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# Managing information for costing

## Costing extension (formerly IR2)

Version 1, March 2022

# Contents

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Purpose: To assess, manage and improve the availability and quality of the information specified in Standard IR1: Collecting information for costing.

## Objectives

1. To explain how to assess the quality of information used in costing.

2. To explain how to support your organisation improve the quality of the data it uses for costing.

3. To explain how to manage data quality issues in information used for costing in the short term.

4. To explain what to do when information is not available for costing.

## Scope

5. All information required for the costing process.

## Overview

6. As a costing practitioner, you should understand the quality of information in your costing process. You are not solely responsible for the quality and coverage of information in your organisation; however, you are ideally placed to raise data quality issues, in order that the costing outputs are appropriate.

7. This standard provides guidance on how you can understand and mitigate the impact of poor-quality information when producing cost information. The mitigations are short-term measures that allow you to produce reasonably accurate cost information that is in line with the costing principles while your

organisation continues to work on the quality and coverage of its information as a whole.

8. This standard does not provide guidance on complying with information governance, including confidentiality, data protection and data security. You should consult your organisation on information governance policies and procedures.

9. Most of the required information should be held in your organisation's information systems, but its availability will vary due to different information management practices and your IT server capacity.

10. When implementing PLICS you should work with your informatics colleagues and relevant services to assess data availability for costing. Following your first submission of data you will complete the costing assessment tool (CAT) to show the position at collection, and therefore progress over the past year. The CAT information can then be used to start the next cycle of discussion with informatics colleagues, to enable improvement of existing data structures and quality, and agree a plan for the next year's inclusions.

11. The availability of information for costing in your organisation can be grouped as:

    - **available to provide data for national data collections** – for patient-level feeds where national data collections capture all or some of the data. The information relating to these national data collections is given in Appendix 1 of the Integrated Information Requirements and Costing Processes standard document: for example, the Admitted Patient Care Commissioning Data Set (CDS).
    - **available in department-specific local systems** – you should obtain the required data from your informatics department or directly from the department for these feeds, eg the medicines dispensed feed from the pharmacy department.
    - **unavailable at patient level** – depending on your organisation's patient-level data collection arrangements, data may not be available. You should highlight the local risk to accurate costing for these service areas in your assurance process (see costing learning extension: Assurance of cost data and National Cost Collection guidance volume 1 section 3.3).

12. Record the source of data used to populate the patient-level feeds log in integrated costing assurance log (ICAL) worksheet 1: Patient-level activity feeds.

13. Where a patient-facing service is outsourced, you need to obtain patient-level information from the supplier. If this is not available, inform the costing steering group (see learning extension: Assurance of cost data) of the situation, agree a local plan for obtaining the information, and how to allocate costs in the short term.

14. Agree with informatics colleagues:

    - the format of information
    - the frequency of patient-level activity feeds
    - standard checks on outputs from the patient administration system (or data warehouse) into the costing system
    - the provision of evidence for the reconciliation of the data used for the trust board reports of patient activity, to the data input to the costing system
    - any specific local data quality checks for costing.

15. You should understand what data quality checks are undertaken on national submissions of data. For example, review the content of the data quality maturity index (DQMI) which gives a score by dataset for each provider trust.[1]

16. Access locally held information for allocating overheads, such as information on actual whole time equivalent (WTE) for allocating HR costs.

17. Work with your informatics colleagues and relevant services to streamline the extraction and processing of the information required for costing. Where possible, automate the data loading process to save time but ensure appropriate reconciliations of the automated data load are still performed.

[1] Please note: this index is a starting point for data quality review – you should check the quality within your costing data locally, rather than just relying on the DQMI.

# Approach

## Ensuring quality information in costing

18. Costing is a continuous process for local use and this data is then used to facilitate the National Cost Collection. It is not a one-off exercise solely for the annual national collection.

19. You should bring data into the costing system at regular intervals, to allow sufficient time to review data quality and process the system before the output data is needed.

20. By running the PLICS process quarterly as a minimum you can ensure all your patient activity feeds, cost and calculation processes are operating satisfactorily. We recommend the superior methods SCM82 Loading patient event data to costing system monthly and SCM83 Loading finance data from the GL monthly and running the calculation process monthly to highlight data quality and financial issues as quickly as possible.

21. A first cut of the patient-level activity feeds (that is, those that are ready for the first submission to the national data collections) will generally be available from the patient administration system (PAS) on an agreed day each month. For example, the acute CDS activity may be by the fifth day of each month (referred to as Day 5 in Figure IR2.1).

22. This timeframe may vary by sector. For example, your acute CDS activity may be available on day 5 and your community CSDS activity on day 7. You should confirm the dates with your informatics department and record them in ICAL worksheet 4: Timing of activity feeds.

23. Some organisations will also have updates to the first set of data – for example, by the 20th day of each month (referred to as Day 20 in Figure IR2.1) late data is added or an internal data quality review will have taken place.[2] You should assess whether the data for costing in any update is materially changed; if it is, include the update in the costing process.

[2] Some organisations will refer to this as ‘second’ or ‘final cut’.

24. Depending on the costing software and by agreement with your informatics team, you can load these patient-level feeds into your costing system:

    - the following month or
    - to a locally agreed in-month timetable.

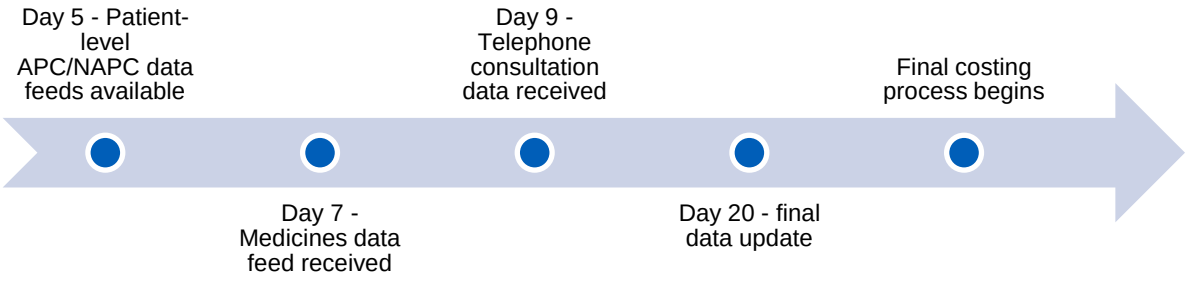
25. You should record how much data is loaded each time, so you can reconcile activity inputs and outputs. ICAL worksheet 5: Activity load record gives the structure for doing this.

26. Any loaded update should add new records, amend existing records and remove erroneous records from the PLICS, to reflect changes to the PAS data. The method chosen can be documented in your ICAL worksheet 5: Activity load record.

27. All other patient-level feeds should be submitted to the costing team according to a locally agreed timetable, so the costing process can begin promptly. You may need to be flexible about when some departments provide their patient-level feed – but late submission should be the exception rather than the rule. This should be agreed with the service and informatics departments, and clearly documented to support good governance.

28. You may find it useful to represent agreed dates for the monthly cycle of data receipts in a timeline diagram (see Figure IR2.1 below).

**Figure IR2.1: Example timeline showing when data should be available in the monthly cycle**




Note: In this example, some parts of the costing cycle start on Day 5 and some feeds are updated later.

### Managing information feeds

29. You should consider carefully the period for which data is loaded – in-month or cumulative year-to-date, basing your decision on the approach and frequency of the costing process and your organisation's reporting requirements. Loading data monthly is easier as the number of records is much smaller.

30. The costing system must be configured to recognise whether a load is in-month or year-to-date; otherwise it may duplicate or not load some of the activity.

31. Please note the difference between a refresh and a year-to-date feed. A **year-to-date feed** is an accumulation of in-month reports (unless your informatics team has specified otherwise). A **refresh** is a rerun of queries or reports by the providing department to pick up any late inputs. The refreshed dataset includes all the original data records plus late entries.

32. You need to refresh the data because services will continue to record activity on systems after the official closing dates. Although these entries may be too late for payment purposes or to submit to the national dataset, they provide better information or complete information and still need to be costed. The refreshed information picks up these late entries, which may be material in quantity.

33. Get a refresh of all the patient-level activity from the relevant department/team or your informatics department to an agreed timetable:

    - For local reporting: after a calendar month has been 'frozen' in the national dataset. For example, SUS, MHSDS and CSDS only take data nationally for 2 months after the close of the calendar month.

    - For the annual National Cost Collection – after the informatics department has finished refreshing the annual Hospital Episode Statistics (HES), MHSDS and CSDS datasets (usually in May) refresh all the data feeds for the previous financial year (April to March). This will give the best chance of reconciling the national dataset activity for the National Cost Collection.

34. You need to specify in the costing system whether values in the patient-level feeds can be used for calculations. If inconsistent measures are used across

the records – for example, number of tablets, number of boxes or millilitres dispensed for different records in the medicines dispensed feed's 'quantity' field – the costing system will need to ignore the field in the feed.

35. Refreshes can alter the comparative figures in monthly service-line reports and are a challenge for costing teams. With the help of the relevant services' financial management leads,[3] you need to explain significant changes to users of the service-line reports, highlighting the impact of late inputs to the department providing the patient-level activity feed.

36. If your organisation provides mental health or community services, you need to understand whether your PLICS feed includes special characters for onward linkage by NHS Digital after collection. Your PLICS feed should match the MHSDS or CSDS main datasets as submitted by your organisation to NHS Digital. If special characters are in this submission, they should be included in PLICS. See also Standard IR1: Collecting information for costing.

37. Follow the guidance in Standard CP5: Reconciliation to ensure the costing system is loading everything. Check the number of patient records in the feed against the number of lines loaded into the costing system using two of the reports described in Table CP5.1: Cost, income and activity reconciliation – the patient activity reconciliation report (CP5.2.2) and the core activity reconciliation report (CP5.2.1).

**Information used in the costing system for calculations**

38. If your costing system uses information from a feed to calculate durations – for example, length of stay in minutes, it needs to know which columns to calculate durations.

39. If the durations have already been calculated and included in the feed, your costing system needs to know which column to use. You should also consider the data quality in such a field, to ensure the calculations are based on reasonable data.

[3] This support has a variety of names, including management accounts or finance business partner support.

40. Once you decide the method of calculation, keep a record for each patient-level feed in ICAL worksheet 1: Patient-level activity feeds.

## Supporting your organisation in improving data quality for costing

### Data quality checks for information to be used in costing

41. You need to quality check information that is to be used for the costing process by following a three-step process:

    1. **Review the source data:** identify any deficiencies in the feed, including file format, field format, incomplete data, missing values, incorrect values, insufficient detail, inconsistent values, outliers and duplicates.
    2. **Cleanse the source data:** remedy/fix the identified deficiencies. Take care when cleansing data to follow consistent rules and log your alterations. Create a 'before' and 'after' copy of the data feed. Application of the duration caps is part of this step. Always report data quality issues to the department supplying the source data so they can be addressed for future data inputs and refreshes. Keep data amendments to the minimum, only making them when fully justified and documenting them clearly on ICAL worksheet 7: Activity data cleansing.
    3. **Validate the source data:** you need a process to check that the cleansed and correct data is suitable for loading into the costing system. This may be part of the costing system itself. Check that the cleansing measures have resolved or minimised the data quality issues identified in step 1; if they have not, either repeat step 2 or request higher quality data from the information source.

42. Consider automating the quality check to reduce human errors and varied formats. Automatic validation – either via an ETL (extract, transform and load) function of the costing software or self-built processes – can save time. But take care that the process tolerates differences in input data and if not, that this data is consistent. Without this precaution you risk spending disproportionate time fixing the automation.

43. Over time, your organisation should be able to demonstrate an iterative improvement in data quality for clinical audit and costing assurance purposes. You should request changes to the data feeds via the source department or

informatics team and then review the revised data again for areas to improve. You should set up a formal process to guide these data quality improvement measures and ensure those most useful to the costing process are prioritised. An example of this process is shown in Appendix 1.

44. Record the actions taken to improve data quality in ICAL worksheet 6: Activity data quality checks, and any data cleansing processes established in ICAL worksheet 7: Activity data cleansing.

**Use of data caps**

45. A duration cap rounds outlier values up or down to bring them within accepted parameters in your costing process. These will be locally defined and you should review the feeds to decide where to apply duration caps and build them into the costing system or in the data load into PLICS.

46. You can also apply a cap to reduce outliers, eg an appointment/contact in a non-admitted patient care (NAPC) setting that has not been closed. Doing so removes the distraction of unreasonable unit costs when sharing costing information.

47. For services in the community, be aware that some NAPC contacts in the patient's home will go over midnight. If this happens at the end of a reporting period, you should use the start date as the date of the contact and may choose to cap the contact at the end of the period. (See also Standard CM3: Non-admitted patient care). There is no requirement to create incomplete patient events (as in Standard CM2: Incomplete patient events) for NAPC, as it is currently thought not material.

48. Capped data needs to be reported as part of the data quality check. The caps need to be clinically appropriate and signed off by the relevant service.

49. While caps moderate or even remove outlier values, studying these outliers is informative from a quality assurance point of view (eg review unexpected deviations). You should record the caps used in ICAL worksheet 1: Patient-level activity feeds, and work with your informatics department and the department responsible for the data feed to improve the data quality and reduce the need for duration caps over time.

### Recalled items on patient-level activity feeds

50. Take care with patient-level activity feeds that contain negative values due to products being returned to the department. For example, the medicines dispensed feed (feed 10)[4] can contain both the dispensed and the returned medicines for a patient. These dispensations and returns are not always netted off within the department's database, so both will appear in the feed. If this is the case, you need to net off the quantities and costs to ensure only what is used is costed.

### Unavailable data

51. Information for costing may not be available because:

- it is not collected at an individual patient level
- data is not given to the costing team
- data is not in a usable format for costing
- data is not loaded into the costing system and included in the costing processes
- your organisation may not collect information for auxiliary data feeds, eg if medicines are dispensed by a private pharmacy.

52. Where patient demographic information is not available for governance or confidentiality reasons, costs should still be allocated to 'a' patient, not necessarily 'the' patient, by following the costing process. The costing software may require a proxy patient record and anonymous patient number to provide the base for the costs to be attached to. In this case, the process for managing these records should be recorded in ICAL worksheet 16: Proxy records.

53. Where patient events are not available because no patient event took place, such as with homecare medicines and equipment issued to the patient's home, you may create a proxy record to match the cost to as a superior method. (Alternatively, you would treat this unmatched activity as 'expected' – see Standard CP4: Matching).

[4] For further guidance on ensuring the quality of the medicines dispensed feed, see Standard CM10: Pharmacy and medicines.

### Making data available

54. The flowchart in Appendix 2 helps you identify why patient-level activity information may not be available and the action you need to take to make it available. If any of the required data fields in Spreadsheet IR1.2 are empty, follow the steps in Appendix 2 to make the data available for costing.

55. Until the data becomes available, you will need to use an alternative costing method to allocate costs, eg relative weight values.[5]

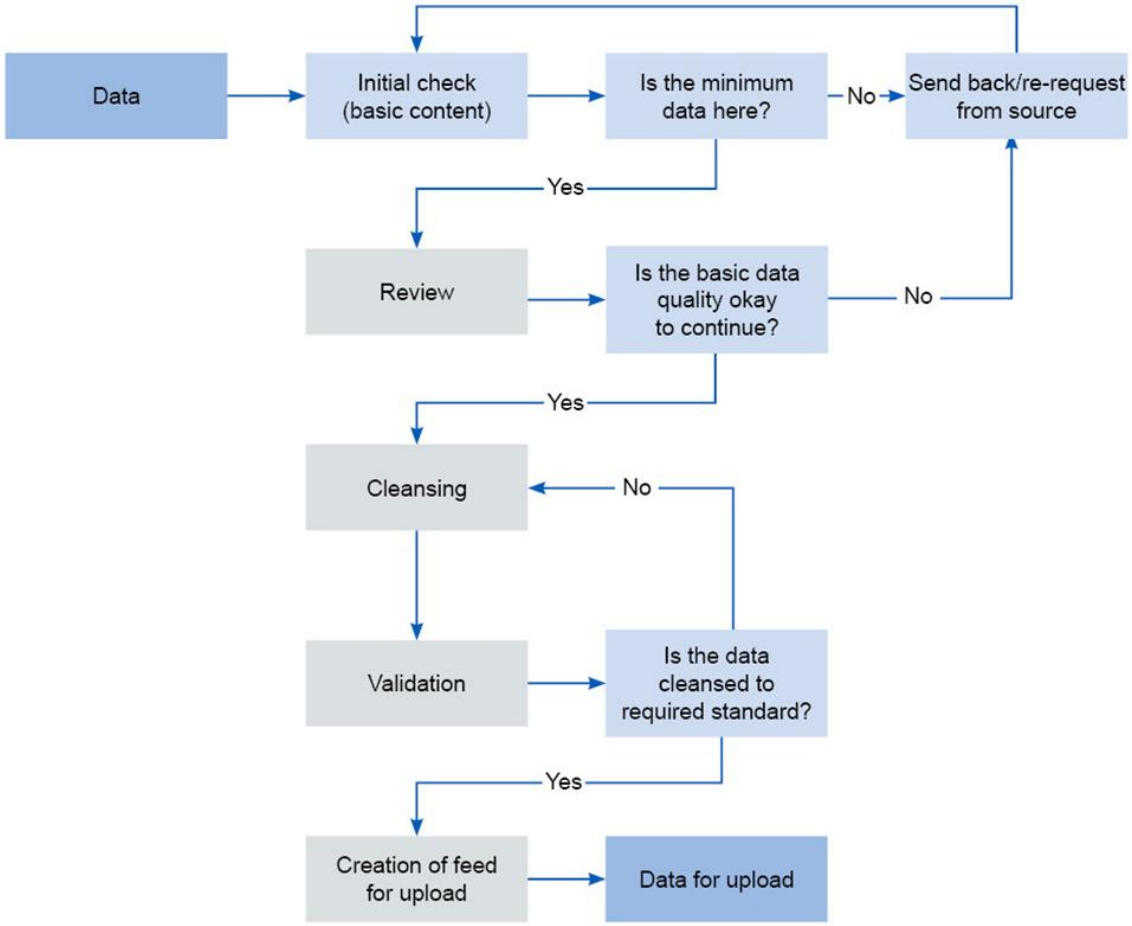
### Influencing improvement in data flows

56. Costing practitioners need to understand any material anomalies in data quality within the costing process, so they can make users of the data aware during reporting for context. This will ensure decisions are not based solely on misleading financial information.

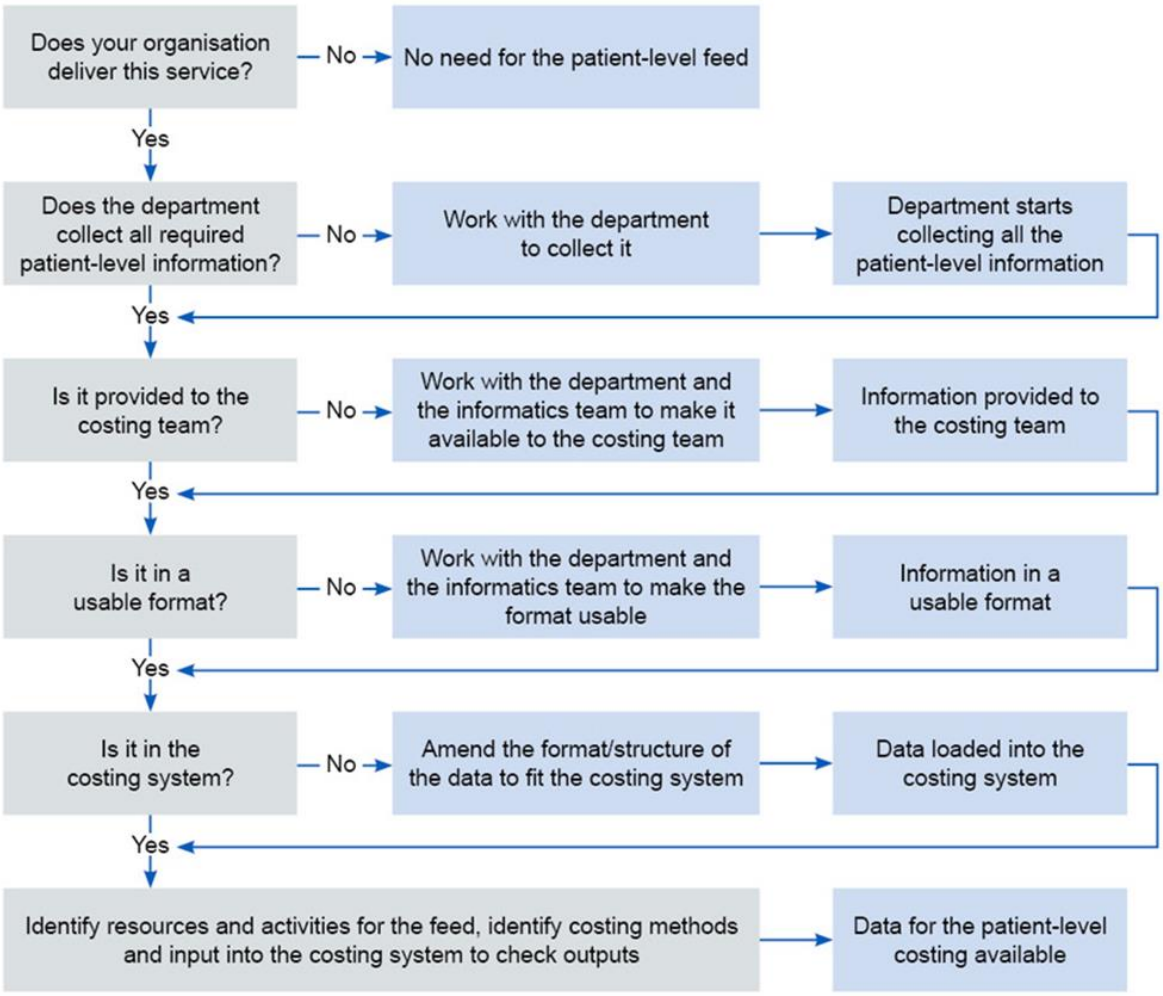
57. You may wish to join committees in your organisation that are responsible for data quality.

[5] See Standard CP3: Allocating costs to activities, for further information on relative weight values.

# Appendix 1: Establishing data quality improvement measures



# Appendix 2: Making data available for costing



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