

Northern Ireland House Condition Survey

Quality Assurance

High quality data are vital to the delivery of successful outcomes from the House Condition Survey (HCS). Quality assurance (QA) checks are carried out by the producers/suppliers of the administrative data which is used to select the sample for the HCS. QA checks are also carried out at various stages of the survey by the NIHE Research Unit, Building Research Establishment (BRE) and by HCS supervisors. The key stages of quality assurance are set out below.

1. QA of Administrative Data

The sample for the HCS is drawn from the Pointer database which is the address database for Northern Ireland, and contains the common standard address for every property in Northern Ireland. The database is maintained by Land and Property Services (LPS) with input from local councils and Royal Mail. The Pointer database is provided to the Northern Ireland Statistics and Research Agency (NISRA) for statistical purposes. NISRA uses Pointer as the sampling frame for the selection of addresses on Government social surveys in Northern Ireland.

Background to the Pointer database

The data in the Pointer database is created by the 11 Councils in Northern Ireland. Nine of the Councils send the data directly to Pointer electronically via web service. The remaining two Councils (Belfast and Lisburn & Castlereagh) send addresses to the Pointer team who manually create them on the database. If the LPS valuation team identify a property prior to notification from a Council it is sent to the Council for verification. Properties created in Pointer are sent to Royal Mail on a nightly basis to be allocated a postcode.

LPS QA arrangements

The Pointer database is the most accurate spatially referenced address dataset for Northern Ireland. The main limitation to the data is that the provision of data and the verification of legacy data is restricted by the available staff resources within Councils. A number of procedures are in place to ensure the quality of the data on the Pointer database.

- The Pointer team run monthly queries and create internal reports to review outstanding work packages.
- Any new records being created conform to a list of rules (legacy data may not fully conform with the rules).
 - Every *record* must have the following details: UPRN, unique building ID, USRN, primary thoroughfare, townland, ward, local council, county, X co-ordinate, Y co-ordinate, building status, address status,

a valid combination of building status and address status, a town or locality.

- Every *address* will have either a building name or a building number
 - Every *multi-occupancy record* will have a sub building name
 - Every *addressable record* will have a postcode, post town and UDPRN.
 - All records will fall within the following: the NI polygon, the county area they are assigned to, the local council area they are assigned to, the ward they are assigned to, the townland area they are assigned to.
 - All records with permanent co-ordinates will fall within a building polygon.
 - Each month 11 primary thoroughfares are validated against the real world.
- Although there are no audits carried out on the data NISRA review and carry out QA on the data when they receive it.

NISRA QA arrangements

NISRA works closely with LPS to make quality improvements to the Pointer Database to ensure that it remains fit for purpose. Improvements to date include:

- Ensuring all Built and Approved properties have complete postcode and address information
- Ensuring that the correct classification is recorded for properties
- Ensuring that all fields are correctly populated

When selecting the HCS sample NISRA follows a number of processes to ensure a robust sample is provided to NIHE.

- Addresses with the non-domestic classification are removed from the sampling frame
- Domestic addresses which are not classified as Built and Approved are removed from the sampling frame
- Domestic addresses with incomplete address information are removed from the sampling frame
- Domestic addresses with a capital value of less than £25k are removed from the sampling frame.

NIHE QA arrangements

Once NIHE receives the sample from NISRA, the statistics team reviews the sample and follows up any issues with NISRA.

- Total numbers in sample and totals in each council area are checked
- All cases must have a complete address
- All cases must have a property ID number
- All cases must have a capital value
- All cases must have a dwelling description

2. Training for the HCS

NIHE uses highly experienced surveyors who have undergone extensive training in the systems and processes that they need to understand in order to undertake high quality surveys.

- All surveyors complete a 6 day training course on the fundamental aspects of the HCS methodology (survey form, conventions etc.) when they begin working as a HCS surveyor.
- Before a new HCS begins all surveyors attend a 2 day training course which is carried out by NIHE, BRE, and HCS supervisors. The 2 day training event covers:
 - Changes to the survey form since the last survey
 - Changes to the tablet since the last survey
 - The tablet system and software
 - Housing Health and Safety Rating System (HHSRS)
 - Updates on recording energy information
 - Completion of 2 sample houses
 - De-briefing sessions
 - Briefing on the social survey including interview techniques, and completing the household grid and benefits section
 - National Statistics assessment update
 - Safeguarding issues
 - Confidentiality and security issues
 - Survey administration
- A further training session is held 1 week later. Surveyors provide feedback on the tablet/software to enable any problems to be rectified before the survey begins. Surveyors also have the opportunity to ask questions and clarify any issues with supervisors and with the technical experts from BRE.

3. Fieldwork (Tablet Validation)

Surveyors collect data using a tablet which allows them to enter data directly into a database. As well as saving time the tablet allows surveyors to validate their forms in the field. BRE developed a validation system within the software which:

- Highlights missing data
- Checks that data are within range
- Checks values against other responses on the survey form to highlight inconsistencies and pick up errors

Surveyors complete further validation checks once they upload completed forms to the BRE website

4. Supervision

Each surveyor is allocated a highly experienced supervisor who is responsible for providing guidance and support, and for checking and approving each survey form before it is sent to BRE.

- During the first few weeks of fieldwork a supervisor will accompany each surveyor for half a day while they complete surveys.
- Throughout the fieldwork period surveyors can contact their supervisors at any point if they need guidance. This can include giving guidance on more complex building layouts, views etc.
- Supervisors carry out quality assurance checks on every survey form once they have been uploaded, aided by the error/warning system built into the software by BRE. Supervisors discuss any quality issues with surveyors and may send forms back to surveyors for amendments to be made.
- Supervisors carry out back checks on completed surveys (5% per surveyor, randomly selected by NIHE). This involves visiting addresses where a survey was completed and carrying out a number of checks for consistency with the survey form.

5. NIHE Fieldwork Support & Quality Assurance Checks

Throughout the survey Research Unit Staff are available to provide any guidance or assistance needed by surveyors such as:

- finding addresses
- carrying out consistency checks on resample addresses
- giving guidance on more complex family/household structures when completing the household grid
- giving guidance on completing the social survey questions
- helping to resolve any tablet/website issues
- providing updates on technical guidance notes as they become available
- carrying out a 5% telephone back check survey for each surveyor. This involves contacting householders who took part in the survey to find out about their experience of participating in the survey, and to confirm some of the information recorded by the surveyor.

6. BRE Acceptance Checks

Once survey forms have been checked by a supervisor the data are logged on the BRE server ready for processing:

- A BRE analyst reviews the surveys uploaded to ensure that there are no residual error flags on any of the forms. This process may involve communication with the supervisor or surveyor.
- Once all forms are submitted, the data is translated from the collection database into the format required by NIHE for analysis. This involves translating the data into SPSS files with a pre-defined structure. At this

point, each variable is checked to ensure that the correct number of cases exist and that the values are as expected.

- The data are then submitted to NIHE.

7. NIHE Quality Assurance checks of data

Once NIHE receives the dataset a number of checks and processes are carried out to ensure the quality of the data:

- Validation and imputation procedures are completed on key items including: tenure, year of construction, dwelling type and dwelling location, and of household characteristics including age of HRP and employment status.
- A weighting and grossing process is carried out on the data to reflect the separate stages of the sampling process and the survey process itself.
- Work is completed for derived variables such as household type and the bedroom standard.
- There is comprehensive validation carried out on the income variable.

8. Data Analysis

The NIHE has guidelines in place to ensure quality during the analysis stage of the NIHCS.

- NIHE consults with users to ensure that any analysis will meet their requirements.
- As NIHCS data undergoes a weighting and grossing process, the unweighted totals and cell sizes are checked before analysis is carried out (to ensure that data produced is meaningful and robust).
- A number of factors may influence data analysis and these are considered before analysis takes place eg. sample size, size of response, missing data, sensitive topics.
- Statistical disclosure control issues are identified (to safeguard the confidentiality of respondents).

9. Publication of Report

The statistics team in NIHE are responsible for writing the NIHCS report. A number of procedures are followed to ensure the quality of data and information produced.

- NIHE consults with users to identify how to present findings in a way that best meets their requirements.
- All tables are fully labelled and cross referenced with the commentary
- Any graphics used have a clear visual message.
- Data produced is meaningful and robust, and safeguards the confidentiality of respondents. Measures include recoding variables so there are a smaller number of groups, and where an unweighted number is small, replacing the number in the cell with a *.

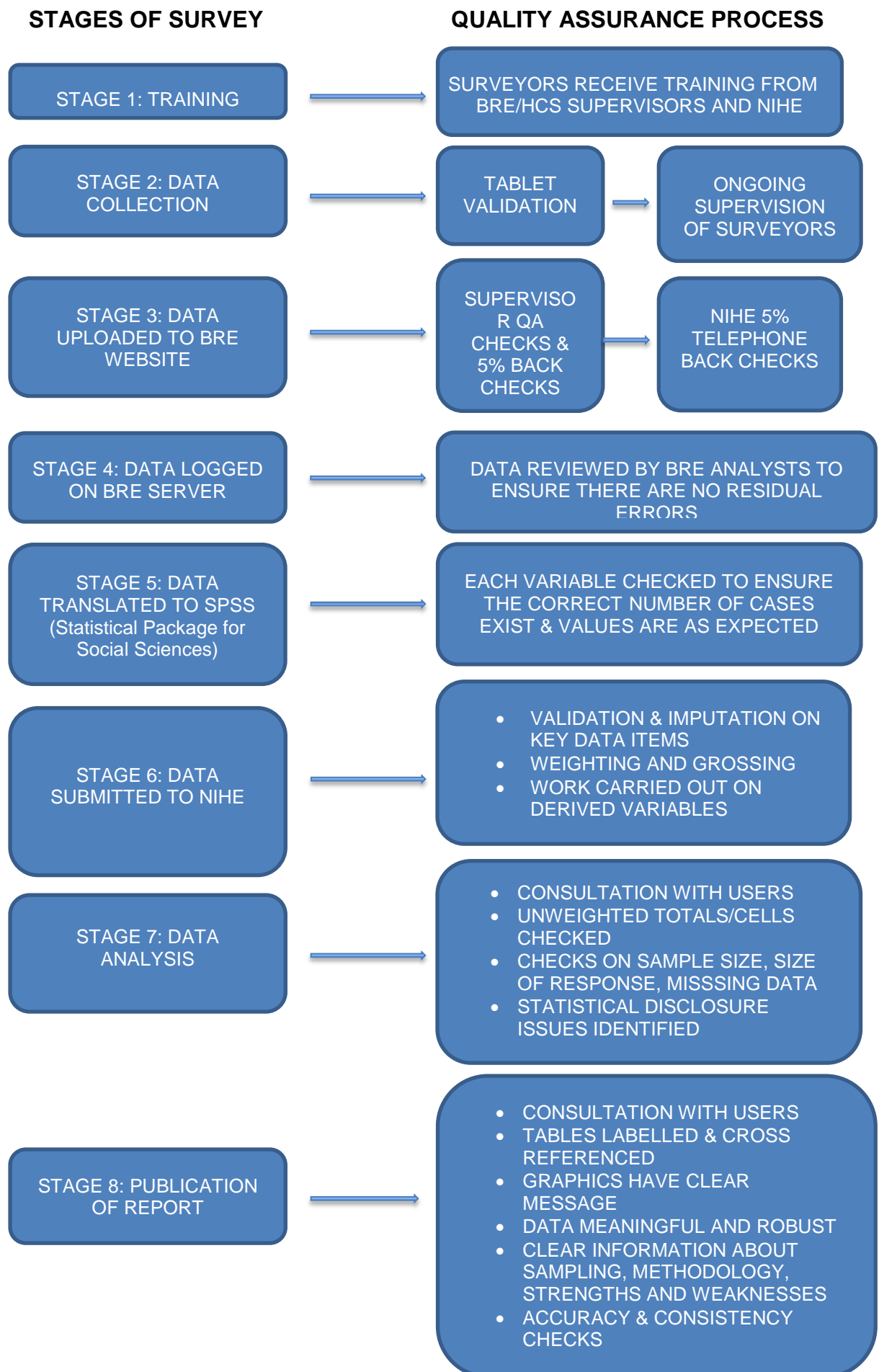
- It is made clear that the NIHE is a sample survey and therefore statistics are estimates.
- The strengths and limitations of the data are explained.
- Background, methodology and technical information is included in the report to ensure readers have a full understanding of the processes.

Once the report has been written:

- Data and commentary are checked for accuracy.
- Consistency checks are carried out between the commentary and appendix tables.
- The report is reviewed at various stages of production by members of the statistics team. The aim of this is to identify errors, inconsistencies etc.
- Consultation with the visual communications team in NIHE regarding the report layout and presentation.
- The report is reviewed by the NIHCS Steering Group to identify any errors, inconsistencies or aspects which need clarification. The Steering Group also identifies potential improvements to the content and presentation of the publication.

Appendix 1 shows the various stages of the NIHCS, and the QA processes that take place at each stage.

Appendix 1: QUALITY ASSURANCE (QA) PROCESSES OF THE NIHCS



10. Additional Quality Assurance Measures

NIHE is committed to improving the quality of the NIHCS processes and as a result, the quality of the published statistics. Comprehensive records are kept for each survey and these are reviewed before a new survey begins. The lessons learned from each survey are used to implement changes which will improve the overall quality of the NIHCS. The records kept by the statistics team include:

- **Actions for the next survey**

The statistics team keeps an action list which includes any problems which arose during the survey process and how they were resolved, suggestions from the statistics team, surveyors, supervisors etc. and any potential ways to improve the survey in the future.

- **Feedback surveys**

At the end of each survey, the NIHCS surveyors and supervisors are asked to complete feedback forms. Surveyors are asked to give their opinions about all aspects of working on the NIHCS, and about the support and guidance they received from their supervisor. This provides an opportunity for surveyors to outline any difficulties they encountered so the statistics team can take steps to ensure the same problems don't arise in the next survey. The feedback forms also help to identify any gaps in training, which if rectified would help to improve the quality of data collected. The feedback is compiled into a report, which along with the action list is reviewed and taken into consideration during the planning stage of the next survey.

Supervisors complete a survey relating to each of their surveyors. This is used to identify gaps in training and plan the training needs for the next survey.

- **Telephone back checks**

The statistics team completes telephone back checks for every surveyor (checks on 5% of completed surveys). Telephone interviews provide a reassurance that surveys have been completed, and gather information on key aspects of the survey. Two key variables from the survey are confirmed during the telephone interview. These back checks help to ensure the quality of the current survey, and can also identify surveyor training needs which can be dealt with in more detail for the next survey.