Data Services for Commissioners

NHS
England

Data Quality

Guidance for providers and commissioners

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Description	This resource provides technical support for commissioners and their commissioning support organisations, healthcare providers and Data Services for Commissioners Regional Offices (DSCROs) to help identify data quality issues and potential solutions for improvement.
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Document Status

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Data Quality
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This information can be made available in formats, such as easy read or large print, and may be available in alternative languages, upon request. Please contact the DSfC team on england.dsfc@nhs.net.

Contents

1 What Is Data Quality?

Data are of high quality "if they are fit for their intended uses in operations, decision making and planning."[1]

It is important because:

- Acceptable data quality is crucial to operational and transactional processes and to the reliability of business analytics / business intelligence reporting,
- High quality information leads to improved decision making which in turn results in better patient care, wellbeing and safety. There are potentially serious consequences if information is not correct, secure and up to date,
- Management information produced from patient data is essential for the efficient running of the trust and to maximise utilisation of resources for the benefit of patients and staff,
- Poor data quality puts organisations at significant risk of: damaging stakeholder trust; weakening frontline service delivery; incurring financial loss; and poor value for money [2],

As well as the above, and the potential impact that poor data can have on finances, data controllers are required under the Data Protection Act 1998, principle 4 to ensure that 'data are kept accurate and up-to-date'.

In order to comply with this provision, organisations should:

- take reasonable steps to ensure the accuracy of any personal data you obtain;
- ensure that the source of any personal data is clear;
- carefully consider any challenges to the accuracy of information; and
- consider whether it is necessary to update the information

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[1] J.M.Juran

[2] Merseycare NHS Trust

2 How Can We Measure Data Quality?

The HSCIC has defined the following data quality characteristics for use in secondary datasets. These are shown in table 1.

Table 1: Data Quality Characteristics

Characteristic	Description	Calculation
Coverage	Coverage is the degree to which data have been received from all expected data suppliers.	No. of data suppliers that submitted data/ No. of data suppliers expected to submit data
Completeness	Completeness is the degree to which data items include all expected values.	No. of data items holding a value/ No. of data items expected to hold a value
Validity	Validity is the degree to which data collected satisfy the set of standards and business rules that govern the permitted, excluding default, values and formats for each individual field in a dataset.	No. of complete data items holding a valid (excl. default) value/ No. of complete data items
Default	Default is the degree to which the default values specified in applicable standards and business rules have been used in the data collected.	No. of complete data items holding a default value/ No. of complete data items

Characteristic	Description	Calculation
Integrity	Integrity is the degree to which data satisfy the set of business rules that govern the relationships between fields, records and data assets. Examples of integrity checks are: 1. "IF [Ward_Type]='Maternity' AND [Gender]='Male' THEN ERROR=1", i.e. a male patient would not be treated on a maternity ward. 2. Records in an appointment table have related records in a referral table, i.e. it is not permissible to have an appointment with a service without first having been referred to that service. 3. NHS Number is used as a common identifier to compare the date of birth of a patient in one dataset with the data of birth for the same patient in a different dataset, i.e. they should be the same.	No. of times the business rule is true/ No. of times the business rule is applied The business rules must allow performance against them to be measured and reported. For example: "97% of male patients were recorded as being treated on wards suitable for males" "88% of appointments had a corresponding referral" "92% of patients with the same NHS Number in datasets X, Y and Z also had the same date of birth"
Timeliness	Timeliness reports the time between data recording and delivery of the product that uses the data. It must be reported at three points during data processing: 1. Time from recording of the data to submission to, or extraction of the data by, the HSCIC (supply stage). 2. Time from submission or extraction to being available for use (processing stage). 3. Time from being available for use to actual use (product delivery stage).	1. Date submitted – Reporting period end date 2. Processing completed date – Date submitted 3. Product delivery date – Processing completed date

3 Opportunities for Improvement

There are various options for assuring, or improving, data quality that can be considered for implementation at a local level. For all of these options commissioners should work closely with providers and other stakeholders in order to improve data quality.

Table 4 shows a list of some of the key actions that providers could take.

Table 4: Key actions to improve data quality

Opportunity	Further details
Consistent and comprehensive use of the NHS Number	It is a legal requirement that the NHS number is used as the primary identifier in all clinical correspondence (paper or electronic). The provider must be able to use the NHS Number to identify all activity relating to a service user.
Quality assurance of data pre-submission	To ensure the data has integrity and can be used in confidence to inform decision making and service development.
Sign off data pre-submission	To ensure that data are a true and accurate reflection of the organisation's position.
Effective tracing of patients on the Personal Demographics Service (PDS) pre-submission	Current practices relating to the capture of demographic information from patients should be reviewed and improved to support efficient and accurate data collection of these key elements of data.
Data Quality Improvement Plans	Data Quality Improvement Plans must set out milestones to be met and may set out financial sanctions for failing to meet those milestones.
Reporting of data quality	Consider the use of internal and external data quality reports for monitoring and improving data quality. Such as the SUS data quality dashboards and SUS KPI reports.
Routine audit and management of records	A multi-professional audit of clinical records across all specialties could be undertaken. A documented procedure and regular audit cycle for accuracy checks on service user data could be in place. An audit of corporate records could be undertaken Consider improvements for effective management of corporate records.
Audit clinical coding	Audit of clinical coding, based on national standards, should be undertaken by a Clinical Classifications Service (CCS) approved clinical coding auditor every 12 months.

Opportunity	Further details
Improve relationships and ways of working between clinical coders and clinicians	Clinical/care staff are involved in validating information derived from the recording of clinical/care activity.
Comprehensive clinical coding training	Training programs for clinical coding staff should be comprehensive and conform to national clinical coding standards.
Incorporate national data definitions, standards, values and validation programs. Local documentation should be updated, as national standards develop	National data definitions, standards, values and validation programs could be incorporated within key systems and local documentation updated as standards develop. Regular update reviews with system suppliers to understand progress in implementing ISNs Change control over provider systems to manage updates and changes.
Use local and national benchmarking to identify data quality issues and analyse trends	Local and national benchmarking could be used to identify data quality issues and analyse trends in information over time, ensuring that large changes are investigated and explained.
Consider the use of local CQUINs	Consider a scheme with a small number of indicators linked to high impact changes, as opposed to a large number of indicators covering a wide range of conditions.

4 Managing Exceptions – Demographics

The Personal Demographics Service (PDS) is the national electronic database of NHS patient demographic details. As such, the PDS enables a patient to be readily identified by healthcare staff.
However, as some complex cases may not be easily traced within PDS, the below has been created to help show potential solutions to various different issues. These issues have been grouped into similar themes, with the potential solution being highlighted where it is relevant for at least one of the specific issues within it. Furthermore, we have also highlighted where the solution exists in current national guidance.

The different themes and associated solutions can be seen in the table below.

Themes	Examples	Use of default postcode	Retrace at a later date (E.g. on discharge)	Confirm with GP practice	Confirm with referral source	Confirm with patient/ carer/ other	Liaise with CCG/ Commissioner	Confirm historic details	Still attempt trace, where patient is not resident in England/ Wales	Still attempt trace where no NHS number	Raise confusions/ duplicates with the PDS National Back Office	Where a new NHS number has been assigned, ensure local records are appropriately updated
Patient does not have and should not have an NHS Number	e.g. Overseas visitor, only registered in Scotland/ Northern Ireland and private patients	✓	✓	✓	✓	✓			✓	✓		✓
Patient will have an NHS Number, but PDS might be obscured/out of sync	e.g. Armed forces, prisoners, long term mental health patients and relatives at the same/close address	✓	✓	✓	✓	✓	✓	✓		✓		✓
Patient has an NHS Number, but access is denied	e.g. Sensitive records (HIV, fertility), identity change, gender re-assignment and adoption		✓	✓	✓	✓	✓					✓

Themes	Examples	Use of default postcode	Retrace at a later date (E.g. on discharge)	Confirm with GP practice	Confirm with referral source	Confirm with patient/ carer/ other	Liaise with CCG/ Commissioner	Confirm historic details	Still attempt trace, where patient is not resident in England/ Wales	Still attempt trace where no NHS number	Raise confusions/ duplicates with the PDS National Back Office	Where a new NHS number has been assigned, ensure local records are appropriately updated
Patient will/should have an NHS Number, but we cannot find it (exists, but unable to match)	e.g. Homeless, Gypsy Roma Traveller and patient unable/ unwilling to supply demographics	✓	✓	✓	✓	✓	✓	✓		✓		
Data quality issues	e.g. multiple NHS numbers, timeliness of data, deceased patient incorrectly identified and variability in spelling of name										✓	✓