NHS Patient Survey Programme

Adult inpatient experience during the COVID-19 pandemic

Technical note

November 2020

Contents

1. Introduction

This technical note provides details of a survey of people who used adult inpatient services in England at the height of the COVID-19 pandemic. The research was conducted by Ipsos MORI on behalf of the Care Quality Commission (CQC).

1.1 Overview

The survey was designed to collect information about the experiences of people who had inpatient care in an NHS hospital in March, April and May 2020, as England went into national lockdown. While the focus of the survey was on patients with COVID-19 (on admission or diagnosed during their stay), the survey also included patients in hospital for non-COVID reasons.

Adult inpatient services provide care to people who stay in hospital for one night or more for tests, medical treatment or surgery, either a result of an unplanned admission (for example, via an emergency department or an urgent treatment centre) or pre-planned elective treatment.

The survey used a mixed methods approach, combining online and telephone modes, and the sample frame was provided by NHS Digital, using Hospital Episode Statistics (HES) to identify inpatients during the relevant period and the Personal Demographics Service (PDS).

All patients aged 16 years or over at the time of their hospital stay were eligible to take part if they were discharged between 1 April 2020 and 31 May 2020. A random sample of patients was selected with the aim of achieving equal numbers of interviews with inpatients in each Sustainability and Transformation Partnership/Integrated Care System (STP/ICS) in England. In all STP/ICS, where numbers allowed. More COVID-19 than non-COVID patients were selected to ensure robust sub-group analysis.

This document contains details of the approach, including questionnaire design, sampling, data collection and processing and reporting. It also includes reflections on data limitations.

2. Questionnaire design

The questionnaire was designed by Ipsos MORI in collaboration with CQC, and was based on the Adult Inpatient Questionnaire used within the NHS Patient Survey Programme. Where possible, questions were aligned with the 2020 inpatient survey. This was to allow comparison with future inpatient surveys, but also to allow some careful comparisons against the 2019 adult inpatient survey, where possible.

The design process involved consultation with a select number of stakeholders to identify key content and priority areas and to ensure that the questions were relevant to the experiences of patients with COVID-19. Consultation was more limited than for a standard survey owing to the requirement for rapid development. Consultation included:

- An online workshop with stakeholders from CQC's Hospitals, Intelligence and Engagement, Policy and Strategy Directorates;
- An interview with representatives from NHS England and NHS Improvement's Experience of Care team;
- Interviews with two trust patient experience leads; and,
- Interviews with two patients who had been admitted to hospital with COVID-19 to cognitively test the proposed questions.

The questionnaire was divided into ten sections:

- Admission to hospital;
- The Accident and Emergency (A&E) Department;
- COVID-19;
- The hospital and ward;
- Staff;
- Your care and treatment;
- Communications;
- Leaving hospital;
- Overall; and,
- About you (demographics).

Questions from the 2020 Adult Inpatient questionnaire, have been through significant re-development with CQC and external stakeholders (including patients). All questions from the 2020 Inpatient questionnaire have been cognitively tested.

3. Sampling

3.1 Sample overview

The sampling approach was designed to provide a random sample of the population of inpatients aged 16 or over with a COVID-19 diagnosis (on admission or during their stay) who were discharged between 1 April and 31 May 2020, stratified by the 42 STP/ICS in England. The aim was to achieve approximately equal numbers of interviews with inpatients in each STP/ICS.

A further requirement was to provide a random sample of the population of inpatients aged 16 or over who did not have a COVID-19 diagnosis during their stay in the same period, again stratified by STP/ICS and aiming to achieve approximately equal numbers of interviews in each.

Inpatients were identified from Hospital Episode Statistics (HES), and patient contact information was obtained using registration records held on the Personal Demographics Service (PDS) database maintained by NHS Digital. Governance approval to access this information was obtained via the NHS Digital Data Access Request Service (DARS).

3.2 NHS Digital population extraction

NHS Digital identified the population of all patients who had been discharged from an acute or specialist NHS hospital between 1 April and 31 May 2020 (i.e. including admissions for March, April and May) having had at least one overnight stay. For each they provided a patient level identifier, COVID-19 diagnosis status (admitted with COVID-19, COVID-19 diagnosis during care, non-COVID patient1), site code, gender and month and year of birth.

NHS Digital excluded patients who were known to have died (both formally (notification from Registrar of Deaths) and informally dead (notification from a local NHS organisation)), were treated in private hospitals, those not living in the UK or with an otherwise incomplete address, records marked as sensitive, invalid or as a test, as well as patients admitted to obstetrics, maternity or psychiatry services.

This resulted in a file containing 418,582 patients. After removing duplicates (where patients had multiple qualifying spells in hospital during the period 1 April to 31 May 2020) and other ineligible patients, this resulted in a total population of 350,207 patients (44,238 COVID-19 and 305,969 non-COVID).

3.3 Sample size calculation

The sample design involved a stratified sample, which was drawn for each STP/ICS and for each population (COVID and non-COVID) separately. An equal number of patients from each group were selected from each STP/ICS, unless it was necessary to complete a census due to small numbers of patients.

[1] COVID diagnosis codes of U071 and U072 (ICD-10) (either primary or secondary).

This meant that for each STP/ICS a total sample of c.600 inpatients per STP/ICS was then drawn, on the basis of a series of assumptions about likely response rates, in order to achieve c.370 interviews in total.

The sample was weighted more towards COVID patients, with 350 selected in the majority of STP/ICS, and 263 non COVID patients.

3.4 Patient sample selection

The pseudonymised patient data sent by NHS Digital was sorted within each STP/ICS by gender, age band and postcode. The required number of patients per STP/ICS was then selected on a '1 in n' basis with a random start. The selected anonymous records were returned to NHS Digital, and a second file containing the contact details of the selected patients was provided.

3.5 Personal data extractions

On receipt of the selected records, NHS Digital extracted the contact details for each of the sampled patients. For each patient the extracted file contained the unique survey number, patient name, address, mobile telephone number, landline telephone number, date of birth, gender. It also included admission and discharge dates, treatment code, STP code, trust and site codes.

Where a selected patient had become ineligible or died since the provision of the anonymous data, the record was excluded.

3.6 Sample cleaning and exclusions

Ipsos MORI checked the selected records, for the COVID and non-COVID samples, to ensure that the expected numbers of patients had been provided and that the proportions matched the population profiles by STP, gender and age.

A number of checks were also run on the supplied names and addresses to remove inappropriate records. These checks included:

- duplicates;
- incomplete postcodes (where a patient could not be reliably assigned to a Local Authority);
- foreign addresses;
- non-address details or other inappropriate information contained in the address. These could include:
- key safe numbers, telephone numbers and other numerics not related to the address;
- unexpected words or phrases in the name or address (including "unknown", "homeless", "deceased", "test", etc.); and,
- very short addresses where there was little chance of mail being delivered e.g. "No Fixed Abode"

The selected sample was also reviewed against Ipsos MORI's Do Not Contact list.

Following data cleaning, a unique ID of 8 alphanumerics was added, along with a survey password.

The final number of patients to whom letters were sent after all sample cleaning was 24,249.

4. Data collection

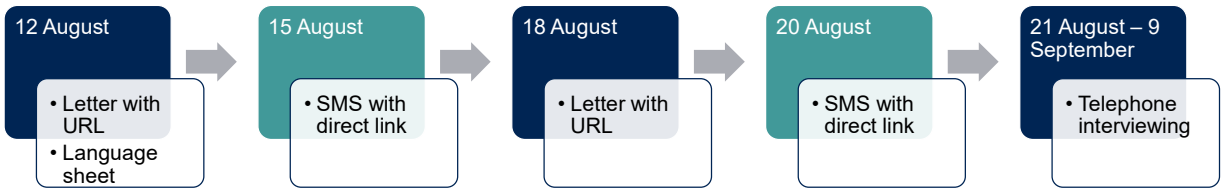
The survey used a mixed methods approach, combining online and telephone modes. A pilot for the Adult Inpatient Survey has shown that a mixed method online and postal approach can produce a sound response rate for inpatient surveys. There were felt to be a number of limitations with a postal approach for this particular study which made a combination of online and telephone modes more appealing. These included the benefits of not asking respondents to leave their homes during the pandemic, the possibility of a faster turnaround time for data collection and the benefit of supplementing an online mode which is proven to be less inclusive when used exclusively.

The contact strategy used for the survey is detailed in the figure below. This involved an initial postal mailing to all selected patients inviting them to take part online via a URL link, and using a unique survey number and online password. A few days later those with a mobile number were sent a reminder text message containing a direct short link to the survey. A second letter was then sent around 5-7 days after the initial mailing, again to all selected patients, inviting them to take part online but also indicating that they would be receiving a telephone call in the next few days or inviting them to contact the telephone team directly. Again, this letter was followed by a text message to those with mobile numbers; those who had already responded were removed.

Nine days after the initial letter was sent, the telephone team started to contact patients by telephone.

All fieldwork (online and telephone) was carried out between 14 August and 9 September 2020.

Figure 4.1: Contact strategy



4.1 Fieldwork approach and maximising participation

Throughout fieldwork Ipsos MORI offered a Freephone helpline for patients who wanted more information about the survey. The survey letter and online survey provided a link to a privacy notice, containing answers to some frequency asked questions about data privacy.

All patients were sent a multi-language sheet with the initial survey invitation letter. This contained information in English and 18 languages, indicating that help could be provided with taking part or in order to speak to an interpreter. Specific helplines, with a translated recorded message, were made available in Polish, Portuguese, Spanish, Arabic and French.

Prior to telephone fieldwork, the Ipsos MORI research team briefed the interviewers about the purpose of the survey. The interviewers also received a copy of the questionnaire.

Each patient was called several times, or until an interview was achieved or they refused. Each piece of sample was called at different times of the day, including evenings and weekends.

Several steps were taken to maximise participation in the survey and reduce non-response bias, beyond the general management and scheduling of the fieldwork and interviewing team to produce the best results. For example, the sample contained a number of patients living in a care home or hospital. These were flagged so that interviewers could tailor their approach and to ensure they were contacted during the day, when care home staff were available. The sample also included a few patients currently living in a prison, they were sent a paper copy of the questionnaire and, if a phone number was available, it was still tried, but again flagged to interviewers who were able to tailor their approach if needed.

4.2 Fieldwork monitoring

Ipsos MORI is a member of the Interviewer Quality Control Scheme (IQCS) recognised by the Market Research Society. In accordance with this scheme, the field supervisor on this project listened to at least 10 per cent of the interviews and checked the data entry on screen for these interviews.

4.3 Fieldwork outcomes and response rate

In total, 24,429 patients were sent an invitation letter and 10,336 took part. This represents an overall **unadjusted** response rate of 42%. As shown in figure 4.2, the unadjusted response rate was slightly higher for patients who had a COVID-19 diagnosis.

Figure 4.2: Unadjusted response rates

	Issued sample	Total no. interviews	Response rate
	N	N	%
All patients	24,429	10,336	42%
COVID-19 patients	13,159	5,845	44%
Non-COVID patients	11,267	4,491	40%

By way of comparison, the adjusted response rate for the 2019 Adult Inpatient Survey was 45%. It is not possible to provide an adjusted response rate for this study, since the adjustment is mostly based on the number of paper questionnaires returned as undelivered (and there were no paper questionnaires).

While this indicates that the response rate was good, it is notable that there were a high number of refusals to the telephone interview. Overall, 5,162 refused; a refusal rate of 21%.

Looking at this in more detail, there was some variation in refusals by age group, with the refusal rate increasing significantly by age, as shown in figure 4.3 below. Where possible, the interviewing team recorded a reason for refusal, and coded 24% of all refusals to the patient saying they were still too ill to participate.

Note that refusal rates by gender (20% male; 22% female) and COVID-19 vs non COVID patients (both 21%) were in line with the average.

Figure 4.3: Response rate and refusal rate by age

	Response rate	Refusal rate
>50	37%	14%
50-59	51%	13%
60-69	55%	16%
70-79	49%	22%
80+	28%	35%

4.4 Mode of completion

More interviews were completed online than by telephone (58% compared with 42%), and this difference was more marked for patients with a COVID-19 diagnosis, who were more likely to have taken part online.

Figure 4.4: Mode of completion

	Total no. interviews	Online interviews		Telephone interviews	
		N	%	N	%
All patients	10,336	5,976	58%	4,360	42%
COVID-19 patients	5,845	3,545	61%	2,300	39%
Non-COVID patients	4,491	2,431	54%	2,060	46%

5. Data processing and reporting

5.1 Editing

A small number of patients in the non COVID sample (140 in total) reported that they had had COVID-19, either prior to admission or had caught it in hospital. There may have been a number of reasons for this, including a subsequent admission to hospital after 31 May or potential under-reporting in the HES dataset, particularly in the initial period around lockdown when testing was first being implemented. These patients were reallocated to the COVID-19 population for weighting and reporting.

In addition, at Q7 (While you were in hospital, how safe or unsafe did you feel from the risk of catching COVID-19?), anyone who said they had already had a positive COVID-19 diagnosis before admission was re-allocated at this question into the code 'Not applicable, I already had COVID-19 when I was admitted'.

5.2 Weighting strategy

In order to produce results for the overall population of inpatients discharged between 1 April and 31 May, and for the COVID and non-COVID populations individually, the achieved sample in each STP was weighted to the counts of inpatients for age group and gender using calibration weighting. Age was coded into five groups: younger than 50; 50 to 59; 60 to 69; 70 to 79; 80 and older. This calibration weighting was done separately for the COVID and non-COVID samples. This stage produced grossing weights which adjusted the samples to match the total number of inpatients.

In order to produce the tables, these grossing weights were standardised to produce nine sets of weights which could be used for the different levels of analysis. For example, the standardised weights for the regional analysis of the COVID sample (wt_region_covid) were produced by selecting the COVID sample only and calculating the mean of the grossing weights for each region. The grossing weights were then divided by the corresponding mean grossing weight. When these standardised weights are applied, the weighted sample size for the COVID sample equals the actual sample size for each region.

These weights were:

National level	
wt_national_total	Estimates for the combined sample
wt_national_covid	Estimates for the COVID sample
wt_national_noncovid	Estimates for the non-COVID sample
Regional level	
wt_region_total	Estimates for the combined sample
wt_region_covid	Estimates for the COVID sample
wt_region_noncovid	Estimates for the non-COVID sample
STP/ICS level	
wt_stp_total	Estimates for the combined sample
wt_stp_covid	Estimates for the COVID sample
wt_stp_noncovid	Estimates for the non-COVID sample

This weighting has been applied to all questions except for demographic questions. These questions are presented without weights applied, as it is more appropriate to present the real percentages of respondents to describe the profile, rather than adjust figures.

5.3 Reporting

Data has been published comparing the results for all patients with COVID-19 and non-COVID patients at national and regional levels (with demographic crossbreaks). In addition, results have been produced and shared with STP/ ICSs.

For questions evaluating care, the non-specific responses (‘don’t know’, ‘can’t remember’) and those who have not responded have been removed from the base.

In the tables, data is suppressed for questions where fewer than 30 patients, either in the total or sub-group base, have answered a question.

The results present percentage figures rounded to the nearest whole number, so the values given for any question will not always add up to 100%. Please note that rounding up or down may make differences between COVID-19 and non-COVID patients appear bigger or smaller than they actually are.

5.4 Statistical testing

Statistical tests were carried out on the data to determine whether there were any statistically significant differences between patients with COVID-19 and those who did not have the virus. This testing was also applied to demographic sub-groups and the NHS regions. A t-test was used to compare data between sub-groups groups at the 95% confidence level. A statistically significant difference means it is very unlikely that we would have obtained this result by chance alone if there was no real difference.

Generally speaking, the larger the sample size, the more likely that findings will be statistically significant, and we can be more confident in the result. In contrast, the fewer people that answer a question, there has to be a greater difference to be statistically significant. Due to the large number of respondents, small changes in results between patients with COVID-19 and those who do not have the virus may be statistically significant.

6. Quality assurance

Checks were completed at key stages of the survey, especially during the sample preparation and data cleaning stages. These checks help to identify any obvious errors in the sample and response data, such as the inclusion of ineligible patients or potential issues with the survey instruments. Validation checks were also undertaken on the supplied patient contact details to determine whether the address and telephone number were complete enough for invitation letters and text messages to be sent.

During fieldwork, response rates were monitored daily at the England level for both online and telephone completes. In addition, the data was thoroughly checked during the first day of online fieldwork to ensure that the routing was working as expected.

Once fieldwork was completed, a final set of QA checks were undertaken on the response data. Each stage of data checking was verified by Ipsos MORI. All outputs have been through a two-stage quality assurance process, checked by Ipsos MORI and CQC.

7. Data limitations

As with any survey, statistical analysis of data from the COVID-19 Adult inpatient survey is susceptible to various types of error from different sources. Potential sources of error are carefully controlled through questionnaire design and sampling strategy, which is in turn supported by extensive QA at every stage.

7.1 Non-response bias

Non-response bias refers to the risk that those who chose to respond to the survey are different from those who chose not to respond. This type of bias would arise, for example, if patients with more positive views of their care were to be more likely to respond than those with negative views. However, whether and to what extent non-response bias is present is difficult to assess, as we do not have any way of finding out how non-responders would have answered.

A further issue is that we cannot always differentiate between those who received a questionnaire but chose not to respond (non-response), versus those who did not receive a questionnaire and hence could not respond (non-contact). Due to the fast turnaround nature of the survey, there was not time for all undelivered questionnaires to be returned and logged. As a result, the response rate was not adjusted to exclude those potential respondents who did not receive a questionnaire but may have responded if they had.

Other research, including work carried out as part of the NHS Patient Survey Programme (NPSP), has shown that certain groups are consistently less likely to respond. The table below shows that age and gender profile for participants and for the sample as a whole, for both the COVID-19 and non COVID-19 samples. This shows that for both groups older patients are more likely to respond compared with other age groups.

Figure 6.1: Achieved sample versus population demographic profile

	COVID-19 patients		Non-COVID patients	
	Achieved sample	Population	Achieved sample	Population
Base	5,845	44,238	4,491	305,969
Gender				
Male	56%	55%	50%	49%
Female	44%	45%	50%	51%
Age				
16 to 34	4%	5%	9%	13%
35 to 44	7%	7%	6%	8%
45 to 54	17%	15%	11%	11%
55 to 64	24%	18%	18%	15%
65 to 74	22%	18%	24%	18%
75 to 84	18%	21%	23%	21%
85 and over	7%	15%	9%	15%

7.2 Addressing potential non-response bias in the survey results

Non-response weighting has been applied to the COVID and non-COVID populations based on available population data, including STP, gender and age. However, there may be other potential differences between respondents and non-respondents that are not measurable.

8. Further information and feedback

8.1 Further information

The England and regional level results for the COVID-19 Adult Inpatient Survey 2020 can be found on the CQC website.

The England and trust-level results from previous Adult Inpatient Surveys that took place between 2002 and 2019 are available on the NHS Surveys website or on request.

More information on the NHS Patient Survey Programme (NPSP), including results from other surveys and a programme of current and forthcoming surveys, can be found on the CQC website.

8.2 Feedback

CQC welcome all feedback on the survey findings and the approach used to report 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 Tamatha Webster, Survey Manager, at patient.survey@cqc.org.uk. The information you provide will be reviewed by CQC and used, as appropriate, to improve the statistics published across the NPSP.

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