

NHS Patient Survey Programme

**2016 Emergency
Department Survey:
Quality and Methodology
Report**

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Questions and comments

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1. Introduction

The Emergency Department Survey 2016 (ED16) is the sixth iteration in a series of surveys focusing on patient experiences of emergency services, and was conducted as part of the NHS Patient Survey Programme (NPSP). The Co-ordination Centre, based at Picker, manages and co-ordinates the programme on behalf of the Care Quality Commission (CQC). Surveys of emergency departments as part of the NPSP were previously run in 2003, 2005, 2008, 2012, and 2014.

Information drawn from surveys in the NPSP are used by the CQC in its assessment of trusts in England. The results of the surveys are also used by NHS England and the Department of Health to regulate services and highlight areas for improvement.

The 2016 iteration of the survey of emergency departments involved 137 acute and specialist NHS trusts with a Type 1 accident and emergency department¹. Forty nine of these trusts also had direct responsibility for running a Type 3 department² and patients from these departments were included within the survey for the first time in 2016. Responses were received from 45,597 service users.

This report details the quality and methodological issues relating to ED16. There is a particular focus here on the development, implementation, data quality, analysis, and the outputs of the project. Additional information on the [development of the 2016 survey](#) and errors made during the sampling process can also be found on the [NHS surveys site](#).

An overview of the approaches taken to ensure quality within the NHS Patient Survey Programme (NPSP) is available in the '[NHS Patient Survey Programme: Quality Statement](#)'.

¹ A Type 1 department is a major, consultant led A&E Department with full resuscitation facilities operating 24 hours a day, 7 days a week.

² A Type 3 department is an A&E/minor injury unit with designated accommodation for the reception of accident and emergency patients. The department may be doctor or nurse-led, treats at least minor injuries and illnesses, and can be routinely accessed without appointment.

2. Survey Development

2.1. Survey Design and Implementation

The NHS Patient Survey Programme (NPSP) implements general principles of good survey practice. The programme has implemented a number of measures to help maximise response rates:

- The development of survey questions that are relevant to all, or most, people in the sample.
- Questionnaires are produced using clear and simple language.
- Questions and response options are rigorously tested, by way of cognitive interviews with people who have recently used services to ensure that they are easily understood and relevant.
- Reassurances of anonymity and confidentiality are made.
- Up to two reminders are sent to non-responders.
- There is a long fieldwork period to encourage less frequently heard demographic groups, such as minority ethnic groups, to respond.
- The implementation of a Freephone language line that provides translation services.
- MENCAP provided support for people with learning difficulties.
- The use of a Quality Assurance Framework, which ensures that all survey materials and results are reliable and accurate.

Like most surveys in the NPSP, the Emergency Department Survey uses a postal survey approach: with a questionnaire being sent to the home addresses of potential participants. This reduces the effects of social desirability bias, which may occur when people give feedback either directly to staff or whilst on trust premises.

A number of steps are taken to ensure the robustness of the survey design and implementation. As with all surveys in the NPSP, an external advisory group was formed to ensure a range of stakeholders were given the opportunity to provide input during survey development. Membership included representatives from CQC, Department of Health, NHS England, acute trusts, third sector organisations and people who have used services.

Questionnaires are 'cognitively tested' before the surveys commence in order to ensure that questions and response options are understood as intended. As

discussed in [section 2.2](#), this involves a researcher working through the questionnaire with participants, to understand how the questions are interpreted and what they are thinking about when they answer.

The use of a stratified sampling method and the re-development of the questionnaire will be discussed in detail later in this document, but a number of other minor changes were also made.

The sampling month was changed from a choice from January, February or March in 2014 to September for all trusts in 2016. The change in sampling month was discussed with stakeholders, and it was deemed that September was a 'more typical' month that would not be affected by holidays, which may cause changes to emergency attendances (increased number of attendances, attendances by different user groups such as tourists), or by seasonal emergencies such as the common flu or a high proportion of older people with respiratory problems during the winter.

Following feedback from CQC and NHS England, the second change involved the inclusion of type 3 departments. Previous survey iterations focussed solely on type 1 departments. These are major, consultant led A&E Departments with full resuscitation facilities operating 24 hours a day, 7 days a week. In comparison, type 3 departments comprise other types of A&E/minor injury activity with designated accommodation for the reception of accident and emergency patients. The department may be doctor-led or nurse-led and treats at least minor injuries and illnesses and can be routinely accessed without appointment. Type 3 departments are often Urgent Care Centres (UCC) or Minor Injury Units (MIU). However, a service that is mainly or entirely appointment based (for example a GP practice or out-patient clinic) is excluded even though it may treat a number of patients with minor illness or injury; walk-in centres are not classed as type 3 departments.

Collecting data from both types of department allows organisations with both type 1 and type 3 departments to more effectively monitor patient experience across the whole of their emergency provision and target service improvement activity more effectively. It also allows both the CQC and NHS England to monitor the experience of patients at type 3 departments across the country.

Historical comparisons between ED16 and previous iterations of the survey are not possible. This is because the change to the sample month, which had previously been in winter, and the inclusion of type 3 departments would affect the results, so that any changes could not be confidently attributed to the performance of the trust.

In order to accommodate the addition of type 3 departments to the survey, the survey was re-named from 'The Accident and Emergency (A&E) Department Survey', as in previous iterations, to 'The Emergency Department Survey'.

The sample size has been increased from 850 patients per trust in the 2014 iteration to 1,250 patients in 2016. This change is in line with the approach followed in the NHS Inpatient Survey since 2015, and is designed to protect data reliability and allow more useful granular analysis.

Trusts that do not have any type 3 departments submitted a sample of 1,250 type 1 attendances only, while trusts that had both a type 1 and type 3 department submitted a sample containing 950 type 1 patients and 300 type 3 patients.

2.2. Questionnaire Development

A small number of changes have been made to the questionnaire for ED16. These changes, and the reasons for them, are detailed in the [survey development report](#), available on the NHS Surveys website. The 2016 questionnaire had 53 questions compared to 51 in the 2014 iteration.

Three questions have been added to the 2016 questionnaire:

Q1. Was this emergency department the first place you went to, or contacted, for help with your condition?

Q2. Before going to this emergency department, where did you go to, or contact, for help with your condition?

Q3. Why did you go to the emergency department following your contact with the service above?

One question from the 2014 questionnaire was removed for 2016:

Q2. Who advised you to go to the A&E Department?

Question 9 was amended from 2014 to 2016:

Q9. From the time you first arrived at the A&E Department, how long did you wait **before being examined** by a doctor or nurse?

To:

Q9. Sometimes, people will first talk to a nurse or doctor and be examined later. **From the time you arrived**, how long did you wait **before being examined** by a doctor or nurse?

A number of other questions and instructions throughout the questionnaire were also amended to accommodate the inclusion of respondents who attended type 3 departments.

The re-development of all questionnaires in the NPSP follows best practice. As such, all of these question changes, regardless of their extent, are cognitively tested with a group of people with recent experience of emergency department facilities. Cognitive testing is a process which tests that the content within the questionnaires is interpreted as intended by participants, and that they are able to answer them appropriately with the response options provided.

These participants are recruited via different means, including advertisements in local newspapers, public buildings (shops, cafes, libraries, community centres, community noticeboards etc.), online forums, as well as websites (such as Gumtree) and social media. The demographic make-up of these participants are intended to cover a wide demographic base and range of experiences.

A total of 21 people were cognitively interviewed to test the ED16 questionnaire:

- Eight were males, 13 were females.
- Ages ranged from 22 to 80.
- Had a mix of ethnic backgrounds.
- Had attended a type 1 or type 3 NHS emergency department within the last six months: 15 had attended type 1 departments, and six had been to type 3 departments

Cognitive interviews were conducted during July 2016, primarily in Oxford and the surrounding areas. These interviews were conducted in three rounds, with alterations made to certain questions between rounds in accordance with feedback from participants and stakeholders. Again, further details of this process can be found in the [‘Survey Development Report’](#).

3. Sampling and Fieldwork

3.1. Sampling

People were eligible for participation in this survey if they were aged 16 and over at the time of sampling, and if they attended an emergency department between 00:00 on 1st September 2016 and 23:59 on 30th September 2016.

As stated above, trusts were required to draw a sample of 1,250. Trusts that did not have any type 3 department submitted a sample of 1,250 type 1 attendances only, while trusts that had both type 1 and type 3 department submitted a sample containing 950 type 1 patients and 300 type 3 patients.

Trusts were instructed that their sample should exclude:

- Deceased patients.
- Children or young persons aged under 16 years at the date of their attendance at the Emergency Department.
- Any attendances at Walk-in Centres.
- Any patients who were admitted to hospital via Medical or Surgical Admissions Units and therefore have not visited the Emergency Department.
- Any patients who are known to be current inpatients – this is so that we can avoid sending questionnaires to people who are currently inpatients.
- Planned attendances at outpatient clinics which are run within the Emergency Department (such as fracture clinics).
- Patients attending primarily to obtain contraception (e.g. the morning after pill), patients who suffered a miscarriage or another form of abortive pregnancy outcome whilst at the hospital, and patients with a concealed pregnancy.
- Patients without a UK postal address.
- Any patient known to have requested their details are not used for any purpose other than their clinical care.

No trusts were excluded as a consequence of sample checking or analysis of the final data. Fieldwork for the survey (the time during which questionnaires were sent out and returned) took place between 24th October 2016 and 17th March 2017.

3.2. Sampling Methodology

The sampling methodology used in ED16 was different from that used in previous iterations of the survey, and included a number of steps.

Firstly, a list of all eligible individual attendances to departments during September 2016 was compiled. Secondly, this list was sorted sequentially, first by department type, then gender, then year of birth, and finally by CCG code.

The third step involved drawing the sample from the ordered list of all attendances. In doing this, ED16 adopted a systematic selection approach. Multi stage sampling is a more complicated version of cluster sampling; which involves the total population being divided into clusters, or groups, and individuals being selected from these clusters at random. Multi-stage sampling, however, differs in that after dividing the population by the first-level clusters, the resulting sub-clusters are further divided in accordance with some selection criteria. The key point here is that, at every consecutive sub-division, the sample size becomes smaller and more precise.

For ED16 this involved each trust dividing their total population into clusters in accordance with their department type. In ED16, there were 88 trusts with only type 1 departments and 49 with both type 1 and type 3. The latter would therefore have two clusters at level-one. The former would not technically have any clusters at level-one, but for simplicity, we'll say that they have one cluster at this level. In ED16, the size of these level-one clusters were pre-defined, in that trusts with both type 1 and type 3 departments would have 950 records from the former and 300 from the latter. While trusts with only type 1 departments would draw the full sample of 1,250 records from the type 1 departments. In other words, the cluster size at level one was not proportionally calculated in accordance with the available population.

As stated above, the sampling methodology for ED16 then required three additional levels of clusters; the second of which was gender. The clusters at this second level, as with all subsequent cluster levels, was calculated proportionally in accordance with the sampling interval for this level.

The sampling interval is the crucial component of the ED16 methodology and constitutes the stratified component of the approach. The sampling interval refers to the way in which one in every k records is sampled as they become available; where k is the rounded quotient of dividing the total population size, p , by the total sample size, y :

$$k = \left\lfloor \frac{p}{y} \right\rfloor$$

As an example, assume we are looking at a trust that has both type 1 and type 3 departments. The size of the type 1 cluster in level 1 would be 950. Then, let's say that this cluster is sorted by gender and that there are 425 males and 525 females in this type 1 cluster. The sampling interval for the male and female clusters at this second cluster level would then be calculated as follows:

Male cluster sample interval:

$$k = \frac{950}{425}$$
$$k = [2.23]$$
$$k = 2$$

Female cluster sample interval:

$$k = \frac{950}{525}$$
$$k = [1.80]$$
$$k = 2$$

This means that the male sample cluster would be selected from the total 425 males by selecting every second male patient in the type 1 cluster, while the female cluster would be compiled by selecting every second patient from the female cluster. Both of these second level clusters would then be further sub-divided by year of birth. As an example, let's say that all 425 patients in the male cluster fall into one of four different years of birth; 152 patients born in 1950, 97 in 1964, 90 in 1986, and 86 in 2002, then the following calculations would be performed:

1950 cluster sample interval:

$$k = \frac{425}{152}$$
$$k = [2.79]$$
$$k = 3$$

1964 cluster sample interval:

$$k = \frac{425}{97}$$
$$k = [4.38]$$
$$k = 4$$

1986 cluster sample interval:

$$k = \frac{425}{90}$$
$$k = [4.72]$$
$$k = 5$$

2002 cluster sample interval:

$$k = \frac{425}{86}$$
$$k = [4.94]$$
$$k = 5$$

Combined, these four clusters make up the third level, and are then sampled from the male cluster in level two by selecting every third patient in the male cluster who was born in 1950, every fourth patient in the male that was born in 1964, and so on.

The fourth and final level then involves dividing each of the year of birth clusters in the third level by CCG code. Again, for simplicity, let's assume that there are only two CCG codes. Taking the level three 1950 year of birth cluster from the level two male cluster as an example, let's say that there are 74 patients with a CCG code of A60 and 78 with G96. The sampling intervals for these two clusters would be calculated as follows:

A60 cluster sample interval:

$$k = \frac{152}{74}$$

$$k = [2.05]$$

$$k = 2$$

G96 cluster sample interval:

$$k = \frac{152}{78}$$

$$k = [1.94]$$

$$k = 2$$

Thus, as before, we include in the final sample every second patient in the current cluster with a CCG code of A60 and every second patient with a CCG code of G96.

After the required number of patients have been drawn from each of the clusters in this fourth, and final level, they are combined into a single sample file produce a trust's sample data. A diagrammatic representation of this example can be seen in [figure 1](#).

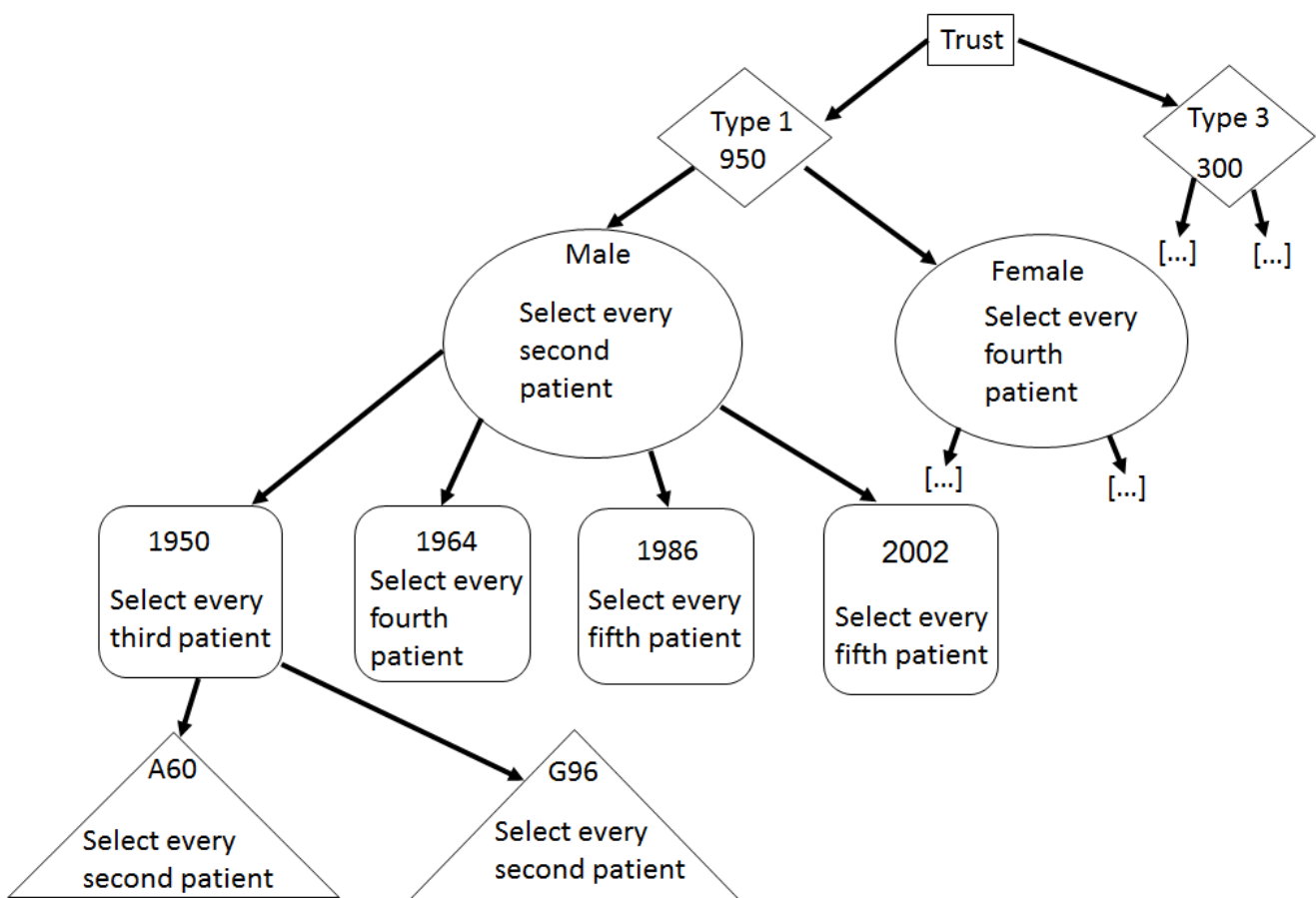


Figure 1: Diagrammatic representation of the ED16 sample drawing methodology. Note that [...] signifies that a procedure occurs on the current branch that is analogous to that which occurs on the parallel branch.

3.3. 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 size for ED16 was 1,250 participants per trust; of which there are 137, with 49 of these also having type 3 departments. This sample size was large enough to minimise sampling error, while a much smaller sample size could have resulted in a trust sampling a subset of patients who could have had a significantly more positive or negative experience than their population as a whole. Assuming the sample period is not atypical, then given the large sample size and number of responses, the 2016 sample can be considered representative of the target population- all eligible emergency department attendances in England. There is no reason to suggest that the provision of NHS emergency department services in September 2016 was atypical. As such, the risk of sample bias is small.

The final data had a total of 45,597 responses, consisting of 41,941 type 1 responses and 3656 type 3 responses. The size of the type 1 data set is large enough that its sampling error was very small.

In comparison, the data set for type 3 patients is quite small. As a result, this type 3 patient data can be insightful when looked at for England as a whole (i.e. the data for all type 3 trusts pooled) with a focus on the questions that were answered by all participants and which had greater than 30 responses. However, when looking at this data at the trust-level, there are a very large number of missing values, and the chances of sampling errors are therefore high. We also do not have full coverage of all Type 3 Departments as the survey only included departments that are run by the acute trust. Departments run in collaboration with, or exclusively by other providers (such as independent providers, CCGs or other trust types) are not included in this survey, meaning the results cannot be considered to be representative of all Type 3 departments in England. Thus, Type 3 data should only be used at the trust-level with extreme caution.

3.4. Errors in Drawing Samples

The chances of mistakes being made by trusts when drawing their sample are minimised by multi-stage sample checks. In the first instance, trusts are provided with a checklist to review their drawn sample. Those trusts that appoint an 'approved contractor'³ to undertake the survey on their behalf will have their sample reviewed by this company.

All anonymised samples are then checked by the Co-ordination Centre at Picker, who look for errors that are more noticeable when pooling data together; unusual or skewed age distributions, for example. Several items are also checked against the trust's data submissions for previous surveys, so as to ascertain whether or not the

³These are companies 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: www.nhssurveys.org/approvedcontractors

trust has followed the sampling instructions correctly. These checks include comparisons of population size, demographics, etc. Should there be any discrepancies that merit investigation, queries will be raised with the trust or contractor responsible for the data sample.

Any errors identified during this process are categorised as either minor or major in nature. The former is defined as a mistake that will not affect the usage or quality of the survey response data. An example of this is if the patient record numbers (URNs) are applied in an incorrect format. This is an error that could be rectified by the trust, contractor or the Co-ordination Centre by amending the sample's URNs, which would not undermine the quality of the sample.

A major error is defined as a mistake that would affect the usage or quality of the survey response data. An example of this is an error in extract coding which leads to a biased sample, such as a disproportionate number of males to females. This error would result in a trust having to re-draw the sample in line with the guidance.

A [Sampling Errors Report](#), which details the errors identified by the Co-ordination Centre, is produced after each iteration of the survey. It is strongly advised that trusts and contractors review this report in an attempt to minimise the re-occurrence of previously detected errors.

The '[Statement of Administrative Sources](#)' outlines the chances of errors occurring at the stage where trusts input patient data into administrative systems; data from which samples are drawn. It was concluded that, although the potential does exist for inaccurate addresses or coding of cases at this stage, this is unlikely to occur due to the data quality requirements placed upon NHS trusts. As a result, the chances of such errors occurring at this stage are small enough that any impact upon trust results are likely to be minimal, and in turn, would have an even smaller effect upon the aggregated, results for England.

Additionally, the sample declaration form is used to help further reduce sampling errors. This form not only outlines a number of checks that have to be completed, but also ensures adherence to the sampling methodology on the part of both the sampler and the trust's Caldicott Guardian. Crucially, this form also ensures that trusts have maintained confidentiality of patients by taking the steps laid out in the instruction manual, such as only passing on specific variables. Approval of this form prior to data submission thus fulfils the trust's own requirements under the Data Protection Act, as well as reducing the potential for breaches to the support received under Section 251 of the NHS Act 2006⁴.

⁴ Section 251 of the NHS Act 2006 provides a legal basis for the transfer of data to a survey contractor.

3.5. Historical Sampling Errors and Excluded trusts

The sample checking process carried out by the Co-ordination Centre involves comparing trust sample data to that from previous iterations of the survey, so as to help ensure that the sample has been drawn correctly. For ED16, sample data was compared to that submitted for 2014 survey. On occasion, these checks can unearth errors made during these previous survey iterations. These are important to note as, if any of these errors are deemed to be major ones, then historical comparisons may not be an option for the trust in question.

Due to changes made for ED16, it was deemed inappropriate to conduct historical comparisons to previous survey iterations. As such, it was not necessary to undertake an in-depth investigation into potential historical errors, beyond those required in order to validate the data for the current iteration. Despite this, a number of historical errors were uncovered, and details of these can be found in the aforementioned [Sampling Errors Report](#).

4. Data Analysis and Reporting

4.1. Data Cleaning and Editing

Survey data from each participating trust are submitted to the Co-ordination Centre for cleaning. During fieldwork, a [data cleaning guidance manual](#) covering the checks that the Co-ordination Centre undertakes is made available, to allow participating trusts and contractors to understand the data cleaning processes undertaken by the Co-ordination Centre and the types of common errors they will be looking for.

The data are submitted to the Co-ordination Centre using an Excel spreadsheet. However, the final dataset for the survey, which is used by secondary data users and passed on to the UK Data Service (UKDS), is in a SPSS data file format.

Each survey involves a number of standard checks that are undertaken on the data, including:

- Checks of the hard copies of questionnaires from contractors and trusts to verify that questions, response options, routing, and instructions are as they should be.
- Check the number of rows of data is as expected, i.e. the correct number of patients are in the data file.
- Variables, question, and response options wording checks; ensuring that the data matches the questionnaire.
- Out of range checks for variables such as age, on both sample and response data.
- Incorrect filtering, where respondents have answered a question that does not apply to them.
- Coding errors whereby the answer given is outside the expected range of response options for a given question.
- Data validation, whereby the response date is used to confirm whether the sample data submitted by the trust is valid for certain demographics.
- Use of the response data to check that only eligible patients were included in the survey.

The data are also checked for a number of other errors. This includes looking at questionnaire item non response, to check whether there are high levels of missing data on suites of questions positioned next to each other on survey pages. This may indicate an issue with page turnover, as well as whether or not a question is being understood in the intended manner.

It is also worth noting that in instances where a trust has fewer than 30 responses for a question, the data are suppressed. This is then cross-referenced against the raw

data submitted by said trust so as to ensure that the suppression process was applied correctly.

In cases where a trust has a low response rate for a particular question, the data are checked for demographic representativeness against the sample in order to determine whether or not the data should be included. No such exclusions were made for the 2016 data.

In cases where errors are uncovered, trusts and contractors are required to re-submit their final data with corrections applied.

4.2. Statistical Release

A statistical release is published, which provides full England-level results for the 2016 survey and multi-level analysis of sub-groups.

In order to control for the influence individual trusts' response rates have on the England-level average, data are standardised⁵.

The multi-level analysis of subgroups highlights the experiences of different demographic populations. Results for each demographic subgroup are generated as adjusted means (also known as estimated marginal means or population marginal means) using a linear mixed effects model. These means are compared on patient-centred care themes, derived from composites of results from specific questions. For ED16, there were 8 themes; four of which were composite scores:

Theme: Information, communication, and education

- Q43: Did hospital staff tell you who to contact if you were worried about your condition or treatment after you left the emergency department?
- Q40: Did a member of staff tell you when you could resume your usual activities, such as when to go back to work or drive a car?
- Q13: While you were in the emergency department, did a doctor or nurse explain your condition and treatment in a way you could understand?

Theme: Privacy

- Q7: Were you given enough privacy when discussing your condition with the receptionist?
- Q20: Were you given enough privacy when being examined or treated?

Theme: Emotional support

⁵ More information on the standardisation approach applied to the data can be found in [Section 6.5 'Addressing non response bias in the survey results'](#).

- Q15: If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?
- Q24: If you were feeling distressed while you were in the emergency department, did a member of staff help to reassure you?

Theme: Involvement & decision making

- Q14: Did the doctors and nurses listen to what you had to say?
- Q23: Were you involved as much as you wanted to be in decisions about your care and treatment?

Individual question analysis

- Q44: Overall, did you feel you were treated with respect and dignity while you were in the emergency department?
- Q45: Overall...
- Q16: Did you have confidence and trust in the doctors and nurses examining and treating you?
- Q21: If you needed attention, were you able to get a member of medical or nursing staff to help you?

This model takes into account trust clustering, as trusts are likely to have a big impact on reported patient experience at England level.

To assess whether experiences differ by demographic factors, F tests were performed on each factor (fixed effect) as a predictor of the target variable. P-values are also generated to show the likelihood of differences between groups observed in the results arising from a population where no actual differences occur. They relate to the demographic factor as a whole rather than to comparisons between specific categories within the factor. Variables are also checked for multicollinearity to ensure co-efficient estimates are not influenced by additional factors.

Differences of at least 0.1 standard deviations from the overall mean of the target variable are treated as being noteworthy.

For ED16, the following demographic factors were analysed:

- Gender.
- Age group.
- Religion.
- Sexual orientation.
- Ethnicity.
- Disability or long-term condition.
- Time bands.
- Day of attendance.

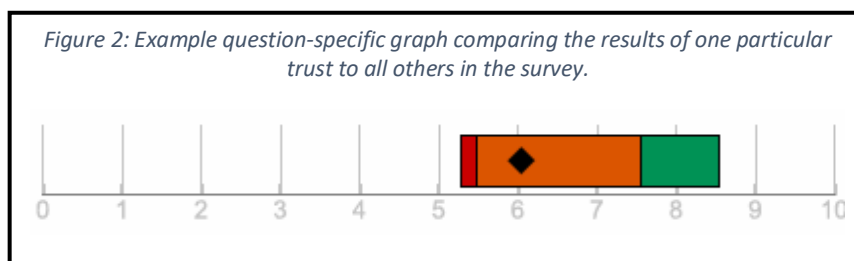
- Whether or not the participant had been to the emergency department before with the same condition or something relating to it (Q6).

4.3. Trust Results

Analysis is conducted on the data at trust level, so as to allow comparisons to be drawn between the performance of different trusts for individual questions in the survey. The method for this analysis is detailed in the [technical document](#). The results of this analysis are published in [benchmark reports](#) and made available on the [CQC's website](#). A report is produced for each individual trust, which illustrates how the trust performed on each question when compared to all other trusts.

For applicable questions, each response option is assigned a score (0-10) and composite section scores are produced by grouping similar questions together. Demographic questions, non-specific responses, some routing questions and questions that do not evaluate a trust's performance are not scored. A trust's score for a specific question is calculated by taking the weighted average⁶ of scores of all trusts for the current question.

A chart is then produced for every scored question and each section of the questionnaire, unless a question has fewer than 30 responses⁷. Each chart depicts the range of scores for all trusts for its corresponding question/section. An example of such a graph can be seen in [figure 2](#). Here, the black diamond indicates the trust's score. If the diamond lies in the red section, then the trust performed 'worse' than expected when compared to most other trusts. Similarly, if it lies in the green, then the trust performed 'better' than most others. If the diamond lies in the orange, as in the example, then the trust performed about the same as the other trusts on question being considered.



The benchmark reports contain two batches of tables. The first detail the range of scores and number of responses for each individual question and section. The second, detail the number of respondents, response rate, and demographic

⁶ Weighting the averages adjusts for variation between trusts in age and sex.

⁷ 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 national averages and the trust is not given a section score.

information for the trust compared to that of all trusts featured in the survey as a whole⁸.

4.4. NHS England National Statistics

Nineteen questions in the ED16 contributed to Overall Patient Experience Scores, as outlined by NHS England, and which cover five domains of patient experience:

- 1) Access and waiting.
 - A:** Q8. How long did you wait before you first spoke to a nurse or doctor?
 - B:** Q9. Sometimes, people will first talk to a nurse or doctor and be examined later. From the time you arrived, how long did you wait before being examined by a doctor or nurse?
 - C:** Q11. Overall, how long did your visit to the emergency department last?
- 2) Safe, high quality, co-ordinated care.
 - A:** Q16. Did you have confidence and trust in the doctors and nurses examining and treating you?
 - B:** Q22. Sometimes, a member of staff will say one thing and another will say something quite different. Did this happen to you in the emergency department?
 - C:** Q42. Did a member of staff tell you about what danger signals regarding your illness or treatment to watch out for after you went home?
- 3) Better information, more choice.
 - A:** Q19. While you were in the emergency department, how much information about your condition or treatment was given to you?
 - B:** Q23. Were you involved as much as you wanted to be in decisions about your care and treatment?
 - C:** Q38. Did a member of staff explain the purpose of the medications you were to take at home in a way you could understand?
 - D:** Q39. Did a member of staff tell you about medication side effects to watch out for?
- 4) Building better relationships.
 - A:** Q12. Did you have enough time to discuss your health or medical problem with the doctor or nurse?
 - B:** Q13. While you were in the emergency department, did a doctor or nurse explain your condition and treatment in a way you could understand?
 - C:** Q14. Did the doctors and nurses listen to what you had to say?
 - D:** Q15. If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?
 - E:** Q17. Did doctors or nurses talk to each other about you as if you weren't there?

⁸ 'National' 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.

5) Clean, comfortable, friendly place to be.

A: Q20. Were you given enough privacy when being examined or treated?

B: Q32. Do you think the hospital staff did everything they could to help control your pain?

C: Q33. In your opinion, how clean was the emergency department?

D: Q44. Overall, did you feel you were treated with respect and dignity while you were in the emergency department?

More information on these domains can be found on the website for [NHS England](#).

5. Quality Assurance

5.1. Approved Contractor/In-house Trust Checks

Each contractor and in-house trust undertakes a series of checks at key stages of the survey, especially the sample preparation and data cleaning stages, where checks tend to focus on issues such as including ineligible patients. Due to contractors receiving mailing information, they also do validation checks to see if the address is complete enough for a survey to be sent out.

The progress of the survey is monitored at trust-level on a weekly basis during the fieldwork stage, with the Co-ordination Centre investigating any issues that arise.

5.2. Co-ordination Centre Checks

The Co-ordination Centre undertake a number of quality assurance (QA) checks throughout the course of the survey project. The first of these is concerned with determining whether there are any errors in the sample file that is used for mailing, with the aim of minimising any exclusions of data at the analysis stage of the survey, due to eligibility issues.

The Co-ordination Centre also check hard copies of the covering letters and questionnaires used by each trust within the survey, with the aim of identifying where errors have been introduced when the survey documents are reproduced by either contractors or in house trusts; errors tend to be typographical in nature. If an error is identified that would compromise the data collected, making the data unusable, one of two things happen. The first, and more favourable option, would be to rectify the mistakes before mailing. Otherwise, the second option is to exclude the data for that particular question from the final dataset and output for the trust in question.

During the fieldwork stage, the Co-ordination Centre monitor the progress of the mailings and response rates at both overall and trust level. While not technically a QA check, this monitoring does allow the Co-ordination Centre to flag any concerns in regards to how the survey is progressing. This may highlight issues that could have an impact upon the data collected due to low response rates affecting the representativeness of the data, thereby limiting its usability. Furthermore, the survey is administered in a standardised manner, with a set number of mailings during fieldwork and a particular final mailing date, so as to allow groups that tend to respond late in surveys to have more time to respond.

The final set of QA checks undertaken by the Co-ordination Centre focuses on the response data and analysis thereof. In addition to the aforementioned checks undertaken on the survey data, each stage of the data cleaning process is second checked internally.

Finally, all analysis outputs, including the trust level results and England level reporting, go through a two stage quality assurance process; being checked by both the Co-ordination Centre and CQC.

6. Data Limitations

6.1. Context

As with any piece of social research, statistical analysis of the data collected as part of ED16 is susceptible to various types of errors from different sources. As a result of this, potential sources of error are carefully controlled through rigorous development work in terms of questionnaire design and sampling strategy, which in turn is supported by extensive quality assurance at every stage.

6.2. Seasonal Effects

Participating NHS Trusts selected patients who had attended an emergency department between 00:00 on 1st September 2016 and 23:59 on 30th September 2016. There were four trusts that were not able to get the full 1,250 participants required for the sample during this period, and were therefore allowed to continue sampling throughout the whole of October. Despite this, 98.83% of the total data sample for ED16 was drawn during September, with the above exceptions constituting only 1.17% of the sample.

It is therefore possible that there may be some seasonal effects on responses, in the form of factors such as differing staffing levels and school holidays. However, given that the sampling period is the same for all trusts taking part in the survey, any such seasonal variation would not affect the comparability of the results or its use in assessing the performance of trusts.

6.3. Response Rates

Response rates for the survey have dropped since it was first launched, and this is consistent with both other surveys in the NHS Patient Survey Programme and social and market research more generally.

[Figure 3](#) illustrates response rate trends for the more established surveys in the NHS Patient Survey Programme. Although it should be noted that not all surveys are carried out on an annual basis, there is a clear downward trend across the entire programme. It can be seen here that the adult inpatient survey generally has the highest response rates, with the community mental health and emergency department⁹ surveys having the lowest. The total response rate for ED16 was 28%, this is down from 34% for the last iteration of the survey.

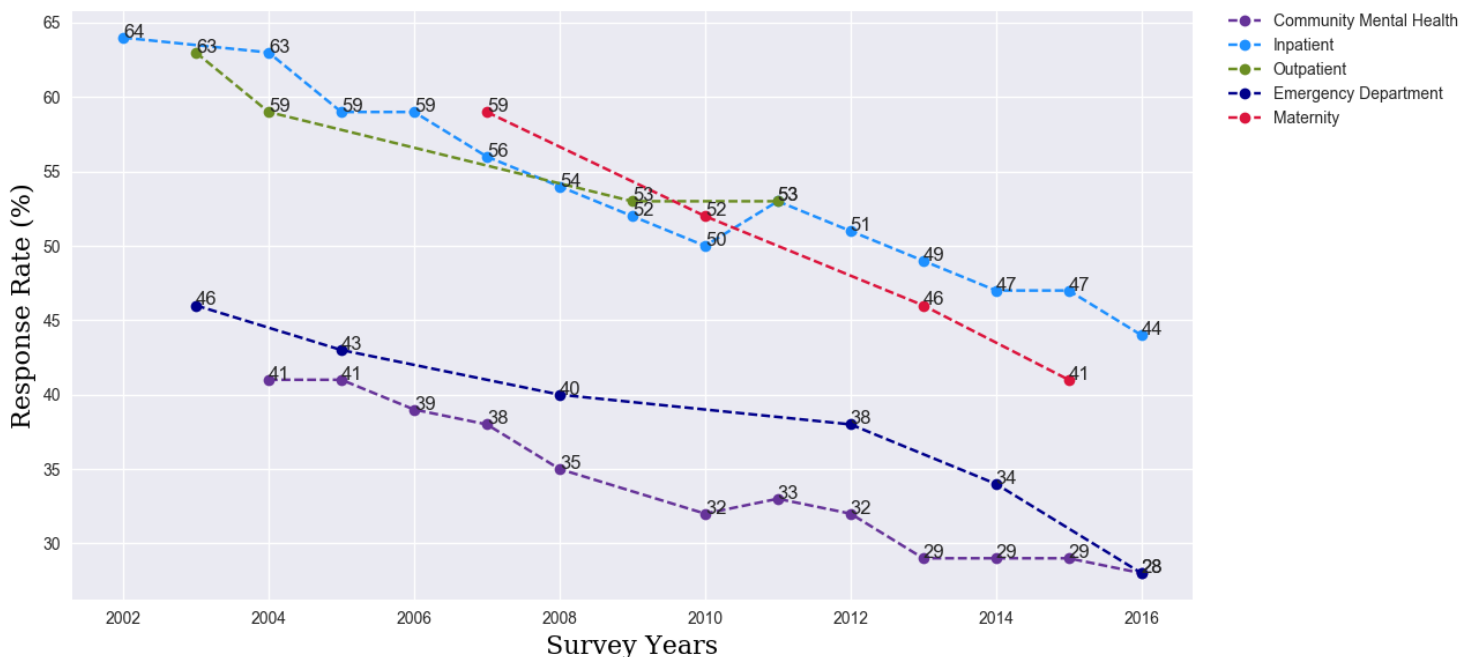
6.4. Non-response Bias

Non-response, the result of certain individuals in the sample not responding to the survey, is one of the main issues that can affect survey results; and as response rates for surveys decline, the risk of this increases. Non-response bias creates the potential for those who did respond to the survey being different from those who did not; such as those people with more negative views of the service being more likely to respond, for example.

⁹ Formerly known as the Accident and Emergency Department survey.

This issue is exacerbated by a number of factors. Firstly, the split between those who did not receive a questionnaire (and could not respond) versus those who chose

Figure 3: Response rates for established surveys in the NHS Patient Survey Programme. Note that not all surveys are conducted on an annual basis.



not to respond cannot always be known. Although the number of questionnaires that were ‘returned undelivered’ was logged during the course of the survey, there may be another group of individuals who, for example, had changed address but not informed the trust, and therefore did not receive the questionnaire. Both of these groups were assigned an outcome code of ‘2 – returned undelivered by the mail service or patient moved house’.

Secondly, patient confidentiality prevents the Co-ordination Centre from assessing the data quality of the samples that were drawn as they do not have access to the name and address details of those in the sample population.

Research carried out as part of the NHS Patient Survey Programme^{10 11 12} has shown that certain groups are consistently less likely to respond. These include:

- Young people
- Males
- Black and minority ethnic groups (BME)
- People from London
- People from deprived areas
- People with poor literacy

¹⁰ http://www.nhssurveys.org/Filestore/documents/Increasing_response_rates_literature_review.pdf

¹¹ http://www.nhssurveys.org/Filestore/documents/Review_BMEcoverage_HCC_surveys.pdf

¹² http://www.nhssurveys.org/Filestore/documents/Increasing_response_rates_stakeholder_consultation_v6.pdf

- People with a mental health condition

It can be seen from [table 1](#) that there is a clear demographic bias in the ED16 sample. It can be seen here that the current data sample has a clear bias in favour of female respondents of white ethnicity and aged >50 years. There is a body of work that attributes such demographic biases to a number of factors, such as sampling methodology.. However, for the present discussion, sufficient context for this demographic breakdown seen in [table 1](#) can be ascertained from the observation that this breakdown is in line with the current demographic make-up of the UK. Indeed, data from the most recent UK census in 2011 demonstrated that the white ethnic group is the most prominent in England and Wales; accounting for 86% of the total population¹³, which is in line with the data in [table 1](#). Additionally, it has been noted that life expectancy in England and Wales is slowly increasing, with the number of individuals living to be older than 65 years of age being significantly higher than in the late-1970s¹⁴.

Please note that [table 1](#) is based on information from trust sample files¹⁵ only, and will therefore differ from response rates published elsewhere; which are a combination of responses to the demographic questions, or sample file information if the response is missing. Respondent-provided information cannot be used to calculate response rates, as the corresponding information is unavailable for non-responders. The response rate is based on the adjusted response, deceased patients and anyone for whom the questionnaire was undeliverable were removed from the sample.

6.5. Addressing Non-response Bias in the Survey Results

The application of non-response weighting to the survey results for both the England data and the trust-level result was been considered. However, in the consideration of whether to weight for non-response and whether this should be in accordance with either the sample or population data, we need to factor in the primary aim of why the survey data are being collected.

For the majority of social research studies, in particular those that are concerned with a 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, and 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 neighbourhood¹⁶. Alternatively, if a national dataset exists for these

¹³ The Office for National Statistic '[Ethnicity and National Identity in England and Wales: 2011](#)' [accessed on 06/04/2017].

¹⁴ The Office For National Statistic '[Overview of the UK Population, February 2016: Overview of the UK Population, its Size, Characteristics and the causes of population change including national and regional variation](#)' [accessed on 06/04/2017].

¹⁵ Trust sample files contain all people selected to take part in the survey and includes information such as age, gender and ethnicity.

¹⁶ Lynn, P. (1996) '[Weighting for Non-response](#)' in Banks, R., Fairgrieve, J., Gerrard, L., Orchard, T., Payne, C., & Westlake, A. (eds.) *Survey and Statistical Computing: Proceedings of the Second ASC International Conference*, pg. 205-214, Essex, UK: Association for Survey Computing.

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.

Demographics	Responded (%)	
	Yes	No
Gender		
Male	45	55
Female	55	45
Age		
16-35	12	88
36-50	14	86
51-65	25	75
66+	49	51
Ethnicity		
White	90	10
Mixed	1	99
Asian or Asian British	3	97
Black or Black British	2	98
Chinese or other	0	100
Not stated or missing	4	96

Table 1: Respondents and non-respondents to the Emergency Department Survey 2016 by key demographics.

6.5.1. Trust-level Benchmark Analysis

For the NHS Patient Survey Programme, the data collected are 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 and gender 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.

The potential non-response bias is partly addressed via statistical standardisation by age and sex in the trust level results¹⁷. 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, which is why it has not been implemented:

¹⁷ For more information on the methodology for the trust level results, please see the technical document which is referenced in 'Further Information' at the end of this document.

- As more variables are included in the standardisation, the analysis not only becomes more complex, but it also greatly increases the risk of very small groups with large weights.
- In order to weight data by age, gender, and ethnicity, and include this in the trust data, information on each of these variables is required. If a respondent has not answered the corresponding questions that provide this information, then it is acquired from the sample file provided by the trust in a bid to maximise the amount of available data. However, while data for age and gender tends to be of very good quality, ethnicity is often quite poor. The survey analysis relies solely on respondent-provided information for ethnicity, and as a result, standardisation by ethnicity would often result in the removal of records from the analysis. This is not desirable, particularly in a survey already suffering from low response rates.
- Due to some trusts having very low proportions of individuals from particular ethnic groups, weights are capped so as to avoid heavy weighting; which should be avoided as far as possible when standardising data, as it limits the comparisons that can be made fairly.
- Standardisation based on ethnicity should also be avoided as it would remove any genuine differences in the experiences across the sub-groups.

Furthermore, it should be noted that direct assessment of non-response bias upon survey data is difficult to measure due to the obvious ethical implications of acquiring such data. This would require further contact with patients who do not wish to be contacted. Rather than further adjusting the data, this issue is managed by adopting best-practice methodologies so as to maximise response rates from all groups, as discussed [section 2.1](#).

6.5.2. Results for England

During previous iterations of the emergency department survey, the England level results for the survey were weighted to the average trust. Some trusts had a higher response rate than others, and therefore had a greater influence over the England average than if a simple mean had been 'calculated' across all respondents. To avoid this, weights were applied to the data. By applying these weights, the responses from each trust had an equal influence over the England average, regardless of differences in response rates between trusts.

This weighting was applied to the results for scored questions only. Results for demographic questions at the end of the survey questionnaire were left unweighted, while all other questions were weighted for the England-level results (a table listing which questions have been weighted can be found in [appendix A](#)). The demographic questions were presented without weights applied, as it was more appropriate to present the real percentages of respondents to describe the profile of respondents, rather than average figures. Non-scored questions were unweighted to ensure consistency across the NPSP.

During the course of ED16, however, a desire to show a different picture for England

emerged. This grew from the observation above that there was a disproportionate demographic split in favour of older white females respondents. As such, a weighting strategy that was different from that used in previous survey iterations was implemented, and which accommodated for this differential age-sex response rate. The aim here was to weight the results for each individual trust to the trust's eligible population profile, with the intention of making each trust's results representative of their own population.

This weighting strategy involved dividing all respondents in the survey into one of eight groups; four age groups and the two gender groups. The former being broken down thusly:

- Age group 1: 16-35
- Age group 2: 36-50
- Age group 3: 51-65
- Age group 4: ≥ 66

For each trust, all of the respondents were then divided into two groups based upon their gender. These gender groups were then sub-divided in accordance with their age group. The trust's eligible population was then taken, and the proportion of each of the eight demographic groups calculated. The same was done with the trust's sample population. The former percentage for each demographic group was then divided by the latter corresponding percentage to provide the new weights for each of the demographic groups. As an example, calculating the new weight for demographic group 2, w_2 , would be done thusly:

First, calculate the percentage of demographic group 2 respondents in the trust's eligible population:

$$y = \frac{\text{number of respondents from demographic group 2}}{\text{total size of eligible population}}$$

$$y' = y * 100$$

Secondly, do the same for the trusts sample:

$$x = \frac{\text{number of respondents from demographic group 2}}{\text{total size of sample}}$$

$$x' = x * 100$$

Then:

$$w_2 = \frac{y'}{x'}$$

It should be noted that due to the severe differences in the age-sex profile,

implementing this weighting strategy resulted in a number of large weights. Although these weights were capped at 5, it is worth noting that when uncapped 2.56% of the type 1 department data weights were greater than 5, while type 3 department data had 4% of weights greater than 5. The highest weight for type 1 department data was 16 and the highest for type 3 department data was 17.

Assuming that responses were not missing at random, then weighting each trust's results to their eligible population in this way theoretically makes the trust's results more representative of their population, thus potentially yielding a more accurate experience of the average trust.

7. Data Revisions

CQC publishes a [Revisions and Corrections Policy](#) relating to these statistics. The NPSP data are not subject to any scheduled revision due to the surveys capturing the views of patients about their experiences of care at a specific point in time. All new survey results are therefore published on the CQC's website and NHS Surveys website, as appropriate, and published results for previous iterations of the survey are not revised. The Revisions and Corrections Policy sets out how CQC will respond if an error is identified within this and it becomes necessary to correct published data and/or reports.

8. Further Information

The results for England 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 the trust level results.

The trust results from previous emergency department surveys are available [here](#). However, please note that results from the 2016 survey are **not comparable** with previous surveys. For more information on this, please see the statistical release or the [Quality and Methodology report](#).

Full details of the methodology for the survey, including questionnaires, letters sent to patients, instructions on how to carry out the survey and the [survey development report](#).

More information on the patient survey programme, including results from other surveys and a programme of current and forthcoming surveys can be found [here](#).

More information about how CQC monitors hospitals is available on the CQC website [here](#).

9. Feedback

We welcome all feedback on the survey findings and the approach adopted in reporting the results. Particularly from patients, their representatives, and those providing services. If you have any views, comments or suggestions on how this publication could be improved, please contact the User Voice Development Manager via 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 NHS Patient Survey Programme.

Appendix A: Question Weighting

The following table lists the questions included in ED16 and whether weighting is applied for England-level result.

2016 Question No	Question Text	Weighted
1	Was this emergency department the first place you went to, or contacted, for help with your condition?	Yes
2	Before going to this emergency department, where did you go to, or contact, for help with your condition?	Yes
3	Why did you go to the emergency department following your contact with the service above?	Yes
4	Were you taken to the emergency department in an ambulance?	Yes
5	Once you arrived at the emergency department, how long did you wait with the ambulance crew before your care was handed over to the emergency department staff?	Yes
6	Before your most recent visit to the emergency department, had you previously been to the same emergency department about the same condition or something related to it?	Yes
7	Were you given enough privacy when discussing your condition with the receptionist ?	Yes
8	How long did you wait before you first spoke to a nurse or doctor?	Yes
9	Sometimes, people will first talk to a nurse or doctor and be examined later. From the time you arrived, how long did you wait before being examined by a doctor or nurse?	Yes
10	Were you told how long you would have to wait to be examined?	Yes
11	Overall, how long did your visit to the emergency department last?	Yes

12	Did you have enough time to discuss your health or medical problem with the doctor or nurse?	Yes
13	While you were in the emergency department, did a doctor or nurse explain your condition and treatment in a way you could understand?	Yes
14	Did the doctors and nurses listen to what you had to say?	Yes
15	If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?	Yes
16	Did you have confidence and trust in the doctors and nurses examining and treating you?	Yes
17	Did doctors or nurses talk to each other about you as if you weren't there?	Yes
18	If your family or someone else close to you wanted to talk to a doctor, did they have enough opportunity to do so?	Yes
19	While you were in the emergency department, how much information about your condition or treatment was given to you?	Yes
20	Were you given enough privacy when being examined or treated?	Yes
21	If you needed attention, were you able to get a member of medical or nursing staff to help you?	Yes
22	Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you in the emergency department?	Yes
23	Were you involved as much as you wanted to be in decisions about your care and treatment?	Yes
24	If you were feeling distressed while you were in the emergency department, did a member of staff help to reassure you?	Yes
25	Did you have any tests (such as x-rays, scans or blood tests) when you visited the emergency department?	Yes

26	Did a member of staff explain why you needed these test(s) in a way you could understand?	Yes
27	Before you left the emergency department, did you get the results of your tests?	Yes
28	Did a member of staff explain the results of the tests in a way you could understand?	Yes
29	Were you in any pain while you were in the emergency department?	Yes
30	Did you request pain relief medication?	Yes
31	How many minutes after you requested pain relief medication did it take before you got it?	Yes
32	Do you think the hospital staff did everything they could to help control your pain?	Yes
33	In your opinion, how clean was the emergency department?	Yes
34	While you were in the emergency department, did you feel threatened by other patients or visitors?	Yes
35	Were you able to get suitable food or drinks when you were in the emergency department?	Yes
36	What happened at the end of your visit to the emergency department?	Yes
37	Before you left the emergency department, were any new medications prescribed for you?	Yes
38	Did a member of staff explain the purpose of the medications you were to take at home in a way you could understand?	Yes
39	Did a member of staff tell you about medication side effects to watch for?	Yes
40	Did a member of staff tell you when you could resume your usual activities, such as when to go back to work or drive a car?	Yes
41	Did hospital staff take your family or home situation into account when you were leaving the emergency department?	Yes

42	Did a member of staff tell you about what danger signals regarding your illness or treatment to watch for after you went home?	Yes
43	Did hospital staff tell you who to contact if you were worried about your condition or treatment after you left the emergency department?	Yes
44	Overall, did you feel you were treated with respect and dignity while you were in the emergency department?	Yes
45	Overall... (I had a very poor experience - I had a very good experience)	Yes
46	Who was the main person or people that filled in this questionnaire?	No
47	Are you male or female?	No
48	What was your year of birth?	No
49	What is your religion?	No
50	Which of the following best describes how you think of yourself?	No
51	Do you have any of the following long-standing conditions?	No
52	Does this condition(s) cause you difficulty with any of the following?	No
53	To which of these ethnic groups would you say you belong?	No