SEPTEMBER 2023

NHS Maternity Survey 2023

Sampling Errors Report

Contents

Introduction

Contractors submitted sample files for all 121 trusts participating in the 2023 Maternity Survey to the Coordination Centre for Mixed Methods (CCMM) at Ipsos. Quality checks to ensure that samples had been drawn correctly were needed before mailings could start, to avoid common errors such as incorrect inclusion or exclusion of patients from the sample.

Sample data checks of this kind were first introduced in 2007 to increase data quality, through aiding trusts in avoiding common errors prior to sending mailouts. In addition to the sample file, all trusts were asked to submit a separate antenatal and postnatal attribution data file directly to the CCMM.

In accordance with the 2022 Maternity Survey, a sample upload portal was used, which flagged errors before the samples were submitted to the CCMM. A simplified upload portal was used by trusts to submit their attribution data to aid in quick and effortless submission of the additional variables.

The overall process for uploading attribution data followed that introduced in 2022[1], with enhanced checks introduced in 2023 to ensure no personal data is uploaded with the file.

This report gives a summary of errors found during the CCMM's checks of sample and attribution data for the 2023 survey. It is important to note that this report only gives details of the errors found by the CCMM; sample data may have contained further errors which would have been identified and corrected during checks by approved contractors (where one was used) or the in-house trust.

This document outlines the following types of errors:

- **Major errors** – errors that require the sample to be redrawn, commonly where ineligible patients have been included or eligible patients have been excluded.

- **Minor errors** – errors that do not require the sample to be redrawn, but instead require amendments to be made to the sample data.

- **Historical errors** - errors relating to a trust's previous survey sample when checking the 2023 sample.

- **Attribution data errors** – errors specifically found in relation to the attribution data submitted by trusts.

Trusts and contractors should use this document to become familiar with the errors found by the CCMM to minimise the chance of similar errors occurring in future survey years.

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[1] For more details please see: https://nhssurveys.org/wp-content/surveys/04-maternity/03-instructions-guidance/2022/Attribution%20Data%20Instructions%20V1.pdf

Frequency of Errors

During the 2023 sample checking period, the CCMM detected no major errors and 17 minor errors. In total, 121 of the 121 trusts submitted attribution data to the CCMM, and 33 errors were identified in these files.

Table 1.1 shows the frequency of errors by type of error.

Table 1.1: Frequency of errors/breaches in the 2023 Maternity Survey by error type

Type of error	Frequency
Major errors	0
Minor errors	17
Attribution errors	33

Major Errors

Errors are classified as 'major' if they require the Trust to re-draw their sample, add patients, or replace patients. If major errors are not corrected, they can invalidate a Trust's participation in the survey, preventing the Trust's data from being used by the Care Quality Commission (CQC) for regulatory and assessment activities.

No major errors were identified in 2023.

Minor Errors

Errors are 'minor' if the Trust's sample is comprised of eligible patients and if data can be corrected without the need for the sample to be redrawn. In total, 17 minor errors were identified during the sample checking process by the CCMM.

Table 1.2 below shows the types of minor errors found in the 2023 samples and the frequency in which these occurred. The section below provides a description of each type of minor error and the occurrence in 2023.

Table 1.2: Frequency of minor errors in the 2023 Maternity survey by error type

Type of minor error	Frequency
Actual delivery place coded incorrectly	5
Number of cases	3
Updated patient addresses	2
Gender data incorrect	1
Booster sample	2
SMS links	4

Actual Delivery Place coded incorrectly

Actual Delivery Place (ADP) denotes the type of location where a woman gave birth, such as at a domestic address (for home births), or at one of the four general types of delivery ward (e.g., a midwife-led ward). In the sample file, ADP should be coded according to the specifications in the NHS Data Dictionary.

The sample upload portal automatically flagged samples where an ADP code was missing for any mother, and samples with any '5' codes (private hospital) or '6' codes (other hospital or institution) present, which would suggest that these mothers are ineligible.

The CCMM also checked the proportions of each code in the 2023 sample against that of 2022, raising queries with a Trust/contractor if considerable differences were noted for any of the codes. Five trusts confirmed that they had used certain ADP codes incorrectly – each Trust was asked to supply the correct codes to their contractor.

Number of cases

Trusts were asked to submit a sample declaration form prior to submitting a sample. It takes the form of a checklist and is used for audit purposes to ensure that the sample conforms to the instructions.

Three trusts submitted samples with more cases than were recorded in their sample declaration form. One Trust submitted a sample with 25 more cases, a second Trust submitted a sample with 119 more

cases and another Trust submitted with 191 more cases than were recorded on their sample declaration form. When queried, both trusts confirmed the correct number was the initial number on the sample declaration form, they amended their samples and resubmitted the data.

Updated patient addresses

Two trusts re-submitted their samples following a DBS check, due to changes to patient addresses.

Gender data incorrect

One Trust was asked to re-submit their sample as 907 cases were missing a gender category. The Trust was able to provide revised gender codes for some of the missing/not stated cases reducing the proportion of missing/not stated cases.

Booster sample

In 2023, a new Booster Sample variable was added to differentiate between the core, census sample of February births (and January, for smaller trusts who sample back to the previous month) which were coded as "1" and the booster sample of births from ethnic minority service users who gave birth in January and March, which were coded as "2".

One Trust coded their boosted sample as "3". When queried, the Trust confirmed these should have been coded as "2". They amended this and re-submitted their sample.

One Trust submitted a sample with 95 fewer cases than recorded in their sample declaration form. This was a result of the Trust not including all the boosted cases in their sample. The Trust decided to re-submit their sample to include these additional cases.

SMS links

Not all contractors run the online survey themselves. In 2023, CCMM hosted the survey for one contractor (Patient Perspective), and for one in-house Trust (South Tyneside and Sunderland NHS Foundation Trust).

The trusts whose surveys are hosted and run by CCMM, are provided with a sample construction file which will generate passwords and SMS links. For the trusts whose survey was hosted by CCMM, two submitted SMS links with incorrect PRN codes. The trust re-submitted the sample with corrected SMS links.

Two trusts submitted their samples with duplicated passwords. The trusts re-submitted their samples with the passwords changed to be unique for each case.

For trusts who host the surveys themselves, their SMS links and passwords are submitted with the sample, reviewed, and approved before the survey goes into field.

Delay in submission

While technically not a sampling error, it is important to document any delayed submissions of sample as part of the review process. All trusts were asked to submit their sample data to CCMM by 23rd June 2023, ahead of fieldwork start on 30th June, to ensure they could complete fieldwork by 21 August. One trust submitted their sample on 28th June which resulted in a slightly shorter fieldwork period. To mitigate any potential impact on response the trust brought the dates for mailing 3 and 4 forward by a week.

Historical Errors

When checking samples, the CCMM compared submitted sample data for 2023 against the 2022 sample data for each trust. Having this comparison is useful to show what is 'normal' for the trust, assuming no major changes have taken place in the interim that could affect the trust's maternity population (such as a merger). Occasionally, discrepancies will be noted, which suggest a historical error has been made (which was not able to be picked up at the time).

As in previous years of the Maternity Survey, if these are subsequently classified as major errors, historical comparisons between the current year and previous year(s) may not be possible. The historical data may also be excluded from all other uses including national statistics and CQC's monitoring tool.

Two historical errors were identified during the sample checking in 2023, both relating to coding for the variable 'actual delivery place' in 2022. This variable should record the type of ward an individual delivered in, not the type of professional who was leading the delivery.

For one Trust, in 2022, the majority of the actual deliver places were coded as 'In NHS hospital - Consultant / General Medical Practitioner / Midwife'. In 2023, most births were codes as 'In NHS hospital – consultant ward'. The Trust confirmed that the consultant ward option was correct, and that the combination option should not have been selected previously.

For another Trust, the proportion of cases coded in 2023 changed substantially. The number of 'In NHS hospital – consultant ward' fell in 2023 compared with 2022. In addition, in 2023, those coded as 'In NHS hospital – Consultant/General medical practitioner/Midwife combination ward' increased substantially compared with 2022. The Trust confirmed that the shift in 2023 was the result of an error in the 2022 submission.

The CCMM would not classify these as major errors given that this variable is not part of analysis so historical comparisons between 2023 and 2022 are still possible.

Attribution Data Errors

In addition to submitting a sample file (via a contractor, if one was used), trusts were asked to submit a separate attribution file directly to the CCMM. This allowed the CCMM to determine whether each service user received their antenatal and/or postnatal care from the Trust, and therefore whether their responses to the antenatal and postnatal sections of the questionnaire could be attributed to the Trust. Submission of this data was not a mandatory requirement of the survey, but antenatal and postnatal benchmark reports can only be produced for trusts who submit usable attribution data.

The CCMM merges the sample and attribution files during data analysis. The records in the two files must match exactly so the CCMM can be sure the antenatal and postnatal information is being matched to the correct patients. Therefore, trusts were asked to use the latest, approved version of their sample data when creating their attribution file, contacting their contractor to ensure this if needed. Using the latest version of the sample data also avoided the CCMM needing to query erroneous changes that were flagged in the attribution file when it was compared against the final sample data.

For the 2021 Maternity Survey the sample upload portal included an automated check to flag attribution file submissions where the number of cases or individual patient record numbers differed compared to the approved sample file. However, these automated checks caused several difficulties for trusts when uploading their data which lead to a frustrating experience. To address this in 2022, the automated checks were removed from the portal, and instead checks were made by the CCMM team after attribution file submissions were made. However, due to a small number of data breaches in 2022, the decision was taken to re-introduce one automated check in 2023, to ensure that all columns and tabs related to postcode data were removed. Thanks to this change, there were no data breaches in the 2023 Maternity Survey.

In total, 121 trusts (100%) submitted an attribution data file in 2023. Table 1.3 below shows the variables that were affected by errors in the 2023 attribution data files. More detail about each of the errors is provided below.

Table 1.3: Attribution variables affected by errors in the 2023 Maternity Survey

Variable affected by errors	Frequency
Declaration form errors	19
Antenatal check-up variable only	4
Postnatal care in the community variable only	5
Missing / extra PRNs	7
Incorrect PRN format	1
Historical errors	2

Missing Values	2

Declaration form errors

The declaration form consisted of 15 checks, which trusts needed to complete before submitting the attribution data. Ensuring these checks were carried out helps CCMM to establish whether the trust followed the set guidance for collating attribution data.

There were seven trusts that did not complete one or more checks on the declaration form, which required amendments and subsequent resubmission. Of these, six trusts did not complete checks 2 and/or 13, which refer to a method of compiling data using patients' postcodes. These trusts felt checks 2 and 13 were not relevant to them, as they used a different method. Two trusts also missed checks 14 and 15 which refer to preparing the attribution file for uploading to the portal.

Once queried, each of the above trusts amended the declaration forms and resubmitted.

Antenatal check-up variable

The CCMM checked the distribution of the antenatal check-up variable in the 2023 file against that of 2022 (where available), querying it with a Trust if differences of 10% or more were noted.

The attribution submissions for eleven trusts were queried for this reason.

Four trusts when queried found mistakes in their antenatal data which were subsequently corrected, and the data re-submitted.

For six trusts, there were well-founded reasons for the change in data, for example Trust mergers, changes to provision of care, and better data quality.

Postnatal care in the community variable

The CCMM also checked the distributions for the postnatal care in the community variable in the 2023 file against that of 2022 (where available), querying with a Trust if differences of 10% or more were noted.

The attribution submissions for nine trusts were queried for this reason. Five trusts, when queried, found mistakes in their postnatal data which were subsequently corrected, and the data re-submitted. The remaining four confirmed that the initial dataset was correct.

Missing / extra Patient Record Numbers

Six Trust's submissions were queried due to missing Patient Record Numbers (PRNs). All trusts revised their attribution data and resubmitted. The reasons for missed PRNs were varied, but mostly due to trusts removing this information due to safeguarding concerns, following a DBS check.

One Trust was found to have included 17 duplicated PRNs, which were subsequently deleted and data reuploaded.

Incorrect PRN format

There is a specific way of formatting the PRNs that must remain consistent across all sample documents. One Trust did not format their PRNs in line with instructions. The Trust corrected the errors and re-submitted their attribution data.

Missing values

Whilst missing values do not always signify an error, CCMM queried all instances of missing values to ensure correct processes have been followed. Missing values are allowed if a patient was removed from the approved sample after the start of fieldwork. This is to ensure that the list of PRNs matches the approved sample, but to allow for the fact that the patient would not have been sent a questionnaire. Two Trust's submission were queried due to missing antenatal values for patients, which were subsequently corrected, and the data re-submitted.

Historical attribution errors

When checking samples, the CCMM compared submitted attribution data for 2023 against the 2022 sample data for each Trust[2]. Having this comparison is useful to show what is 'normal' for the Trust, assuming no major changes have taken place in the interim that could affect the Trust's maternity population (such as a merger). Occasionally, discrepancies will be noted, which suggest a historical error has been made (which was not able to be picked up at the time).

Two historical errors[3] were identified during this year's attribution data checking.

The first error, identified for one Trust, was a 78% increase in antenatal data in 2023 compared to 2022. CCMM queried the increase with the trust. The trust reviewed the provision of data for both 2022 and 2023 and identified that the error lay with the 2022 data in that the figures for 'antenatal care not provided by the trust' and 'antenatal provided by the trust' had been switched by mistake. As CCMM hold the historical data for the trust it is possible to correct the error for future reports without compromising trend data.

The second error, identified in a second trust was a 67% increase in postnatal data provided in 2023. The trust reviewed the 2022 attribution data and found that while the data was correct for the records they provided, it had under-reported the number of cases that received postnatal care from the trust. This type of historic error cannot be corrected by CCMM (or the trust itself). CCMM analysed the 2022 postnatal data from this trust to look for any skew in sample, but the demographic spread was largely in line with previous years. After further discussions, CQC decided to keep the 2022 data in the historical records, but to include a caveat in the affected trust's report about the quality of the 2022 attribution data. The basis for this decision was the safeguarding of trend data, and the benefits of it to the trust itself.

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[2] Where data are available. For trusts that have merged since the last survey, this comparison was not carried out.

[3] Note that the CCMM queried both attribution datasets in 2022 but were reassured that the figures were correct for that year.

For more information

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