approach: a questionnaire is sent to people after their healthcare experience. This helps to reduce the effects of social desirability bias, which may happen when people give feedback either directly to staff, or whilst on trust premises.

As with all surveys in the patient survey programme, as well as consulting with relevant policy stakeholders (e.g. NHS England, NHS Trusts), the involvement of people who use services is fundamental to the design and development of a new

questionnaire, or new questions. This helps to ensure that questionnaire content reflects not only the requirements of stakeholders, but what is important and meaningful to patients.

Questionnaires are cognitively tested with people to ensure that questions and response options are understood as intended. This means that a respondent works through the questionnaire with a researcher to understand how they interpret questions and what they are thinking about when they answer. Please see the 'Cognitive Testing' sub-section of this report for details of the cognitive testing that was conducted for the 2015 survey.

Three methodological changes were made to how the survey was implemented for 2015. The sample size for each trust was increased to 1250 (up from 850). ICD-10 chapter codes<sup>2</sup> were collected for the first time to enable more detailed analysis of inpatient experience. A fixed sampling month was established – all trusts drew their sample from patients discharged in July 2015 (in 2014 trusts had a choice of three months).

There were also two minor changes to the questionnaire and accompanying documents. Two new fields were added to the questionnaire. One field allowed trusts and contractors to enter their helpline number, the second was for a return address so that the questionnaire could be completed and returned even if the patient had lost all other associated documentation. In 2014, trusts were allowed to include additional text in their mailing letters that went out alongside the questionnaire. This has been removed in 2015 as it was problematic to implement and only a small number of trusts utilised this space.

All surveys follow a strict methodology, as specified in the survey instruction manual which all trusts (or the contractors they appoint to run the survey on their behalf) must follow. Any deviation from the survey instructions, depending on severity, may result in data being excluded from published results. Any decision to exclude data is made by the Surveys Team at the Care Quality Commission in conjunction with the Patient Surveys Co-ordination Centre based on discussion with, and evidence provided by, the trust(s).

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<sup>2</sup> ICD-10: This refers to the 10th revision of the International Statistical Classification of Diseases and Related Health Problems. ICD-10 codes refer to specific diagnoses, ICD-10 chapter codes refer to broad groups of diagnoses (e.g. Diseases of the respiratory system).

In 2015, one trust was excluded from the published results (see Section 4, subsection 'Excluded trusts' for details).

## Questionnaire development

Efforts were taken to ensure the 2015 questionnaire was as similar as possible to the 2014 version to maximise comparisons between survey years. The 2015 survey has 82 questions, four more than 2014.

The 2015 questionnaire also included a new statement highlighting that any free text comments would be shared in full with trusts, CQC and researchers, but if published would have all identifiable information removed. This is to maximise the utility of the comments to make improvements to services, by providing detailed enough information to identify issues.

For further information please see the development report for the 2015 survey, available [here](#).

## Cognitive testing

Cognitive testing was conducted with 12 volunteers (seven women and five men) who were at least 16 years of age and had spent at least one night at an NHS hospital within the last six months. Participants ranged in age from 19 to 64 years old, the majority were from a white background (11/12; eight people described themselves as white British) and most of them had a long standing condition (9/12). Six of the participants were emergency admissions, four were planned and two selected the "Something else" response for their route of admission.

Cognitive testing took place in two rounds. Minor adjustments were made to the questions between rounds one and two, based on the feedback from participants in round one. Comprehensive details of the cognitive testing process can be found in the Survey Development Report (available [here](#)).

Nine potential questions were tested:

- **#1:** "Before your appointment, were you told the name of the healthcare professional who would be responsible for your care?"

- **#2:** “In your opinion, had the specialist you saw in hospital been given all of the necessary information about **background and circumstances** from the person who referred you?”
- **#3:** “Did healthcare professionals involved in your care and treatment introduce themselves?”
- **#4:** “In your opinion, did the members of staff caring for you work well together?”
- **#5:** “Did you feel that your views about your care and treatment were respected by the healthcare professionals involved in your care and treatment?”
- **#6:** “Where did you go after leaving hospital?”
- **#7:**
  - o **Round 1:** “Did you have any continuing support from health or social care professionals to help you recover and manage your condition at home?”
  - o **Round 2:** “After leaving hospital, did you get enough support from health or social care professionals to help you recover and manage your condition at home?”
- **#8:** “When you transferred to another hospital or went to a nursing or residential home, was there a plan in place for continuing your care?”
- **#9:** “Did your family or someone close to you get enough support from healthcare professionals about how to help to care for you when you leave hospital?”

Based on the results of the cognitive testing, it was recommended that questions 3, 4, 6 and 7 from the list above were included in the 2015 questionnaire. After consultation with other stakeholders it was determined that it was important to include all three of the questions on integrated care (6, 7 and 8) as this topic was an important policy concern. The four questions that were ultimately chosen to be included in the 2015 questionnaire were questions 4, 6, 7 and 8. These questions appear as Q31 (#4), Q56 (#6), Q57 (#7) and Q58 (#8) in the 2015 questionnaire.

### 3. Pilot study

A pilot study was run alongside the 2015 survey to test two methods (pre-approach letters and a re-designed questionnaire) that could potentially help to boost response rates. The response rate for the inpatient survey has slowly declined over the last few years and, if the pilot study provides evidence of their efficacy, these methods could be included as part of the standard survey protocol in future years.

Pre-approach letters were sent out approximately two weeks before participants received their first survey mailing. The re-designed questionnaire includes a number of changes, a significant one being that the entire questionnaire is now in colour, rather than just the front page.

Four trusts were recruited to run the pilot that is testing the two aforementioned methods. Each trust drew a sample of 625 eligible patients (using the same eligibility criteria as in the national survey) in addition to their core survey sample.

Each pilot trust was assigned to one of four conditions:

- 1) A control that just receives the standard national survey mailings
- 2) The trust's sample will receive both the pre-approach letter and the re-designed questionnaire
- 3) The trust's sample will receive just the pre-approach letter
- 4) The trust's sample will receive just the re-designed questionnaire.

Condition 1 (the control) was expected to have the lowest response rate of the four pilot conditions and condition 2 (receiving both the pre-approach letters and the re-designed questionnaire) was expected to have the highest. Condition 3 and 4 were expected to have higher response rates than Condition 1, but lower than Condition 2. However, it was found that there was no significant effect of either the pre-approach letters or the re-designed questionnaire. The report fully detailing the results of the pilot study is available [here](#).

## 4. Sampling and fieldwork

### Sampling

People aged 16 and over at the time of sampling were eligible for participation in the survey if they had been discharged from the trust in July 2015 after having been an inpatient (i.e. they stayed for at least one night in hospital). Trusts were asked to draw a sample of 1250 consecutive eligible discharges, working back from 31<sup>st</sup> July 2015. Smaller trusts, who could not draw a sample of 1250 from July alone, were allowed to sample back to previous months, going as far back as 1<sup>st</sup> January 2015 if necessary.

Only patients who received care from an NHS trust were eligible for inclusion in the survey.

The sample of 1250 inpatients excluded:

- deceased patients
- children or young persons under 16 years old at the time of sampling
- obstetrics/maternity service users, including spontaneous miscarriages
- patients admitted for planned termination of pregnancy
- psychiatry patients
- day case patients (i.e. patients who arrived and left on the same day. If the patient stayed overnight and occupied a bed, then they would be included in the sample.)
- private patients (non-NHS)
- NHS patients treated at private hospitals
- any patients known to be current inpatients
- patients without a UK postal address (but not excluded if addresses are incomplete but useable, e.g. no postcode).
- Any patient known to have requested their details are not used for any purpose other than their clinical care

Further details of the sampling methodology can be found in the instruction manuals and sampling handbooks provided to trusts (available [here](#))

## Sampling error

As the survey does not use a random sample, sampling error calculations were not applicable when determining the minimum sample size. The sample for the inpatient survey is a sample of 1250 consecutive eligible discharges during the sampling period (July 2015). This sample size is large enough to minimise any sampling error (a much smaller sample size could mean a trust was able to sample a sub-set of inpatients who happened to have a significantly more positive experience than their inpatient population as a whole). The number of received responses is also large: 83,116 responses were received for the 2015 survey, and sufficient to ensure that the sampling error is very small.

Due to the large sample size and number of responses, the sample may be considered representative of the population (all eligible inpatients in England), providing the sample period is not atypical. There is no reason to suggest that the provision of NHS inpatient services in July 2015 was atypical, so the risk of sample bias is therefore small.

## Trust mergers

The results for England are based on an average of the results from all participating trusts pooled. Changes in the number of participating trusts can have a very small effect on the results for England.

Four trust mergers took place between the sampling period of the 2014 survey and the 2015 survey:

- **RJE** - The University Hospitals of North Midlands NHS Trust (created in November 2014 after dissolution of Mid Staffordshire NHS Foundation Trust)
- **R1K** - London North West Healthcare NHS Trust (merger of **RV8** - North West London Hospitals NHS Trust and **RC3** – Ealing Hospital NHS Trust in October 2014)

- **RDU** - Frimley Health NHS Foundation Trust (merger of **RD7** - Heatherwood and Wexham Park Hospitals NHS Foundation Trust and **RDU** – Frimley Park Hospital NHS Foundation Trust in October 2014)
- **RD1** - Royal United Hospitals Bath NHS Foundation Trust (acquired **RBB** – Royal National Hospital for Rheumatic Diseases NHS Foundation Trust in February 2015)

## Errors in drawing samples

The chances of sampling mistakes being made by trusts (for example, accidentally excluding certain people) are minimised by multi-stage sample checks. Trusts are provided with a checklist to review their drawn sample. Those trusts that appoint an ‘approved contractor’<sup>3</sup> to undertake the survey on their behalf will have their sample reviewed by this company. Finally, all anonymised samples are checked by the Patient Survey Co-ordination Centre at the Picker Institute Europe who look for extraordinary errors that are more noticeable when pooling data together (for example, unusual or skewed age distributions).

Several items are checked against the previous year’s submission to help ascertain whether a trust has followed the guidelines correctly. These include comparisons of population size, and demographics such as age, ethnicity and route of admission. Should there be any discrepancies that merit investigating queries will be raised with the contractor working on behalf of the trust or, in the case of in-house trusts, the trust directly.

Errors identified from these checks are classified as either minor or major.

A minor error is defined as an error that will not affect the usage or quality of the survey response data, but is still classed as a mistake. For example, a minor sampling error would be if the wrong Clinical Commissioning Group (CCG) code was associated with a record. In this case, the trust could make a change to the code and it would not undermine the quality of the sample. This type of error would be rectified by the trust or contractor, or by the Co-ordination Centre if possible, before the

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<sup>3</sup> These are companies that have been approved by the Care Quality Commission during a competitive tendering process to carry out surveys in the NPSP on behalf of trusts. For more information please see: <http://www.nhssurveys.org/approvedcontractors>

statistics are produced. They are often a result of an answer being transcribed incorrectly, and can be rectified by asking the trust or contractor to confirm the correct information.

A major error is defined as an error that will affect the usage or quality of the survey response data: these are errors that are non-rectifiable. For example, a major sampling error would be if the sample drawn for a survey was not in line with the required methodology such as if a trust had drawn a random sample for the Inpatients survey instead of consecutive discharges. If the error was spotted during checking the sample, the trust would be required to re-draw the sample in line with the guidance. Major errors within the survey response data submissions would result if there was an error in the wording of a question (where the questionnaire had been set up for use on different data capture software).

For the 2015 survey (unlike in previous years) breaches of the section 251 (S251) approval for the survey were recorded as major errors. An example of a S251 breach would be a trust sending patient identifiable data directly to the Co-ordination Centre.

A report is produced each year of these errors and is published on the NHS surveys website (available for the 2015 survey [here](#)). Trusts and approved contractors are encouraged to review this report to minimise recurrence of previously detected errors. In 2015 there were 17 major errors (up from 9 in 2014) and 18 minor errors (down from 25 in 2014) found by the Patient Survey Co-ordination Centre during sample checking. The significant increase in major errors is due to the recording of S251 breaches as major errors - eight S251 breaches occurred during the 2015 survey.

We have explored the way in which trusts input data for patients before it is used to create survey samples, to identify the level of risk for error at that stage, and this is outlined in the Statement of Administrative Sources, available [here](#). We conclude that there may be potential for incorrect addresses or inaccurate coding of cases – however there is a low likelihood of this due to the requirements placed on NHS trusts, and their interests in maintaining accurate records. The effects of this on trust results would therefore be small due to the scale of likely error, and on England level statistics this would have an even smaller impact due to aggregation of trust results to the England average.

A sample checklist and sample declaration form is required to be completed prior to submitting their sample. As well as helping to ensure that trusts have followed the sampling methodology as specified in the survey instructions, the declaration form also helps confirm that trusts maintain confidentiality by taking the required steps as specified in the guidance, such as only sharing the required variables. Having this checklist and declaration form approved before sending sample fulfils NHS trusts' own requirements under the Data Protection Act and helps to reduce the potential for breaches to the support received under section 251 of the NHS Act 2006 (which provides a legal basis for the transfer of data to a survey contractor).

## **Historical sampling errors**

During the sample-checking investigations completed for the 2015 survey it was found that four trusts had made major errors in drawing their sample from the previous year (2014) that had gone undiscovered at the time because the errors only became apparent when compared with the 2015 sample. These four trusts had to be excluded from any trust-level historical comparisons produced for the 2015 survey (i.e. comparing 2015 data against 2014 data) and their 2014 results were removed from the NHS Surveys website. Their 2015 results were unaffected.

The four trusts were:

- East and North Hertfordshire NHS Trust (RWH)
- East Lancashire Hospitals NHS (RXR)
- University Hospitals Bristol NHS Foundation Trust (RA7)
- The Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust (RL1)

## **Excluded trusts**

Royal Devon and Exeter NHS Foundation Trust (RH8) had their data excluded from the final 2015 dataset as a major sampling error was discovered to have been made after the end of the fieldwork period.

The trust was found to have failed to follow the sampling instructions provided. The trust had used consultant episode data to draw their sample, which can contain more than one record for each inpatient stay and there could be duplicate records for

when a patient had more than one inpatient stay in the same month. The trust incorrectly removed duplicate records by ordering their patient list by date of admission and removing the most recent admissions. The sampling instructions state that trusts should draw a sample of 1250 discharged patients working back from 31 July 2015. If this error had been discovered during sample checking the trust would have had to redraw their sample before beginning fieldwork.

When the trust's sample was checked by their contractor a number of queries were raised due to large changes in the characteristics of their sample but the trust explained that their 2015 sample looked significantly different to their 2014 sample due to sampling incorrectly in 2014. The trust claimed they had incorrectly included day cases in their 2014 sample and that this was why the samples looked so different. This was a reasonable explanation for the significant differences between the two samples and it was only discovered that there was a major error with the trust's 2015 sample several months later after a thorough investigation had been completed.

Due to the major error in this trust's 2015 sample the data for this trust was not used in any of the statistical outputs created for the 2015 survey.

## 5. Data Analysis

### Data cleaning and editing

Survey data from each participating NHS trust is submitted to the Patient Survey Co-ordination Centre for cleaning. During fieldwork, a data cleaning guidance manual covering the checks that the Patient Survey Co-ordination Centre undertakes is published on the NHS Surveys website ([here](#)). This document allows participating trusts and contractors to understand what processes the Patient Survey Co-ordination Centre will undertake and what common errors they will be looking for. This enables contractors and in-house trusts to replicate the cleaning undertaken for the national reports. The data is submitted to the Patient Survey Co-ordination Centre in Microsoft Excel but the final dataset for the survey that is used by secondary data users and deposited with the UK Data Service (UKDS) is in SPSS, and heavily abridged to ensure anonymity.

For each survey, there are a number of standard checks undertaken on the data. These include checking that:

- Two paper hard copies of questionnaires as sent out to patients are requested from contractors and in-house trusts prior to fieldwork, to ensure they are correct and questions, response options, routing and instructions are laid out as they should be;
- The number of rows of data is as expected, i.e. we have the number of records in the data file as expected;
- The variable, question and response options wording matches the questionnaire;
- There are no out of range sample or response data, such as age or ethnicity;
- Routing is followed correctly, and respondents have not answered a question that does not apply to them;
- All responses fall in the expected range of response options for a question;
- Where applicable, response data reflects sample data (for instance, year of birth), and;
- Only eligible patients were included in the survey

The data is also checked for a number of other more in-depth errors. These include looking at questionnaire item non-response: high levels of missing data on suites of questions that are positioned next to each other in the survey can indicate that there is an issue with page turnover. This can also indicate if a question is not necessarily being understood in the way that it is designed.

When data is suppressed for a question, which is applied when there are fewer than 30 responses for a trust, this is cross-referenced against the raw Excel data submitted by a trust to confirm that the suppression was correct. Where a trust has a low response rate the data is also checked for representativeness against the sample with regard to demographics, to determine whether the data should be included. No exclusions were made from the 2015 statistics due to concerns around representativeness.

If an error is found, trusts or contractors are asked to resubmit the data with corrections made. No such errors occurred this year.

## **Statistical release**

A statistical release has been published which provides full England level results for the 2015 survey compared with the 2014, 2011 and 2006 results where applicable. This has been published on the CQC website [here](#).

The data in the statistical release is weighted to ensure that each response to a question has the same influence/ impact on the overall average; while this is referred to as the 'national average' or 'England average', results are calculated as the average of participating trusts across England rather than the national average of all respondents across England. As there is variation in trust response rates, the chosen method prevents individual trusts having more (or less) influence on the England average than others. In addition to this weighting, the results from 2006, 2011 and 2014 were all standardised to the demographic profile<sup>4</sup> of the 2015 survey to take into account the change in demographics in the patient population since 2006.

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<sup>4</sup> The demographic variables used to standardise the data were age, gender and route of admission.

Comparisons from previous survey years to 2015 are made where applicable (i.e. 2006 v 2015, 2011 v 2015, 2014 v 2015), using a statistical test to compare the difference in proportions. The significance test determines whether the difference is due to natural and expected variation or rather, is a significant and unexpected change<sup>5</sup>.

In addition, the statistical release contains the results from an analysis of the experience of inpatients with a mental health condition and those with a learning disability at a national level. These patient groups were compared against those who did not report having a condition or disability (i.e. patients who reported having a mental health condition were compared against those who did not report having a mental health condition). This data was weighted in the same way as the overall national level results, but without any standardisation to the demographic profile (this was not necessary as no comparison to previous years was made).

Further details on the weighting used for both the national results and the mental health/learning disability analysis can be found within the statistical release, in the 'Analysis methodology' section.

## Trust results

Detailed information on the analysis method applied to the trust level statistics is available in the technical document published on the on the [CQC website](#).

Benchmark reports are produced for each trust illustrating their performance on particular questions compared with all other trusts involved in the survey. These reports are published at: <http://www.nhssurveys.org/surveys/950>

For applicable questions, each response option is assigned a score (0-10) and section scores are calculated from the results for groups of questions (grouped according to the questionnaire headings). Demographic questions, non-specific responses, some routing questions and other questions that do not evaluate a trust's performance are not scored. To view a copy of the scored questionnaire, see [here](#).

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<sup>5</sup>Significance testing was conducted using a z-test applied to the standardised proportions, to see whether the difference is unlikely to have been due to chance and is 'statistically significant'. For significance testing details, see the Inpatient 2015 technical document.

More information on the scoring system applied across the programme is available on the CQC website [here](#).

A trust's question score is calculated by taking the weighted average<sup>6</sup> of scores for the trust for the given question. For each scored question and each section of the questionnaire, a chart is produced. This chart shows the overall range of trusts' scores for the question, broken down into three parts:

- If a trust's score 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 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
- If a trust score lies in the orange section of the graph, the trust result is 'about the same.'

A black diamond indicates the score of the specific trust. If a trust has fewer than 30 responses to a question, a chart will not be produced.<sup>7</sup>

The categories described above are based on a statistic called the 'expected range' which is uniquely calculated for each trust for each question. 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. This means that where a trust is performing 'better' or 'worse' than the majority of other trusts, this is likely to be a true reflection of the experience of all service users that have visited the trust, rather than being unique to the people selected in the sample for the survey and not a reflection of the experience of all patients admitted to the trust.

Tables are also produced, giving the trust's score and the range of scores for each section and question, and the number of responses to each question. An additional

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<sup>6</sup> Weighting the averages adjusts for variation between trusts in age, gender and route of admission.

<sup>7</sup> If a question has fewer than 30 responses for a given trust, the confidence interval around the trust's question score is considered too large to be meaningful and results are not reported. Additionally, for any such question, the trust is excluded from England averages and the trust is not given a section score.

table gives the number of respondents, response rate and demographic information at trust level and for all respondents across England.<sup>8</sup>

Historical comparisons, where possible, are made against the 2014 survey. Text next to these questions illustrates whether a trust's performance is significantly better, worse or the same as the previous survey year. Benchmark statistics will be available on the [CQC website](#).

## **Data weighting and comparisons**

Due to the nature of statistical comparisons and weighting calculations, comparisons between years of data should be undertaken with caution, as weights are recalculated every year for statistical comparisons and minor percentage differences may lead to changes in rounding. For instance, figures from 2011 reports may not exactly match the figures given for the 2011 survey that are contained in the 2015 statistical release. England figures are standardised by trust to account for the difference in sizes between trusts; this prevents larger trusts from having more impact on the responses than smaller trusts. In addition to this, the England results in the statistical release were also standardised by the 2015 demographic profile, as outlined above in the 'Statistical release' sub-section. A more thorough explanation of the weighting techniques used can be found in the technical document published on the [CQC website](#).

Any comparisons between years should only be observed as reported in publications on the CQC's or Patient Survey Co-ordination Centre's websites, rather than looking back at previously reported figures and making comparisons across survey years independently (see the Further Information section for links to published data).

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<sup>8</sup> 'England' figures are calculated using survey data from all trusts - these figures refer to the sampled population, which may have different characteristics to the population of England.

## 6. Quality assurance

### Approved contractor / in-house trust checks

Each contractor and in-house trust undertakes a series of checks for different stages of the survey. These checks are focused on the key stages of the survey, especially the sample preparation and data cleaning stages. Contractors and in-house trusts will undertake a series of set checks on the sample file. These checks are to identify any obvious errors in the sampling phase such as including ineligible service users. As contractors are able to receive mailing information, contractors also do validation checks on mailing information by determining whether the address is complete enough for a survey to be sent.

Survey progress is monitored weekly during fieldwork at trust level. Should any potential problems be identified, such as a high number of unreturned questionnaires, the Patient Survey Co-ordination Centre will investigate to explore the reasons for this.

### Patient Survey Co-ordination Centre checks

There are a number of quality assurance (QA) checks undertaken by the Patient Survey Co-ordination Centre at various stages of the survey lifecycle.

The first QA checks undertaken are on the sample files submitted by either contractors or in-house trusts. The checks are to determine that there are no errors in the sample file that is used for mailing. These checks help to minimise any exclusions of data at the analysis stage of the survey, due to eligibility issues.

The Patient Survey Co-ordination Centre also check hard copies of the covering letters and questionnaire used by each trust within the survey. This can help to identify where errors have been introduced when the survey documents are reproduced by either contractors or in house trusts. These errors are typographical such as words being misspelt, words missing from questions, improper use of boldening (which is normally used to highlight key words for cognitive reasons), or response options missing or misworded. If an error is identified that would compromise the statistics collected (i.e. the data could not be used due to the error), the data for that particular question would be excluded from the final dataset and

outputs for the affected trusts; if the mistakes can be rectified before the mailing commences, this is the most favourable option. There have been no exclusions made on this basis for the 2015 survey.

During fieldwork, the Co-ordination Centre monitor the progress of the mailings and response rates both at national and trust level. This monitoring is not a QA check in the strictest definition but does allow for the Co-ordination Centre to flag where there are concerns with how the survey is progressing which could impact on the data collected. When response rates are low, this can affect the representativeness of the statistics which potentially limits the usability of that information. In addition, the survey is to be administered in a standardised way with a set number of mailings during fieldwork, and with a final mailing date. This is to allow sufficient time to respond for groups that tend to respond late in surveys.

The final set of QA checks undertaken by the Co-ordination Centre focus on the response data and the analysis. In addition to the specific checks undertaken on the survey data, as outlined in the previous section, each stage of the data cleaning is second-checked internally.

All analysis outputs based on the data (such as the trust-level results and national level reporting) go through a two stage quality assurance process, being checked by the Co-ordination Centre and CQC.

An overall statement on our approach to quality across the programme can be found [here](#).

## 7. Data limitations

### Context

As with any survey, statistics based on results from the Inpatient Survey are subject to different sources and types of uncertainty and this must be considered in the survey responses and / or survey design. While there are a number of potential sources of error, these are carefully controlled through development work during the design of the questionnaire and methodology (including determining the sampling strategy), and extensive quality assurance at every stage. These statistics relate to people who were an inpatient at a particular point in time and the results are an indication of the average or typical quality of experience for that population.

Each participating NHS Trust selected inpatients who had a stay of at least one night during the month of July 2015 (starting from 31 July 2015 and working backwards, smaller trusts were allowed to sample back all the way to 1 January 2015 if necessary). See Section 4 (Sampling) for a list of groups not included in the survey sample.

### Seasonal effects

The vast majority of patients included in the 2015 Inpatient Survey received treatment in July 2015. Ninety one percent of the sample were discharged from hospital in July, 98% were discharged in July or June. It is therefore possible that there may be some seasonal effects on responses – for instance if staffing levels and other factors differ throughout the year. However, as the sampling period is the same for all trusts taking part in the survey and historically the inpatient survey has sampled during the summer months, any such seasonal variation would not impact on the comparability of the statistics or its use in assessing the performance of trusts, given that it is comparing performance across the same time of year.

### Response rates

Response rates for the survey have dropped since it was first launched. This is consistent with both other surveys in the NHS Patient Survey Programme (NPSP) and industry wide trends in social and market research. Table 1 below shows the

response information for the last ten inpatient surveys. The total sample size depends on the number of participating trusts hence it varies across years – mostly due to mergers or transfers of services between trusts.

**Table 1: Response rates for inpatient surveys**

<b>Year</b>	<b>Adjusted response rate</b>	<b>Number of respondents</b>	<b>Total sample</b>
2006	59%	80694	141447
2007	56%	75949	139877
2008	53%	72584	139857
2009	52%	69348	137360
2010	50%	66348	136460
2011	53%	70863	136446
2012	51%	64505	131978
2013	49%	62443	131780
2014	47%	59083	130077
2015	47%	83116	185325

The different outcomes of sending the questionnaires, across the last ten inpatient surveys, are shown in Table 2 below. Please note, the percentage of patients returning a useable questionnaire differs from the percentages in Table 1 above as the latter are the adjusted response rates. When calculating the adjusted response rate, all cases marked ‘undelivered’ or ‘deceased’ are excluded from denominators (cases marked ‘ineligible’ are included). The figures for the outcome codes show that the response has declined over the surveys (as shown by the percentage returning useable questionnaires). All other codes have remained fairly stable, with the exception of a corresponding increase in the percentage of questionnaires being mailed out yet not returned, with no reason given.

Due to rounding, the percentages across all codes may not equal 100.

**Table 2: Outcome codes for inpatient surveys**

Outcome	Survey Year									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Returned useable questionnaire	57%	54%	52%	51%	49%	52%	49%	47%	45%	45%
Returned undelivered or patient moved house	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%
Patient died	2%	2%	2%	2%	2%	1%	2%	2%	2%	3%
Too ill, opted out or returned blank questionnaire	6%	6%	6%	6%	6%	4%	4%	4%	3%	3%
Patient not eligible to fill in questionnaire	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Questionnaire not returned - reason unknown	35%	36%	38%	40%	42%	41%	44%	46%	48%	48%
Total sample	14144 7	13987 7	13985 7	13736 0	13646 0	13644 6	13197 8	13178 0	13007 7	18532 5

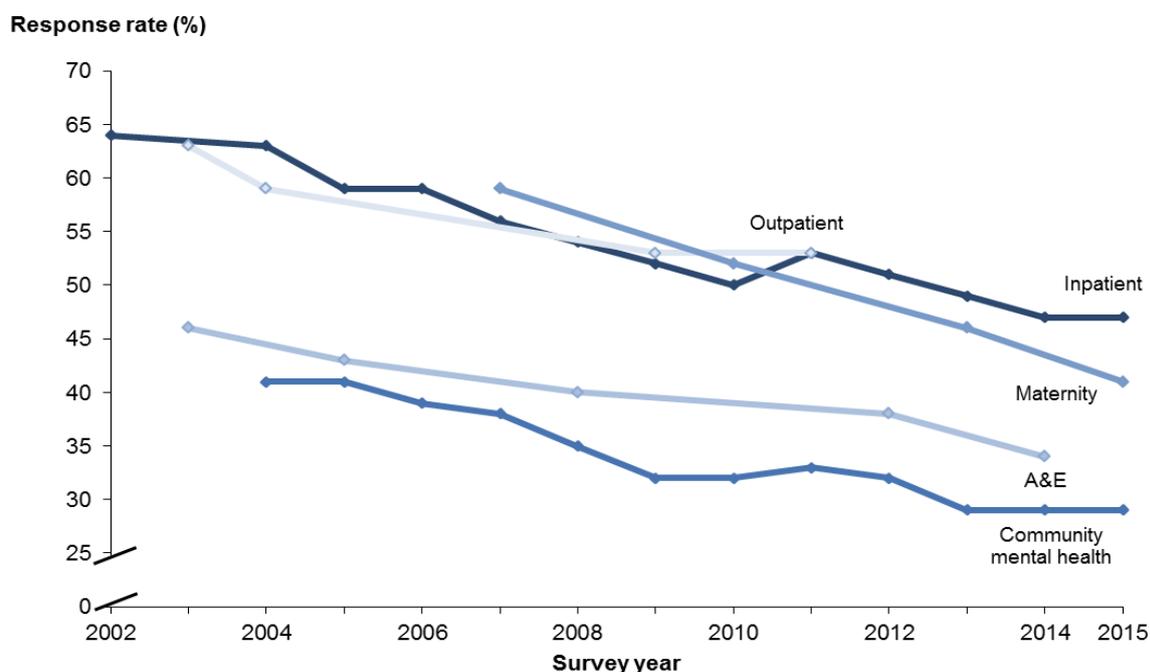
Table 3 below compares sample demographics by response rate between the Inpatient Survey in 2014 and 2015. Note that the figures are the adjusted response rates.

**Table 3: Response rates compared between 2014 and 2015**

	<b>2014</b>	<b>2015</b>
<b>Age</b>		
16-35	20%	19%
36-50	33%	32%
51-65	53%	51%
66-80	64%	63%
81 and over	49%	49%
<b>Ethnicity</b>		
White	49%	48%
Mixed	32%	33%
Asian or Asian British	30%	29%
Black or Black British	29%	30%
Arab or other	34%	32%
Not stated or missing	47%	48%
<b>Overall adjusted response rate</b>	<b>47%</b>	<b>47%</b>

Figure 1 below illustrates response rate trends for the more established surveys in the NPSP. Please note that not all surveys have been carried out annually. There is a clear downward trend across all surveys. The acute inpatient survey generally has the highest response rates and the community mental health and A&E surveys the lowest. The inpatient survey response rate has declined over the last ten years from 59% in 2006 to 47% in 2015.

**Figure1: response rates for established surveys in the NPSP**



## Non response bias

Research, including work carried out as part of the NPSP, has shown that certain groups are consistently less likely to respond, and these are: young people, males, and certain black and minority ethnic groups (BME).<sup>9</sup> Tables 4 and 5 below shows that age and ethnic group response bias exist in the maternity survey. However, it is worth noting that these are known biases and there may be other types of bias influencing results which cannot be established due to their implicit nature.

Table 4 contrasts respondents and non-responders, while Table 5 shows the demographic profile for the sample as a whole (everyone selected for inclusion on the survey) compared with respondents. It can be seen that older patients are more likely to respond compared with other age groups and patients who identify as white are more likely to respond compared with those from other ethnic groups. In

<sup>9</sup> [http://www.nhssurveys.org/Filestore/documents/Increasing\\_response\\_rates\\_literature\\_review.pdf](http://www.nhssurveys.org/Filestore/documents/Increasing_response_rates_literature_review.pdf)  
[http://www.nhssurveys.org/Filestore/documents/Review\\_BMEcoverage\\_HCC\\_surveys.pdf](http://www.nhssurveys.org/Filestore/documents/Review_BMEcoverage_HCC_surveys.pdf)  
[http://www.nhssurveys.org/Filestore/documents/Increasing\\_response\\_rates\\_stakeholder\\_consultation\\_v6.pdf](http://www.nhssurveys.org/Filestore/documents/Increasing_response_rates_stakeholder_consultation_v6.pdf)

interpreting these tables it should be borne in mind that there are likely also interrelationships between these groups.

**Table 4: respondents and non-respondents to the 2015 Inpatient Survey by key demographics**

Demographics	Responded (%)	
	Yes	No
<b>Age</b>		
16-35	19%	81%
36-50	32%	68%
51-65	51%	49%
66-80	63%	37%
81 and over	49%	51%
<b>Ethnicity</b>		
White	48%	52%
Mixed	33%	67%
Asian or Asian British	29%	71%
Black or Black British	30%	70%
Arab or other	32%	68%
Not stated or missing	48%	52%

**Table 5: sample and demographic profile for the 2015 Inpatient**

Demographics	Profile (%)	
	Sample	Respondent
<b>Age</b>		
16-35	14%	6%
36-50	15%	11%
51-65	21%	24%
66-80	29%	39%
81 and over	21%	21%
<b>Ethnicity</b>		
White	83%	86%
Mixed	1%	0%
Asian or Asian British	4%	2%
Black or Black British	2%	2%
Arab or other	2%	1%
Not stated or missing	8%	9%

Please note that tables 4 and 5 are based on information from trust sample files only<sup>10</sup> so will differ from response rates published elsewhere which are a combination of responses to the demographics questions or sample file information if the response is missing. We cannot use respondent-provided information to calculate response rates, as we do not have this for non-responders. The response rate is based on the adjusted response rate which means we have removed anyone who died, or anyone for whom the questionnaire was undeliverable, from the base.

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<sup>10</sup> Trust sample files contain all patients selected to take part in the survey and include information such as year of birth, gender and ethnicity.

## Addressing non response bias in the survey results

We have considered the application of non-response weighting to the survey results for both the England statistics and the trust level results. However, in the consideration of whether to weight for non-response and whether this should be according to either the sample or population data, we need to factor in the primary aim of why the survey data is being collected.

For the majority of social research studies, in particular those that are cross-sectional or general population, non-response is weighted for against the population demographics. This is normally achieved by weighting for key characteristics such as age, gender, marital status, socio-economic status, if these variables exist either on the sampling frame or are collected at the time of interview. For example, in face to face interviewing, interviewers are able to collect observations about non-responding sample units by assessing the characteristics of the dwelling or neighbourhood (Lynn, 1996<sup>11</sup>). Alternatively, if a national dataset exists for these key characteristics, such as the Census, then this can be used in deriving the weighting approach. The reason why weighting back to the population is key for these studies is that they are looking to make generalisations about a population as a whole rather than individual cases or sampling units within it.

For the NPSP, the data collected is used for measuring and comparing the performance of individual NHS Trusts. Therefore it is important that we are able to distinguish between the characteristics of different trusts (i.e. the variation between them) to identify those trusts that are doing better or worse than the 'average' trust. As demographic characteristics such as age, gender and route of admission are known to be related to responses, we therefore standardise different organisations to a common average case-mix when calculating organisational results; this removes demographic differences as a source of variation and provides a 'level playing field' for comparing providers. Weighting for non-response to either a national population dataset or back to the sample data for a trust would not achieve this.

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<sup>11</sup> <http://iserverwww.essex.ac.uk/home/plynn/downloads/Lynn%201996%20Weighting.pdf>

The national results for the survey are currently weighted to the average trust. Some trusts have a higher response rate than others and would therefore have a greater influence over the England average if a simple mean was calculated across all respondents. To avoid this, weights are applied to the data. By applying these weights the responses from each trust have an equal influence over the England average regardless of differences in response rates between trusts. In addition, this year, as the national results were being compared against 2014, 2011 and 2006 results, the data (for all four years) was standardised by the demographic profile of 2015.<sup>12</sup>

This weighting approach has been applied to all question results for England except for the demographic questions at the end of the survey questionnaire (the 'About You' section) and all of the routing questions (e.g. Questions 1, 2, 10, 12). The demographic questions are presented without weights applied, as it is more appropriate to present the real percentages of respondents to describe the profile of respondents, rather than average figures.

The potential non-response bias is partly addressed via statistical standardisation – the data is weighted by age, gender and route of admission in the trust-level results to account for variation in the responses of these groups, as discussed in the Inpatient Survey 2015 technical document. 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. For example, older respondents tend to report more positive experiences than younger respondents. Standardising by ethnicity would in theory help address this non-response, however the ability to do this is hindered by a number of limitations detailed below.

Where the response rates for different groups vary, we have considered whether we could additionally weight by groups that are less likely to respond. However, there are a number of drawbacks to this approach, hence it has not been implemented:

- The more variables that are included in the weighting, the more complex the analysis becomes. It also greatly increases the risk of very small groups with large weights.

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<sup>12</sup> The demographic variables used to standardize the data were age, gender and route of admission.

- In order to weight data by age, gender and route of admission, and therefore include it in the trust statistics, we need to have information on all three of these variables. To additionally weight by ethnicity we would need to have age, gender, route of admission and ethnicity information for each respondent. In order to maximise the amount of available data, if a respondent has not answered the question asking this, we use information provided to us by trusts in their sample file. While data for age, gender and route of admission is generally of a high quality, with only very few, if any, missing cases once this has been done, ethnicity is much poorer: In 2015, 4568 respondents (2.5%) did not answer the question asking their ethnicity. In trust sample file information, for responders, this data was missing for 2978 patients (3.6%) and was not stated at the time of collection by 4069 women (4.9%). As the questionnaire uses ethnicity categories as used in the census, but trust records have slightly different categories, and due to historical data quality concerns about recording of ethnicity data at trusts, the survey analysis relies solely on respondent-provided information for ethnicity.

- An additional difficulty would be that some trusts have very low proportions of patients in some ethnic groups. As weights are capped, this would lead to many respondents having capped weights, which should be avoided as far as possible when standardising data as it limits the comparisons that can be made fairly.

- We would also risk standardising out genuine differences in the experiences across the subgroups.

- Changing the method of weighting the data would make the survey statistics incomparable with previous statistics and interrupt trend comparisons. Consultation with users of the statistics would be required to gauge the importance of maintaining the comparable data that is available, if any change to the weighting approach was to be considered.

It is important to note that direct assessment of non-response bias is difficult because of the lack of opportunity to measure the views of non-responders. Rather than further adjusting the data, we therefore seek to manage this issue by using best practice methodologies to maximise response rates from all groups. For example, all surveys in the NPSP send up to two reminders to non-responders. The effect of non-

response bias is also reduced by the survey methodology. The NPSP follows best practice methodologies to maximise response rates and this is discussed in the 'Survey Design and Implementation' section of this document.

## 8. Data revisions

CQC publishes a [Revisions and Corrections Policy](#) relating to these statistics. The NHS Patient Survey statistics are not subject to any scheduled revision as they capture the views of patients about their experiences of care at a specific point in time. All new survey results are therefore published on CQC's website and NHS Surveys, as appropriate, and previously published results for the same survey are not revised.

This policy sets out how CQC will respond if an error is identified within this and it becomes necessary to correct published statistics and/or reports.

## 9. Further information

The report outlining the CQC response to survey results, and trust level results can be found on the CQC website. You can also find a technical document here which describes the methodology for analysing trust level results:

<http://www.cqc.org.uk/inpatientsurvey>

The England level results from previous inpatient surveys that took place in 2007, 2010, and 2013 are available at the following link:

<http://www.nhssurveys.org/surveys/425>

Full details of the methodology for the survey, including questionnaires, letters sent to people who use services, instructions on how to carry out the survey and the survey development report, are available at:

<http://www.nhssurveys.org/surveys/833>

More information on the NPSP, including results from other surveys and a programme of current and forthcoming surveys can be found at:

<http://www.cqc.org.uk/content/surveys>

## 10. Feedback

We welcome all feedback on the survey findings and the approach we have used to reporting the results, particularly from people using services, their representatives, and those providing services. If you have any views, comments or suggestions on how this publication could be improved, please contact Paul Williamson, User Voice Development Manager at: [Patient.Survey@cqc.org.uk](mailto:Patient.Survey@cqc.org.uk)

The information you provide will be reviewed by CQC and used, as appropriate, to improve the statistics that we publish across the NPSP.

If you would like to be involved in consultations or receive updates on the NHS Patient Survey Programme, please subscribe here: [www.cqc.org.uk/surveyupdates](http://www.cqc.org.uk/surveyupdates)