

1 Inpatient survey 2008: Sampling Problems

1.1 Introduction

For the 2008 adult inpatient survey, trusts were asked to submit their sample to the Co-ordination Centre for final quality control checks before any questionnaires were mailed out. This sample checking procedure had been introduced for the 2006 inpatient survey and was found to be useful for identifying sampling errors and avoiding the common mistakes that can result in delays to the survey process. This document describes the errors made in sampling, divided into major (those requiring re-sampling) or minor (those that could be corrected before final data submission), and the recommendations made by the Co-ordination Centre to correct the sampling. It also demonstrates the continual overall improvement seen in the quality of submitted samples since the sampling checking protocol was implemented.

This document should be used by trusts and contractors to become familiar with past errors and to thus prevent these from recurring. If further assistance is required, please contact the Co-ordination Centre on 01865 208127.

1.2 Major errors

There were 24 major errors noted in the sample checking phase and the Co-ordination Centre advised 16 trusts to redraw their sample (sometimes more than once). This compares favourably to 2007, when there were 28 major errors spread across 23 trusts, and 2006, when there were 38 major errors spread across 28 trusts. Errors are classified as major if they require the trust to resample, or to remove or replace patients from the sample. If major errors are not corrected, the trust's survey data cannot be used for the measurement of performance indicators and the trust will be reported as not having submitting data for the national survey.

Major problems	2008	2007	2006
Randomised sampling	5	9	10
Incorrectly excluded by age	4	0	1*
Consecutive admissions	4	2	3
Inclusion of private patients	3	0	1†
Sampled incorrect period	3	3	1
Inclusion of maternity/termination of pregnancy patients	2	8	8
Excluded some hospital sites	1	1	0
Inclusion of psychiatry patients	1	0	0
Incorrectly excluded by specialty code	0	2	4
Zero night stay patients included	0	2	2
Screened single night stays	0	1	1
Other	1	0	7
Total	24	28	38

* In 2006, one trust incorrectly excluded patients who were 16 years old and thus eligible for the survey. In the 2007 sampling errors document, this trust was coded as "other" because there were no other examples of this occurring. In this document, they have been recoded to match this category of major error.

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Random samples

Some trusts submitted samples that led us to suspect they were randomised samples of all patients seen over a period of one or more months. Typically, the earliest date of discharge was very close to the start of the month (usually the 1st of the month) and the latest date of discharge at the very end of the month. As trusts were instructed in the guidance manual to sample back from the end of one of three possible months, the last day of the month should always be the latest discharge date. However, all cases where the earliest date of discharge was in the first few days of the month were investigated further, initially by comparing the 2008 sample to that of previous years, and then contacting trusts to seek resolution and reassurance on the issue.

Five samples submitted to the Co-ordination Centre were detected as using random sampling methods and we requested that these trusts re-draw the sample and to resubmit it for final approval.

Incorrectly excluded by age

Four trusts deliberately excluded all patients who were born in 1992 to ensure that all patients in their sample were 16 years or over at the time the sample was drawn. As this would result in the exclusion of eligible patients, we requested that they redraw the sample using full date of birth (day, month and year) to ensure all eligible patients have a chance of being selected for the sample.

Sampled by consecutive admission date

In 2008, four trusts submitted samples with unusually brief maximum lengths of stay, that is, every patient in these samples had been both admitted and discharged in the same month. This major error has increased in frequency since 2007 when it was only observed in two samples.

The pattern of admissions and discharges suggested that, at some point, the trust had selected their sample based upon consecutive admission dates rather than on consecutive discharge dates. This error can occur at multiple stages of the sample generation and, because of this, it is very difficult to convince trusts that this error has occurred. For example, a trust may generate a large initial sampling frame that conforms to all the inclusion criteria, then generate a second list once the exclusion criteria have been applied, then another list of 900 patients to be sent to the National Strategic Tracing Service (NSTS), and a final list of 850 patients to be sent to the Co-ordination Centre. If any of these lists are sorted by admission date rather than discharge data, this error could occur.

All four trusts were asked to resubmit new samples to the Co-ordination Centre.

Inclusion of private patients

The national inpatient survey only samples NHS patients and specific instruction is provided in the guidance manual to exclude all private patients. In 2008, three trusts mistakenly included some private patients in their samples. These individuals were replaced with eligible patients.

Sampled incorrect period

Three trusts sampled dates or time periods not prescribed by the survey guidance:

- One trust submitted a July sample but mistakenly excluded discharges from the 31st, instead drawing the sample from the 30th July. The Co-ordination queried this as the 31st was a Sunday so there may not have been any eligible patients discharged on this date. The trust then submitted an amended file with 70 discharges on 31st July.

- Similarly, one trust submitted an August sample that had been drawn back from the 28th rather than the 31st August. They were notified of this error and resubmitted a new sample file that included patients discharged on the 29th, 30th and 31st August.
- One trust submitted a sample of discharges from July and August but it was evident from the discharge pattern that the trust's records were not up-to-date. There were significantly fewer discharges on each day in the last third of August compared with the number of discharges on days earlier in the month (decreasing to approximately one third of the number of discharges seen earlier). The trust was asked to draw and resubmit a new sample.

Inclusion of maternity/termination of pregnancy patients

The guidance manual explicitly stated that maternity patients were to be excluded from the sample, as in all previous inpatient surveys in the NHS patient survey programme. These patients were defined as:

“Any patients coded with a main specialty of 501 (obstetrics) or 560 (midwife) and admitted for management of pregnancy and childbirth, including miscarriages, should be excluded from the sample”.

In addition, any patients admitted for a planned termination of pregnancy are also excluded from the survey due to issues of privacy and sensitivity.

Two samples were submitted to the Co-ordination Centre contained patients who should have been excluded under these criteria; one which contained four maternity patients and another which contained 14 patients who were admitted for planned termination of pregnancy. The Co-ordination Centre was informed of the inclusion of the patients undergoing termination by that trust's survey contractor after the sample was submitted.

Samples submitted in 2008 showed significant improvement upon previous years in which eight trusts in both 2006 and 2007 submitted samples containing patients with main specialties of obstetrics or midwifery. In 2007, these samples included between 1-141 maternity patients. Trusts were advised that these patients were not eligible for this survey and that a new sample should be drawn excluding patients with specialty codes of 501 and 560.

Excluded some hospital sites

One trust excluded all patients from its newly built children's hospital. When the sample was being drawn, the IT leads did not sample patients from this site as they incorrectly assumed that a survey of adult inpatients would exclude all those who had been patients at a children's hospital. However, as long as a patient is aged 16 years and over, they can consent to participate in the survey and should not be excluded. This error was noticed because the youngest patients in the sample submitted for checking were born in 1990. Their sample was redrawn with patients from the children's hospital included in their second submission.

Inclusion of psychiatry patients

The guidance manual states that patients admitted to hospital for primarily psychiatry reasons should not be included in the sample, as in all previous inpatient surveys in the NHS patient survey programme.

One trust included one patient whose main speciality of 700 (learning disability) indicated that they were ineligible for inclusion. This patient was removed and replaced.

Zero overnight stay patients included

To be eligible for the survey, patients must stay overnight in hospital. For the purposes of this survey, this requires that their discharge date is at least one day later than their admission date. In 2008, no trusts made the error of including patients who had not spent a night in hospital which demonstrates improvement on 2007 when two trusts did not correctly implement the inclusion criterion of having had “at least one overnight stay”.

Screened single night stays

In 2008, no trusts made the mistake of excluding patients who had stayed for one night only. In 2007, one trust made this error as they wanted to ensure all patients in the sample had stayed “at least” 24 hours and could appropriately answer the entire questionnaire. When this error had been made in previous surveys, the survey data could not be used for measurement of performance indicators and these trusts were reported as not having submitting data for the national survey.

1.3 Minor errors

There were a comparative number of minor errors (74) identified in the sample checking phase in 2008 as in last year's survey (70), but far fewer than in 2006 (141). In 2008, 56 trusts were identified as having made minor errors, compared to 46 trusts in 2007 and 80 trusts in 2006. Errors are considered to be minor if resampling or replacement of patients is not necessary. Trusts who have made minor errors are advised that corrections would need to be made to the sample information before the final data set was submitted to the Co-ordination Centre at the close of the survey.

Minor problems	2008	2007	2006
Incorrect PCT coding	26	19	30
Incorrect ethnic or gender coding	18	12	19
Incorrectly calculated Length of Stay (LOS)	9	11	15
Missing route of admission data	8	n/a	n/a
Main specialty miscoding	4	6	0
Date format used	3	6	22
Treatment coding used instead of main specialty	1	7	16
Missing treatment centre data	1	6	12
Other	0	3	27
Total	70	70	141

Incorrect PCT coding

Incorrect coding of PCT of residence was again the most common cause of minor errors, and was detected in 26 trusts' samples. The main issues were:

- missing codes
- out-of-date codes
- high proportion of code X98 (Primary Care Trust code not applicable e.g. overseas visitors, Wales, Scotland or Northern Ireland).
- five digit rather than 3 digit codes used

Incorrect ethnic or gender coding

In total, 17 trusts did not code patients' ethnicity as specified in the guidance manual. The most common error concerned patients for whom ethnicity information was not known. The Co-ordination centre uses different codes for patients whose ethnicity is 'unknown' (this information has not been collected) and patients whose ethnicity is 'not stated' (when asked, patients who declined to state their ethnicity). Some trusts do not distinguish between these categories on their PAS systems so were advised to code all such patients' ethnic category as 'unknown'.

In 2008, one trust miscoded gender information, down from 5 trusts in 2007.

Incorrectly calculated Length of Stay

Nine trusts did not calculate length of stay correctly, down from 11 trusts in 2007 and 15 trusts in 2006. In all cases where length of stay was miscalculated, the Co-ordination Centre recalculated this, then checked to ensure that no patients were included who had not stayed overnight and that those who had only stayed a single night were not excluded. Trusts were informed of this and asked to check if the admission and discharge dates were correct for those patients involved.

Missing route of admission data

This information field asks the acute trust to code whether the patient was an emergency or a planned admission and is a new requirement for the 2008 survey. Eight trusts did not include route of admission data for all patients in their sample file.

Main specialty miscoding

Four trusts did not include main speciality information for all patients. This compares to six trusts in 2006. Two trusts submitted files with main speciality information missing completely and two trusts had miscoded a small number of patients.

Date format used

Just three trusts submitted dates in date format rather than in numeric format as specified in the guidance. This compares favourably with the six trusts which did so in 2007 and the 22 in 2006.

Treatment coding used instead of main specialty code

Only one trust made the error of submitting treatment codes rather than main specialty code, down from seven trusts in 2007 and 16 in 2006. This trust was reminded that the guidance manual specifies that main specialty on discharge should be used in the sample information. When specialty codes were first assessed for inclusion in the 2005 adult inpatient survey, the Co-ordination Centre was informed that treatment codes were deemed to be both unreliable and more likely to disclose the actual treatment (and by inference the condition) of the patient.

Missing treatment centre data

One trust in 2008 did not indicate whether patients had been treated in a treatment centre. This compared to six trusts in 2007 and 12 in 2006.