Approved Costing Guidance – Standards

Integrated costing processes

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NHS England and NHS Improvement

Contents

CP1: Ensuring the correct cost quantum

Purpose: To set out how the general ledger is used for costing, and to highlight the areas that require review to support accurate costing.

Objective

1. To ensure the correct quantum of cost is made available for costing.

Scope

2. This standard should be applied to all lines of the general ledger.

What you need to implement this standard

- Costing principle 2: Good costing should include all costs for an organisation and produce reliable and comparable results[1]

Overview

3. You need the income and expenditure for costing. We refer to this as the general ledger output. This output needs to be at cost centre and expense code[2] level and is a snapshot of the general ledger at a point in time.

4. You do not require balance sheet items for costing.

5. You can bring your general ledger into your costing system either by bringing in:

    - the trial balance: for audit purposes this should balance to zero, or

[1] See *The costing principles:* https://improvement.nhs.uk/resources/approved-costing-guidance/
[2] Expense codes may also be called ‘account codes’ or ‘subjective codes’.

- only the cost and income: this should reconcile to your statement of comprehensive income.

To reduce the burden on your costing system, we recommend the second approach.

6. The general ledger is closed at the end of the period, after which it cannot be revised.[3] For example, if in March you discover an error in the previous January's ledger that needs to be corrected, you can only make the correction in March's ledger. Doing so will correct the year-to-date position, even though the January and March figures do not represent the true cost at those times, as one will be overstated and the other understated. Check with the finance team to ensure that only finally closed periods that contain any such changes are brought into the costing system as a matter of routine.

7. The timing of when some costs are reported in the general ledger may pose a challenge for costing. For example, overtime pay for a particular month may be posted in the general ledger in the month it was paid, not the month the overtime was worked. This highlights a limitation in the time-reporting and expense payment system. We recognise this limitation but are not currently proposing a work-around for it.

8. Discuss the general ledger's layout and structure with the finance team so that you understand it. This will help you understand the composition of the costing output.[4]

9. Keep a record of the input of cost into your costing system for each costing period. There may be multiple loads and we recommended that each load is noted. You should record each load in integrated costing assurance log (ICAL) worksheet 12: GL load record.

[3] Some systems may allow you to back post payroll journals and to make other changes during the external audit process.

[4] Referring to the financial accounting requirements may help you understand your general ledger structure. The Department of Health and Social Care Group Accounting manual is at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/798830/dhsc-group-accounting-manual-2019-to-2020.pdf

Approach

Obtaining the general ledger output

10. The finance team should tell you when the general ledger has been closed for the period and give you details of any off-ledger adjustments for the period. You need to put these adjustments into your cost ledger, especially if they are included in your organisation's report of its financial position, as you will need to reconcile to this.

11. Keep a record of all these adjustments in ICAL worksheet 11: Adjustments to the general ledger at each load, to reconcile back to the general ledger output. Take care to ensure that any manual adjustments are mapped to the correct line of the cost ledger.

12. Table CP1.1 below shows what the extract of the general ledger output must include.

Table CP1.1: General ledger output required fields

	Field name
1	Period (MM-YYYY)
2	Cost centre
3	Expense code
4	Monthly income or expenditure value (for use if you do in-month costing rather than year-to-date average costing)
5	Year-to-date income or expenditure value

13. You may choose either field 4 or 5 depending on the type of costing (monthly or year-to-date) your organisation undertakes.

14. Ensure the process for extracting the general ledger output is documented in ICAL worksheet 8: Extracting GL output. You should extract this only after the finance team tells you it has closed the general ledger for the period.

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15. The finance team should tell you when it has set up new cost centres and expense codes in the general ledger. Cross-team approval increases the different teams' understanding of how any changes affect them.

16. **Finance teams should not rename, merge or use existing cost centres for something else** without informing you as not knowing when this has been done will cause problems for costing. Finance teams should close a cost centre and set up a new one rather than renaming it. If this is not possible, they should tell you about any changes.

17. The new general ledger cost centres and expense codes need to be mapped to the cost ledger. You then need to reflect these changes in the costing system.

18. 'Error suspense'[5] ledger codes need to be addressed so that all costs can be assigned accurately to patients. Work with your finance colleagues to determine what these codes contain so they are mapped to the correct lines in the cost ledger.

19. You should have a rolling programme in place to regularly meet your finance colleagues to review the general ledger and its role in costing. This can identify problems and enhances their engagement with the use of the data.

[5] Organisations may use a different name for dump ledger codes, eg error suspense codes and holding ledger codes.

CP2: Clearly identifying costs

Purpose: To ensure costs are in the correct starting position for costing.

This standard is under review and will be published on 28 February 2020.

CP3: Allocating costs to activities

Purpose: To ensure that the correct quantum of costs is allocated to the correct activity using the most appropriate costing allocation method.

Objectives

1. To ensure resources are allocated to activities using a single appropriate method, ensuring consistency and comparability in collecting and reporting cost information, and minimising subjectivity.

2. To ensure costs are allocated to activities using an appropriate information source.

3. To ensure resources are allocated to activities in a way that reflects how care is delivered to the patient.

4. To ensure relative weight values (RWVs) reflect how costs are incurred.

Scope

5. This standard should be applied to all costs reported in the cost ledger and all activities undertaken by the organisation.

6. This standard covers RWVs and how to identify and use traceable costs in the organisation.

What you need to implement this standard

- Costing principle 2: Good costing should include all costs for an organisation and produce reliable and comparable results
- Costing principle 5: Good costing should focus on materiality

- Costing principle 6: Good costing should be consistent across services, enabling cost comparison within and across organisations[6]
- Technical document:
  - Spreadsheet CP3.1: Resources for patient-facing and type 2 support costs
  - Spreadsheet CP3.2: Activities for patient-facing and type 2 support costs
  - Spreadsheet CP3.3: Methods to allocate patient-facing resources, first to activities and then to patients
  - Spreadsheet CP3.4: Allocation methods to allocate type 2 support resources, first to activities and then to patients
  - Spreadsheet CP3.5: Superior costing methods

Overview

7. The standardised costing process using resources and activities aims to capture cost information by reflecting how those costs are incurred.

8. The costing process allocates resources to patients in two steps:
   - Step 1: allocate resources to activities (as explained in this standard)
   - Step 2: match costed activities to the correct patient episode, attendance and contact (as explained in Standard CP4: Matching costed activities to patients).

9. The allocation methods prescribed in the standards in most cases do not include a RWV for acuity or intensity. If you are using a RWV for acuity or intensity on top of the prescribed allocation method, continue to do this and record it in integrated costing assurance log (ICAL) worksheet 15: Superior costing methods.

Approach

Resources

10. Resources are the components used to deliver activities, such as staff, equipment or consumable items. The costs of providing these resources are

[6] See *The costing principles*: https://improvement.nhs.uk/resources/approved-costing-guidance/

recorded in your general ledger, and the resource code prescribed by the standards groups these costs in themes.

11. In the standardised cost ledger (see Spreadsheet CP2.1) all patient-facing and type 2 support cost lines are mapped to resources. Once you have mapped your general ledger to the standardised cost ledger, you will get a list of the resources (see Spreadsheet CP3.1) your organisation uses.

12. The costs within a resource may contain various types of costs. For example, the patient-facing nurse resource could include the costs of nurses' salaries and overheads (type 1 support costs), such as protective clothing, stationery and computer hardware purchase, HR and finance costs.

13. The transparency of these costs – what they are and where they come from in the general ledger – should be maintained throughout the costing process.

14. Once these separated costs have been calculated, they can be aggregated to whatever level the resources have been set at, and you can be confident the resource unit cost is accurate because it is underpinned by this costing process.

15. Spreadsheet CP3.1 lists the prescribed patient-facing and support type 2 resources to be used for the costing process. You are expected to use the most appropriate resource and not a generic resource to aggregate costs. For example, you are expected to use the physiotherapist and speech and language therapist resources, and not report all therapists' costs against the general therapist resource. The general resources are to be used only if there is no specific resource for that cost.

16. Column D in Spreadsheet CP3.1 categorises resources as either patient-facing or support type 2.

17. Columns I and J in Spreadsheet CP2.1 contain the mapping from each line in the cost ledger to the patient-facing and support type 2 resources. Use this information to identify the two-step prescribed allocation methods in Spreadsheets CP3.3 and CP3.4.

Activities

18. Activities are the work undertaken by all resources to deliver the services patients require to achieve the desired outcomes, eg a procedure in theatre, pathology tests or a therapy session carried out in clinic.

19. Together, resources and activities form a two-dimensional view of the costs incurred to deliver what activities. This can be displayed in a matrix such as that shown in Table CP3.1.

Table CP3.1: Example of costs incurred to deliver a resource–activity combination in matrix form

Resource	Activity Day care
Speech and language therapists	£X
Community nurse	£X
Occupational therapist	£X
Physiotherapist	£X

20. Activities are categorised either as patient-facing or type 2 support activities.

21. You need to identify all the activities your organisation performs from the prescribed list of patient-facing and support type 2 activities in column B in Spreadsheet CP3.2. You are expected to use the most appropriate activity. For example, audiology assessments should be reported using the 'audiology assessment' activity rather than the 'outpatient care' activity, and for endoscopy use the 'endoscopy' activity rather than 'outpatient procedure' or 'theatre care'.

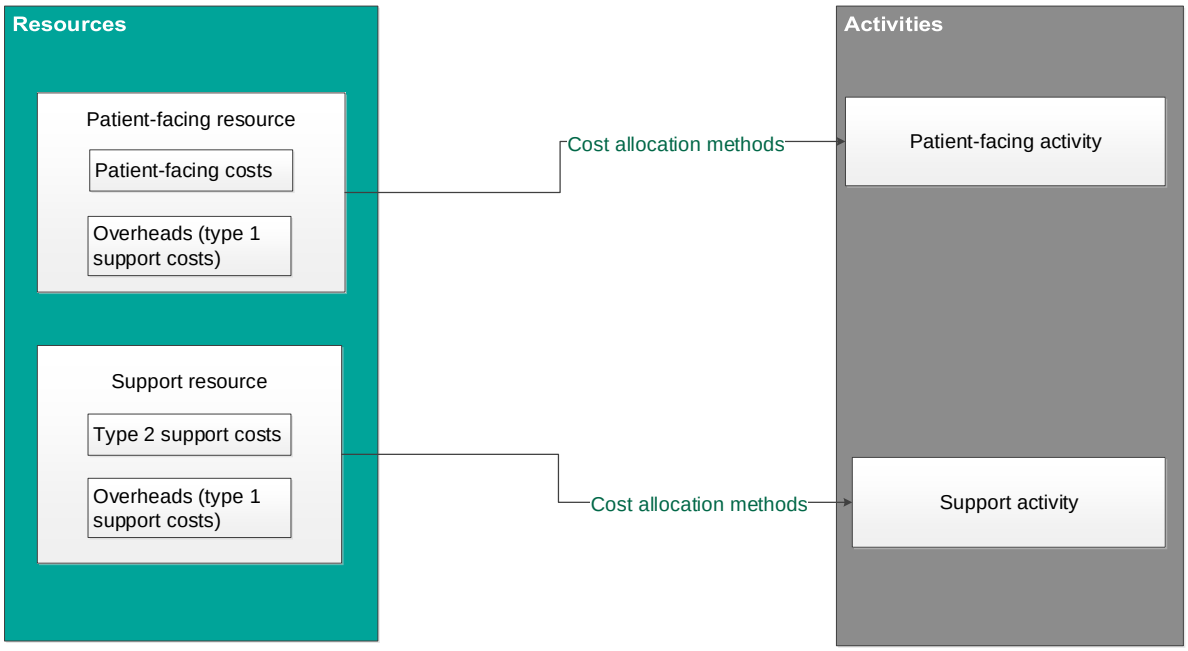
22. Some activities are informed by patient-level feeds; for example, the activity 'ward care' uses information from the ward stay feed (feed 4) for costing,[7] and the 'dispense all other medicine scripts' activity uses information from the medicines dispensed feed (feed 10) for costing.

[7] Acute and community providers only. Mental health trusts may have the same data within their admitted patient care (APC) feed (feed 1b).

23. Column F in Spreadsheet CP3.2 indicates if the information source is one of the prescribed patient-level feeds or if another information source is required.

Allocate resources to activities

Figure CP3.1: Extract from the spreadsheet costing diagram in the technical document showing allocation of resources to activities



24. Only costs that have an activity-based cost allocation method are assigned a resource and activity from the prescribed lists of resources and activities.

25. You need to use these prescribed resource and activity combinations in your costing system.

26. The resource and activity combinations used in the costing process for your organisation are identified by:

    - obtaining the list of resources for your organisation from mapping your general ledger to the cost ledger (see Standard CP2: Clearly identifiable costs) and
    - identifying the list of activities performed by your organisation from the prescribed list (see Spreadsheet CP3.2).

27. You should ignore the resource and activity combinations in Spreadsheet CP3.1 for activities your organisation does not provide.

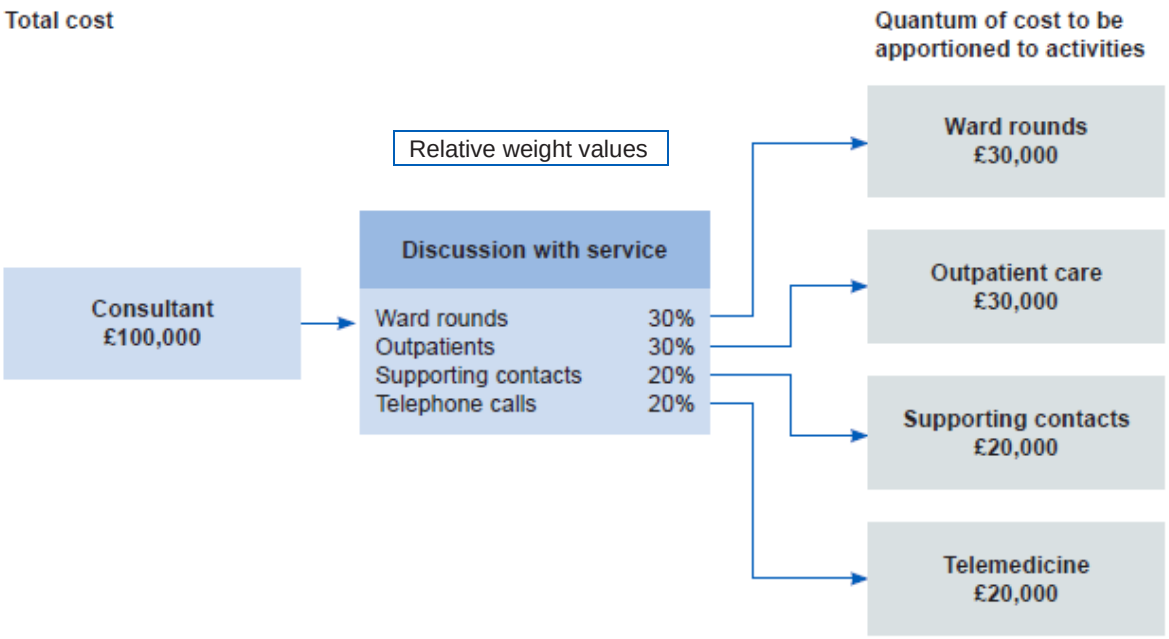
28. Resources need to be allocated to activities in the correct proportion before being allocated to each unit of activity. There are three ways to do this:

    - based on actual time or costs[8] from the relevant feed
    - using RWVs created in partnership with the relevant departments
    - using a local information source, such as 'traceable costs'.

29. Where one resource needs to be apportioned to several activities, you need to determine what percentage of the cost to apportion, after discussions with clinicians and managers and supported by documented evidence where available (eg medical job plans). These splits and their basis should be recorded in ICAL worksheet 13: % allocation bases. Please note that this is a different process from disaggregating costs in your general ledger for mapping to the cost ledger.

30. As an example, the division for medical staffing costs shown in Figure CP3.2 disaggregates the cost ledger further to resource/activity level. The figure shows how this could look in the resource–activity matrix.

Figure CP3.2: Example of how the cost in a resource (consultant) is apportioned to activities using relative weight values



[8] The actual costs should be used as a RWV rather than a fixed cost.

Table CP3.2: Example of a resource and activity matrix for a consultant, using the information in Figure CP3.2 for costing

Activity	Resource Consultant
SLA098: Ward rounds	£30,000
SLA135: Outpatient care	£30,000
SLA099: Supporting contacts	£20,000
SLA149: Telemedicine	£20,000

31. Use a RWV unless there is a local reason for applying a fixed cost.[9]

32. Do not apportion costs equally to all activities without clear evidence that they are used in this way, and do not apportion costs indiscriminately to activities. You must allocate your patient-facing resources to the patient-facing activities using the methods in column F in Spreadsheet CP3.3.

33. You must allocate your type 2 support resources to the type 2 support activities using the methods in column D in Spreadsheet CP3.4.

34. Where the same cost driver is used for several calculations in the costing system, and providing the costs can be disaggregated after calculation, you can aggregate the calculations in your costing system to reduce calculation time. For example, if numerous costs on a ward use the driver length of stay, you can add them together for the cost calculation.

35. If you have a more sophisticated cost allocation method for allocating patient-facing or support type 2 resources to their activities:
    - keep using it
    - document it in ICAL worksheet 15: Superior costing methods
    - tell us about it.

[9] You should document this reason in the integrated costing assurance log (ICAL) worksheet 14: Local costing methods

36. See Spreadsheet CP3.5 for the methods we have accepted as superior methods.[10]

37. Some superior methods require a subset of resources.[11] For example, Acute standard CM1: Medical staff superior method SCM33 allocates actual payroll detail for medical staff. To do this, a resource below the standard level of resources is needed for each staff member. There is no requirement currently to adopt this method, but if you are already performing such detailed work, continue to do so and log it in ICAL worksheet 15: Superior costing methods.

38. We do not accept some cost allocation methods as superior to the prescribed methods. These include using income or national averages to weight costs.

39. The key cost drivers, such as length of stay, that inform the cost allocation methods can be obtained from the patient-level feeds. The patient-level feeds will also provide the information needed to use RWVs in the costing process, such as actual medicine costs in the medicines dispensed feed.

40. Investigate any costs not driven to an activity or any activities undertaken by your organisation that have not received a cost and correct these.

Relative weight values

41. You should allocate all material costs based on actual usage or consumption using the prescribed allocation method and an information feed. However, where there is no information feed, or the costs are immaterial, you should use a RWV to allocate costs.

42. RWVs are a method of using appropriate source information as a proportional (%) weighting to distribute or ‘drive’ the allocation of cost. This is shown in Figure CP3.2.

[10] The list of superior methods has been developed from experiences of implementation across sectors. We would like to hear about any superior methods you are using.
[11] See Standard CP2: Clearly identifying costs – including Figure CP2.3: How *not* to map to the costing process elements.

Integrated costing processes

43. RWVs may be used to:

    - disaggregate costing account codes so the cost can flow to different resources in conjunction with the mapping to the cost ledger (see Standard CP2: Clearly identifying costs)
    - allocate costs from resources to activities
    - attribute costed activities to patient events.

44. RWVs may contain information from various sources such as staff job plans, HR/electronic staff record data, interviews, floorplan measurements, catalogues of laboratory supplies and consumable costs. Income values and national cost averages should not be used as RWVs.

45. You must develop and agree RWVs with the relevant service managers and healthcare professionals to ascertain all aspects of the costs involved and ensure these are as accurate as possible. You can also use traceable costs as RWVs.

46. Different costs will require different approaches to derive appropriate RWVs to support their allocation to patients. For example, a scan requires RWVs for:

    - review time per scan
    - contrast required per scan.

47. The approach should not be high level; for example, the measure should not be the average time to carry out a test or investigation and instead should be tailored to the particular activity. To do this you need to break down the activity into its component costs and measure the drivers of these individual costs.[12]

48. One way to store the RWVs for use in your costing system is to use statistic allocation tables.

49. RWVs should be reviewed on a rolling programme or when a significant change occurs in the relevant department.

[12] We appreciate that some areas may not have defined and collected their activity types in this way. Work with the information you have and recommend development of improved activity recording over time, as this type of data can benefit understanding of patient care as well as the costing process.

Traceable costs

50. Where the actual costs[13] of items are known, use them in the costing process as a RWV[14] to allocate costs to the activities (see Table CP3.3).

51. Items for which a traceable cost may be available include:

- medicines, including high cost drugs
- security – patient-specific cost of escorting using an external provider
- patient appliances
- pacemakers and other cardiac devices
- hearing aids – bone-anchored, digital
- theatre consumables.

Table CP3.3: Using traceable costs as a relative weight value

	Number of prostheses	Expected cost	Expected spend	Actual spend	Weighted spend ([expected spend/total expected spend] × actual spend)
Prosthesis A	5	1,000	5,000	Not known	4,091
Prosthesis B	12	500	6,000	Not known	4,909
Total			**11,000**	**9,000**	**9,000**

52. If the value of the item is material to the cost of the patient and you want to use the actual cost, you must ensure it matches the value in the ledger. If there is under or over-recovery, you must use the cost as a RWV, as outlined above.

53. Some departments may have local databases or an inventory management system that record material cost components against individual patients which can be used in a supplementary feed. These traceable costs can be used in the costing process as a weighting to allocate the costs on a costing account code. See Standard CM21: Clinical non-pay items for more information.

[13] These actual unit costs are known as traceable costs.
[14] If an actual cost is applied, it is likely that costs will be over or under-recovered in the costing system, so actual traceable costs should be used as a relative weight value to allocate the costs.

Overheads (type 1 support costs)

54. To allocate overheads (type 1 support costs) in the correct proportion, you may need to identify RWVs by obtaining the relevant information from the departments.

55. An example of a statistic allocation table for the RWV of staff actual WTE is given in Table CP3.4.

56. You may add additional information to further weight a relative value. For example, you can add cleaning rotas or location weighting to floor area for cleaning, so that theatres/clinical areas get a bigger proportion of cleaning costs than corridors. If you do this, continue to do so and document the basis in ICAL worksheet 15: Superior costing methods.

Table CP3.4: Example of Actual WTE statistic allocation table

Department	Actual WTE
Pharmacy	15
General ward	8
Main theatre	20
Clinic reception	2
Emergency department	30
Finance office	25
Total	**100**

57. Where you use local service information to provide the RWVs, you should keep a record of the source of information in ICAL worksheet 17: Consultation and engagement.

58. We understand that some local allocation methods may be used during transition. You should record these in ICAL worksheet 14: Local costing methods.

Complex relative weight values

59. Some cost areas will require RWVs that have more than one facet in the calculation of the proportional split for the cost allocation. This method combines cost drivers to make a multiple-layer statistical allocation table.

60. Supporting information for using information feeds in conjunction with RWVs for pathology and diagnostic imaging are included in Appendices 1 and 2 of the integrated costing process standards document.[15] The process described in the pathology example below can be adapted for diagnostic imaging.

Other considerations

61. If you have already undertaken a sampling exercise in which you have calculated the RWVs to be used in the costing process, you can use this information. You should repeat this exercise at reasonable intervals to include technological, contractual and cost changes.

62. If your organisation contracts an external organisation to provide a clinical or non-clinical service, you may not have a patient-level feed or detailed information on the components of the service. See Standard CM8: Clinical and commercial services supplied or received for information on how to treat the cost.

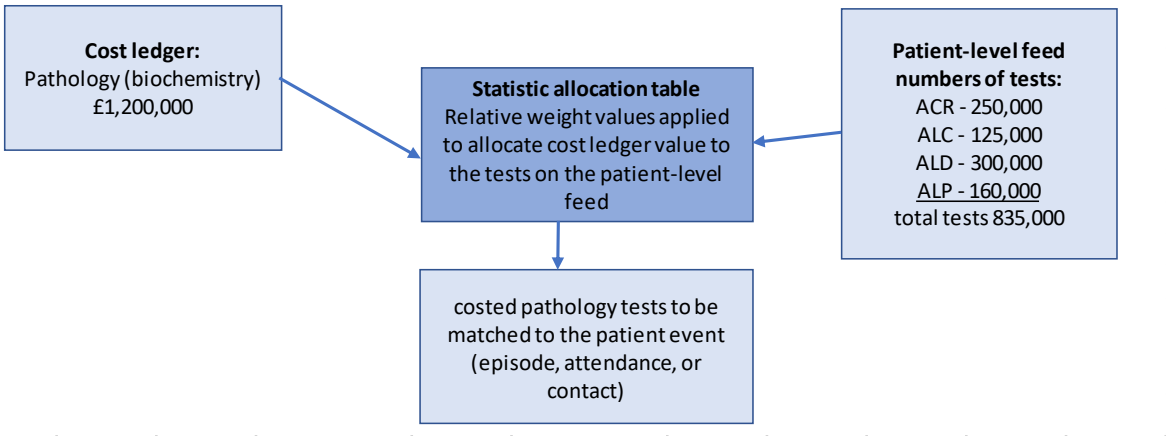
Example: Using a pathology relative weight value

The pathology feed (feed 8) includes the count of the number of tests undertaken, but for costing purposes, because more than one factor drives the cost, a RWV table needs to be developed to understand the resources used by each type of test.

Figure CP3.3 is an overview of the step-by-step process described below.

[15] Further information for pathology and diagnostic imaging is planned for 2020, and will be available in the 2021 publication of the *Approved Costing Guidance*.

Figure CP3.3: Allocating the costs in the cost ledger for pathology using relative weight values



If this example were used as a simple RWV, the calculation would presume all the tests used resources at the same rate.

£1,200,000/835,000 = £1.44 per test.

But the pathology manager identifies that two main factors drive the different resource use for these tests: time to do the test and number of staff required. The manager supplies the minutes per test and the number of staff required – as shown in Table CP3.5.

Table CP3.5: Information on resources required for selected tests

	Albumin: creatinine ratio	Alcohol (ethanol)	Aldosterone	Alkaline phosphate
Time (min) (x)	6	15	18	6.5
No of staff required (y)	2	1	1	2
Weighted time (x*y)	12	15	18	13
Relative weight value	**1.2**	**1.5**	**1.8**	**1.3**

Using this information, the costing system can calculate a more accurate cost per test to apply to activities.

Step 1: Derive the weighted activity for each test

Using the created RWVs, the number of tests can be weighted.

Table CP3.6: Weighted activity calculation

Code	Description	Relative weight value	Number of tests	Weighted activity
ACR	Albumin-to-creatinine ratio	1.2	250,000	300,000
ALC	Alcohol (ethanol)	1.5	125,000	187,500
ALD	Aldosterone	1.8	300,000	540,000
ALP	Alkaline phosphate	1.3	160,000	208,000
Total			**835,000**	**1,235,500**

Step 2: Calculate the weighted resource unit cost (WRUC)

The total resource value of £1,200,000 is allocated to the tests in proportion to their individual RWV as follows:

WRUC = total resource value / total weighted activity

£1,200,000/1,235,500 = £0.97

Step 3: Calculate the unit cost of each type of test

Multiplying the WRUC by each RWV gives the estimated unit cost for each test.

Table CP3.7: Unit cost calculation

Code	Description	Relative weight value	WRUC	Unit cost
ACR	Albumin: creatinine ratio	1.2	0.97	1.17
ALC	Alcohol (ethanol)	1.5	0.97	1.46
ALD	Aldosterone	1.8	0.97	1.75
ALP	Alkaline phosphate	1.3	0.97	1.26

The total resource value of £1,200,000 is allocated to the tests in proportion to their individual RWV as follows:

Step 4: Checking the result

The result can be checked by multiplying the number of tests by the unit costs. The total should equal the total resource value.

Table CP3.8: Checking the result

Code	Description	Unit cost	Activity	Total cost
ACR	Albumin-to-creatinine ratio	1.17	250,000	£291,380
ALC	Alcohol (ethanol)	1.46	125,000	£182,113
ALD	Aldosterone	1.75	300,000	£524,484
ALP	Alkaline phosphate	1.26	160,000	£202,023
Total			**835,000**	**£1,200,000**

Other information that may be factored into the relative weight values for pathology

Service areas may identify other factors that could be considered. For pathology they may include:

- Staff group/banding for different tests. The staff band should be identifiable in the costing system. Ensure the correct band is allocated to the activities.
- Costs of associated consumable items such as reagents, and equipment (if material).
- Equipment. High volume, automated machinery will have different cost drivers from smaller more traditional equipment:
  - maintenance per test is calculated as the total equipment maintenance cost for each machine divided by the number of tests it performs
  - depreciation per test is calculated in the same way as equipment maintenance, with the costs taken from the fixed asset register
  - costs for a ‘sent away’ pathology test – or parts of a test – are ascertained from invoices on the general ledger, with additional carriage costs (eg for dry ice) also taken into account; management accounts and the supplies department need to use identifiable ledger codes for these tests.

CP4: Matching costed activities to patients

Purpose: To achieve consistency across organisations in assigning costed activities to the correct patient episode, attendance or contact.

Objectives

1. To ensure the prescribed matching rules are used consistently.

2. To assign costed activities to the correct patient episode, attendance or contact.

3. To highlight and report source data quality issues that hinder accurate matching.

Scope

4. This standard should be applied to all costed activities.[16]

What you need to implement this standard

- Technical document:
  - Spreadsheet CP3.3: Methods to allocate patient-facing resources, first to activities and then to patients
  - Spreadsheet CP3.4: Allocation methods to allocate type 2 support resources, first to activities and then to patients
  - Spreadsheet CP4.1: Matching rules

[16] Standard CP3: Allocating costs to activities identifies which patient-level activities are part of the matching process.

Overview

5. Matching is integral to accurate patient-level costing. For an accurate final patient unit cost, the costed activities need to be matched to the patient episode, attendance or contact in which they occurred.

6. The costing process matches resources to patients in two steps:
   - Step 1: allocate resources to activities (explained in Standard CP3: Allocating costs to activities)
   - Step 2: match costed activities to the correct patient episode, attendance or contact (explained in this standard).

7. The costing process uses two approaches to match costed activities to patients, depending on the type of activity:
   - for activities informed by a patient-level feed, use the prescribed matching rules
   - for all other activities, use the prescribed cost allocation methods.

8. The prescribed matching rules ensure the relevant auxiliary data feeds can be attached to the correct patient episode, attendance or contact.

9. Matching rules should be hierarchical[17] and strict enough to maximise matching accuracy, but not so strict that any matching is impossible. Matching rules that are too lax risk false-positive matches occurring – that is, activity is matched to the wrong patient episode, attendance or contact.

10. The matching hierarchy in the prescribed matching rules determines which master feed (that is, the patient administration system (PAS) datasets) the auxiliary feed is matched to, and the order in which to identify the correct master feed.

11. If a data feed contains the patient's point of delivery (PoD) or location and this data field is considered robust, use this field to determine which core PAS dataset to match to. For example, if a patient is recorded as a non-admitted patient care (NAPC) feed (feed 3a), this patient's activity is first matched

[17] Match iteratively.

against the master outpatient (NAPC) dataset. If the PoD data field is considered robust, records should be matched to the NAPC dataset only, to avoid the risk of false-positive matches.

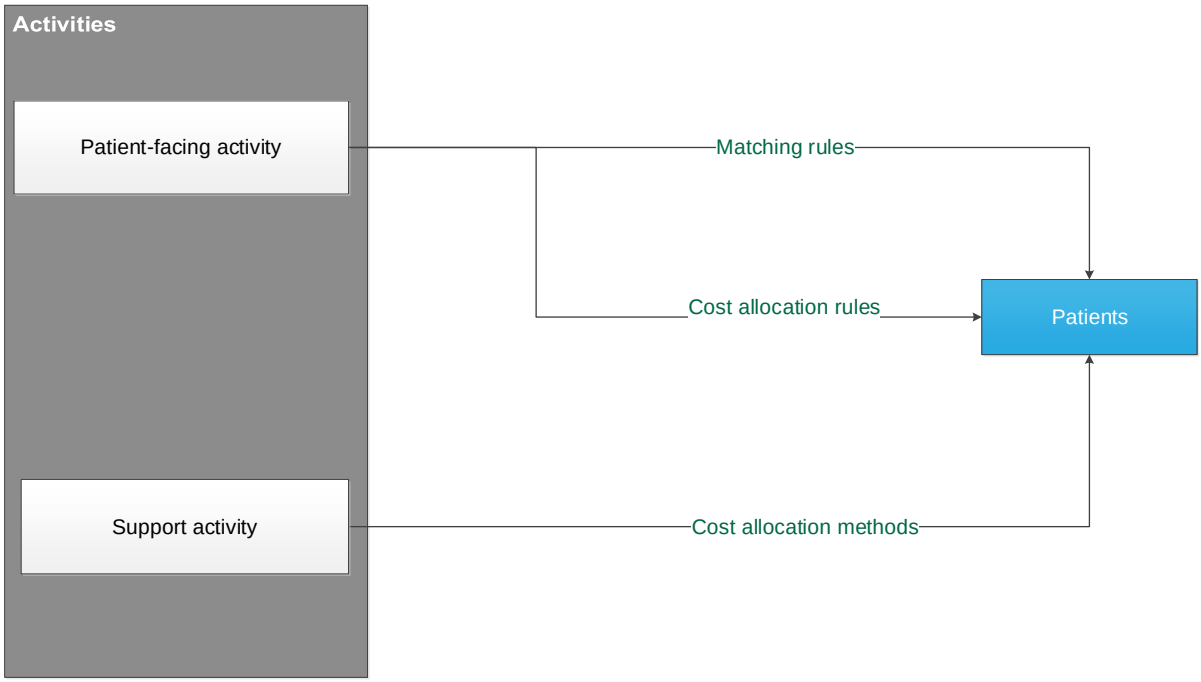
12. As the matching patterns for data feeds differ depending on the activities they contain, each has a distinct set of matching rules. Matching rules may differ in their hierarchies, date parameters or additional data fields used in the matching criteria.

13. Unmatched records should be reviewed.

14. The accuracy of which costed activities are matched using the prescribed matching rules depends on the quality of both the master feeds and the auxiliary feeds. Follow the guidance in Standard IR2: Managing information for costing, to support your organisation in improving data quality.

Approach

Figure CP4.2: Excerpt from the costing diagram spreadsheet showing matching costed activities to patients



Using the prescribed matching rules

15. The episode/spell/attendance/contact ID[18] always generates the best match as this is unique to the patient and the relevant date range.[19]

16. If your auxiliary data feeds are obtained from the PAS[20] and you can include the episode/attendance/contact ID in the feeds, you should use this field to match to the master feeds.

17. If your auxiliary feeds do not include the episode/attendance/contact ID, you should use the prescribed matching rules in Spreadsheet CP4.1.

18. If your matching rules are more sophisticated than the prescribed matching rules and improve the accuracy of your matching, continue to use them and record them in integrated costing assurance log (ICAL) worksheet 15: Superior costing methods.

19. If an element of a prescribed matching rule would produce a false-positive match for a particular feed, adjust the rule to ensure a more accurate match and document this in ICAL worksheet 15: Superior costing methods.

20. Activities from non-integrated systems need to be matched to these groups of patients:

    - patients discharged during the costing period (APC feed for the sector)
    - patients not discharged and still in a bed at midnight on the last day of the costing period (APC feed)
    - non-admitted patient care (NAPC feed for the sector)
    - minor injury unit (MIU) or A&E attendances (urgent care (A&E/MIU) feed 2)
    - critical care stays (adult (feed 6c), paediatric (feed 6b) and neonatal (feed 6a) critical care feeds).

[18] In the Mental Health Services Data Set (MHSDS) for the APC feed (feed 1b) this is: 'local patient identifier (extended)', 'start date (care professional admitted care episode)' and 'end date (care professional admitted care episode)'; and for the NAPC feed (feed 3b): 'care contact identifier' and 'care contact date'. In some organisations, the care contact identifier will include the care contact date. If this is the case in your organisation, you do not need to add the care contact date again.

[19] If there is more than one contact on one day, the ID should include this, whereas a simple aggregation of patient identifier and date will only reflect one contact on one day.

[20] We understand that some mental health organisations use 'ward stay' data as a separate auxiliary feed. It can be used if it provides more information than the MHSDS APC feed (feed 1b).

21. Some activities from non-integrated systems should **not** be matched:
    - those for patients not in the provider's care, including direct access and services received activity; however, there may be instances where such activities should be matched, eg diagnostic imaging for direct access physiotherapy
    - items such as replacement orthotics, homecare medicines or blood factor products for which there may be no corresponding episode, attendance or contact (although the organisation provides these, they can be sent directly to the patient's home); these items should be recorded as 'reconciliation items'
    - medicines dispensed from pharmacy for a patient whose episode is already closed
    - medicines issued by pharmacy but sent to another organisation without a patient contact,[21] even if the patient is under a care plan with your organisation
    - medicines dispensed from pharmacy to patients who did not attend (DNA) or who were not brought (WNB) to clinic.

22. There are no prescribed matching rules for the following feeds:
    - NAPC – did not attend (DNA) feed – including was not brought (feed 5)
    - clinical multidisciplinary team (MDT) meetings feed (feed 14).

23. Not all organisations have or need separate feeds for some activity. For example, for mental health organisations, the MHSDS APC feed contains ward information and the Community Services Data Set (CSDS) care contacts feed contains DNA information, so no matching is needed.

24. Direct access activity must be correctly identified using the direct access flag in column D in Spreadsheet IR1.2 to avoid it being incorrectly matched to other episodes or attendances for that patient. For example, giving all direct access patients a hospital patient identifier risks the incorrect matching of activity other than own-patient care to an episode, attendance or contact with the same patient identifier. An incorrect match could be made if a patient has previously

[21] For more guidance on how to cost patient-specific medicines, see Standard CM10: Pharmacy, medicines and blood services.

been a patient at the organisation and their hospital patient identifier is applied to the direct access activity.

25. Clinical services supplied activity must be correctly identified using the indicator in column D in Spreadsheet IR1.2 to avoid being incorrectly matched to episodes or attendances.

26. The rules to identify and correctly treat direct access and services purchased from another organisation activities are included in the prescribed matching rules.[22]

Matching hierarchy used in the prescribed matching rules

27. You only need to follow those steps relevant to your organisation. For example, if your organisation does not provide A&E services, start at the next relevant service and so on through the steps in order.

28. All the feeds with prescribed matching rules in Spreadsheet CP4.1 follow the hierarchy described below. The hierarchy is adjusted slightly for each feed to reflect how the service is provided, but the principle is that for all sectors the matching feed is matched first to A&E attendances and then to:
    - A&E activity on an observation ward
    - MIU/A&E activity on an observation ward
    - MIU/A&E activity reported on the NAPC feed
    - critical care – adult
    - critical care – paediatrics
    - critical care – neonatal
    - APC
    - NAPC
    - unmatched to the treatment function code (TFC)
    - if the TFC is missing, to the providing department.

29. In addition to this hierarchy, searches up to 720 hours either side of the delivery dates increase the chance of a match.

[22] For more guidance on how to treat direct access and clinical/commercial activities, see Standard CM8: Clinical and commercial services supplied or received.

30. You must search 24 hours before and after the exact date, and then expand the search timeframe by 24-hour increments, up to 720 hours before and after the exact date.

31. For each 24-hour search increment, you must search both the APC and NAPC feed.

32. Include MIU/A&E in this sequence if the matching rules require this, following the hierarchy of MIU/A&E, APC, NAPC, before, after.

33. The prescribed matching rules contain conditional criteria, which should be followed in order.

34. The matching process should then search again without the conditional criteria, incorporating the final prescribed matching elements.

35. If you have (or develop) other auxiliary feeds, these should be matched after the mandated feeds, to ensure the prescribed matching to the master feeds is completed first. The mental health auxiliary feeds in Standard IR1: Collecting information for costing, should be matched in the order given in Spreadsheet IR1.1.

Using the prescribed cost allocation methods

36. For patient-facing activities not informed by a patient-level feed, use the prescribed cost allocation methods in column F in Spreadsheet CP3.3.

37. For support type 2 activities not informed by a patient-level feed, use the prescribed cost allocation methods in column D in Spreadsheet CP3.4.

Other considerations

38. Some costed activities will not match because either the activity took place too long before the episode, attendance or contact, eg a diagnostic imaging scan that was done more than 720 hours (30 days) before the connected NAPC contact, or the quality of the information in the activity feed is so poor that an appropriate match cannot be found. As stated above, unmatched activity should be reviewed.

39. Develop a list of 'unlikely matches' to be included in the matching rules for your organisation, to ensure that costs for certain activities are correctly assigned to episodes. For example, medicines that are never used by certain specialties should never be assigned to episodes within those specialties, even if other matching criteria are fulfilled. Engagement with clinicians, the pharmacy team and other staff will help you identify these 'unlikely matches'.[23]

40. Your costing system should produce a report of the matching criteria used in the system, as described in report CP5.1.8 in Table CP5.1.

41. Review is necessary because if costed activities are matched on the least stringent criteria, work is needed to improve data quality so that activity can be matched more accurately. You should have a rolling programme to review this.

Reporting unmatched activity for local business intelligence

42. Organisations have traditionally treated the cost of unmatched activity in different ways. Most commonly, it was absorbed by matched activity, which could have a material impact on the cost of matched activity, particularly when reviewing the cost at an individual patient level for comparison with peers and tariff calculation.

43. For local reporting purposes we recommend you do **not** assign unmatched activity to other patient episodes, attendances or contacts.

44. To achieve consistent and comparable costing outputs, unmatched activity should be treated consistently across organisations. We suggest applying the following rules for any unmatched activity:

    - If the specialty that ordered the item can be identified but the item cannot be matched to a patient episode, attendance or contact, the cost sits in the specialty under unmatched items. It should not be matched to the other patients within that specialty.
    - If the specialty that ordered the item cannot be identified, the cost sits in the providing department under unmatched items. Likewise, the cost should not be matched to the patients within the most likely specialty. For example, if a pathology test cannot be matched to a patient episode, attendance or

[23] You will need to work with your costing software supplier to ensure regular reporting of these items is possible, and have a process in place to audit/amend any erroneous matches.

contact and the requesting specialty (eg cardiology) cannot be identified, the unmatched activity is reported under the pathology service line, as this is the department that provided the service. This data should be discussed with the department to improve understanding or data quality in the feed.

- If reported unmatched activity forms a material part of an organisation's expenditure, this is likely to be due to poor source data. As this issue will deflate the patient unit cost, it needs to be identified and steps taken to improve the quality of the source data, rather than artificially inflating the patient unit cost by allocating unmatched activity.[24] Please follow the guidance in Standard IR2: Managing information for costing to support your organisation in improving its data quality.

50. Tables CP4.1 and CP4.2 show how unmatched activity could be reported to assist business intelligence.

Table CP4.1: Example of unmatched activity costs (in blue text) within a specialty

Specialty: Medical oncology		
Total activity	**Total resource cost**	**Income**
Inpatient care – core episodes	£X	£X
Critical care for oncology patients	£X	£X
Outpatient care	£X	£X
Cancer MDTs	£X	£X
Unmatched activity identified as oncology but unable to match to individual patients	£X	
Total	**£X**	**£X**

[24] See Standard CM2: Incomplete patient events, for guidance on matching auxiliary feeds to incomplete patient events and how to treat diagnostics that were performed in a different costing year.

Table CP4.2: Example of unmatched activity costs (in blue text) within a providing department

Department: Pathology	
Total activity	**Total resource cost**
Cardiac service	£X
Medical oncology service	£X
Dermatology service	£X
Critical care service	£X
Unmatched activity unable to be allocated to a specialty or patient	£X
Total	**£X**

CP5: Reconciliation

Purpose: To set out process for reconciling costs and income to the organisation's accounts, and to reconcile the activity counts reported by the organisation.

Objectives

1. To ensure the cost and income outputs from the costing system reconcile to the organisation's accounts.

2. To ensure the activity outputs from the costing system reconcile to what the organisation is reporting.

Scope

3. This standard covers all costs, income and activity included in the costing process.

What you need to implement this standard

- Costing principle 2: Good costing should include all costs for an organisation and produce reliable and comparable results
- Costing principle 4: Good costing should involve transparent processes that allow detailed analysis[25]

Overview

4. All the costing process outputs must reconcile to the information reported to the board, and in the final audited accounts. This ensures a clear link between

[25] See *The costing principles:* https://improvement.nhs.uk/resources/approved-costing-guidance/

these outputs and the costs and activity information captured in the source data.

Approach

Reconciliation of cost, income and activity

5. The costs, income and activity outputs must reconcile to the main sources of this information, the general ledger output and the organisation's reported financial postion.[26] For example, if your organisation reports XX non-admitted patient care (NAPC) contacts in any costing period, your activity costing outputs should reconcile to this. To avoid any reconciliation differences due to timing, the patient-level feeds used in the costing process and those reported by the organisation should be created at the same time.

6. To demonstrate that the costing sytem's outputs reconcile to the main sources of cost, income and activity information, use the reports detailed in Table CP5.1. The reports must be available from the costing system.

Table CP5.1: Cost, income and activity reconciliation reports

Report number	Report name	Report purpose
CP5.1.1	Input accounting reconciliation	Enables the totals for the cost ledger and income ledger to be reconciled to the monthly statement of comprehensive income (SOCI) reported by the provider board for the period reported on, as well as to the final audited accounts at the year end.
CP5.1.2	Internal reporting reconciliation	Shows the costs from the monthly, quarterly or annual report reconciled to the costs reported in the costing system. Clear records must be kept of any adjustments leading to differences between them, both for internal purposes and to provide a clear audit trail.
CP5.1.4	Output accounting reconciliation	To check that the final costing outputs reconcile to those in the provider board reports and the audited annual accounts, with the option in the costing system to amend values for any post-closure adjustments, thereby ensuring that the final costing outputs can be reconciled to these earlier reports.

[26] See Standard CP2: Clearly identifying costs for guidance on where adjustments may be made between the general ledger output and the cost ledger, to be included in your reconciliation.

Report number	Report name	Report purpose
CP5.1.5	Adjustments and exclusions report	To document all the adjustments and exclusions to the total quantum. This must also be reconcilable annually to the final audited accounts to provide assurance when submitting data for mandatory cost collections.
CP5.1.7	Cost centre and classification reports	To provide assurance to users of cost information that all appropriate costs are accounted for as part of the costing process. These reports must be available at the levels of the cost centre, expense code and pay/non-pay/income.
CP5.1.8	Matching criteria	To show the matching criteria being used in the system to identify how many records are using which level hierarchy in the prescribed matching rules in Spreadsheet CP4.1.
CP5.1.9	Unmatched activity	Costed activities that could be matched to a specialty but not to a patient within that specialty and costed activities that could not be matched to a specialty or a patient.
CP5.1.10	Cost group reconciliation	When the costing process is complete, to enable the costs within the five cost groups referenced in Standard CP5: Reconciliation, to be reconciled to the cost ledger, with the total cost within these cost groups being equal to the total cost ledger.
CP5.2.1	Core activity reconciliation	To show the core episode and attendance activity used in the costing model reconciled to the original source data, as well as to an external source such as HES or SUS data, with all exclusions and amendments clearly recorded and explained.
CP5.2.2	Patient event activity reconciliation	To show patient event activity used in the costing model – eg pathology tests, bed days, theatre minutes or radiology scans – reconciled to the initial data feeds, with all exclusions and amendments clearly recorded and explained.
CP5.2.3	Board report reconciliation	To enable reconciliation of episode and attendance activity used in the costing model to the board report based on the PoD: eg day cases, elective inpatients, outpatient first attendances. This activity must also be reconciled to the outputs of the costing system to ensure that all activity has been processed.
CP5.2.4	Full cost reconciliation	A reconciliation report showing all the activities that have been loaded into the costing system fully costed as part of the outputs of the costing model.
CP5.2.5	Timing differences reconciliation	If differences in the timing arise between capturing the activity in the costing system and the activity reported by the provider, a clear record must be kept so these differences can be explained. To avoid these timing differences, it is good practice to use a dataset for provider reporting produced on the same

Report number	Report name	Report purpose
		day as that to be used in the costing system. For example, both should use either the Day 5 or Day 20 datasets referenced in Table IR2.1 in Standard IR2: Management of information for costing.
CP5.2.6	Output activity reconciliation	Reconciliation should be performed by the costing team to demonstrate that the activity from the source datasets matches the outputs of the costing system, with the exception of any legitimate – and documented – adjustments or exclusions. This reconciliation report should encompass activity feeds received from the informatics team, data warehouse or equivalent, as well as any activity data captured and reported manually.
CP5.2.7	Non-NHS patient report	All activity that does not relate to NHS patients should be clearly identifiable and reportable to enable the use of the costing system to complete a reference costs return.

7. To support reconciliation and reporting, once the costing model is fully processed the costs associated with patients and other cost groups should be categorised into the five cost groups listed in Table CP5.2.

Table CP5.2: Cost groups

Cost group	Description
Own-patient care	Costs relating to the organisation's own-patient activity, including: • incomplete patient events • all cancer MDT meetings where your organisation's patients are discussed • other MDT meetings • clinical services received (such as capacity purchased from private inpatient organisations) • private patients, overseas visitors, non NHS-funded patients and patients funded by the Ministry of Defence • local authority-funded activity where costed at patient level
Education and training (E&T)	Costs relating to E&T in the organisation
Research and development (R&D)	Costs relating to R&D in the organisation

Cost group	Description
Other activities	Costs relating to the organisation's: • clinical services supplied, such as pharmacy services supplied to another provider • commercial activities • direct access services where the patient is referred from primary or community care for assessment only but the care remains with the GP/community organisation • neonatal screening programmes • other screening programmes • voluntary and other third-party sector services • local authority care • services funded in part or in full by local authorities • national programmes such as Scan4Safety • critical care transport where patient not brought to your organisation • external cancer multi-disciplinary teams where your organisation's patients are not discussed • primary care services
Cost and activity reconciliation items	Includes activity for which there is no corresponding cost Includes costs for which there is no corresponding activity, such as: • homecare medicines including factor products • homecare appliances • cost to provide agreed resources to an external body with no responsibility for delivering a service to a commissioner, eg a provider-to-provider service-level agreement, including national programmes • cost to employ a staff member, such as a youth worker, for activity undertaken by the local council and the provider is unable to include it in the costing system • grants or donations received • local authority cost or activity where there is no patient-level costed information

8. Where your organisation is commissioned to provide an activity, but this activity occurs outside your organisation and is recorded by an external body, you should obtain this information and include it in your organisation's costing data. If you cannot obtain the activity data, report the cost in reconciliation items.

9. Reconciling cost and activity has the following benefits:

- patient unit costs reflect the true cost of treatment, undistorted by provider-incurred costs that are unrelated to the organisation's own-patient activity
- the true cost is more appropriate for comparison between peers, as these costs can significantly affect cost reporting by different providers.

Proxy records

10. Proxy records may be generated for services that do not keep a record of patient contacts for information governance purposes; see Standard IR2: Managing information for costing.

11. You should ensure that proxy records are included in the activity reconciliation.

Services with sensitive/legally restricted data requirements

12. You will need to consider pseudonymising data for services with sensitive/legally restricted data. Some services have extra levels of required information governance because the legal data holding regulations and patient consent differ for them. **'A'** patient rather than **'the'** patient will need to be costed. The reconciliation of both cost and activity with other trust records will need to take this into account.

CP6: Assurance of cost data

Purpose: To ensure providers develop and maintain high quality assurance for costing and collection purposes.

Objective

1. To provide assurance that:
   - providers have implemented the standards and collections guidance properly
   - providers have applied the costing principles in the costing process and outputs
   - providers are maintaining a clear audit trail of the costing and collection process
   - processes are adequate to validate the accuracy of submitted data in line with the *Approved Costing Guidance*
   - information governance protocols are followed
   - patient pathways and cost data have been clinically reviewed.[27]

Scope

2. This standard relates to all costing processes and outputs produced by the provider.

[27] Later versions of the standards will require clinical review, but having taken feedback we recognise that for now developing these review processes should be the goal.

What you need to implement this standard

- Costing principle 4: Good costing should involve transparent processes that allow detailed analysis
- Costing principle 7: Good costing should engage clinical and non-clinical stakeholders and encourage use of costing information[28]
- Integrated costing assurance log (ICAL) workbook[29]
- Standards gap analysis template (SGAT)
- Information gap analysis template (IGAT)
- Costing assessment tool (CAT)[30]
- Data validation tool (DVT)
- Access to the national PLICS portal

Overview

3. There are several ways to provide assurance on the costing and collection process, including:
   - formal audit of process and submission by the provider's internal and external auditors
   - evidence demonstrating:
     - compliance with the standards and associated guidance
     - process management using the integrated costing assurance log (ICAL)
     - users' review of cost data
     - minutes of regular user/working group meetings
     - use of the cost information to support decision-making (eg cost improvement plans, returns to regulators, local prices). See IR3: Use of cost information.

4. The assurance process should be an integral part of producing cost information. Producing an audit trail, covering assumptions, decisions and reviews should be part of the process. This will enable your organisation to

[28] See *The costing principles,* https://improvement.nhs.uk/resources/approved-costing-guidance/
[29] These tools/templates are available on our website.
[30] Acute, ambulance and mental health sector-specific versions are available on our website. Community services may use the acute version for reference until a sector-specific one is available.

show both internal and external users that it has adequate processes for ensuring the accuracy of cost information.

5. Many stakeholders require assurance that the PLICS data is appropriate. They are:
   - the executive team for its strategic decision-making
   - clinicians/healthcare professionals and their operational managers when analysing activities and clinical procedures
   - external stakeholders, who may make varied uses of the information.

6. The level of evidence should be sufficient to support the reason for making the change. It will also allow updates and changes to the costing processes and can be linked to the ICAL worksheet 18: Decision audit trail, to show why processes have been changed. This will support the assurance process for the board when submitting the costing submission. It can also help identify areas where costing needs to be improved, based on recommendations from findings that could not be completed in time for the submission.

7. We provide several tools to help you develop and maintain an assurance process that will promote continued improvement of costing in your organisation. Figure CP6.1 shows examples of these.

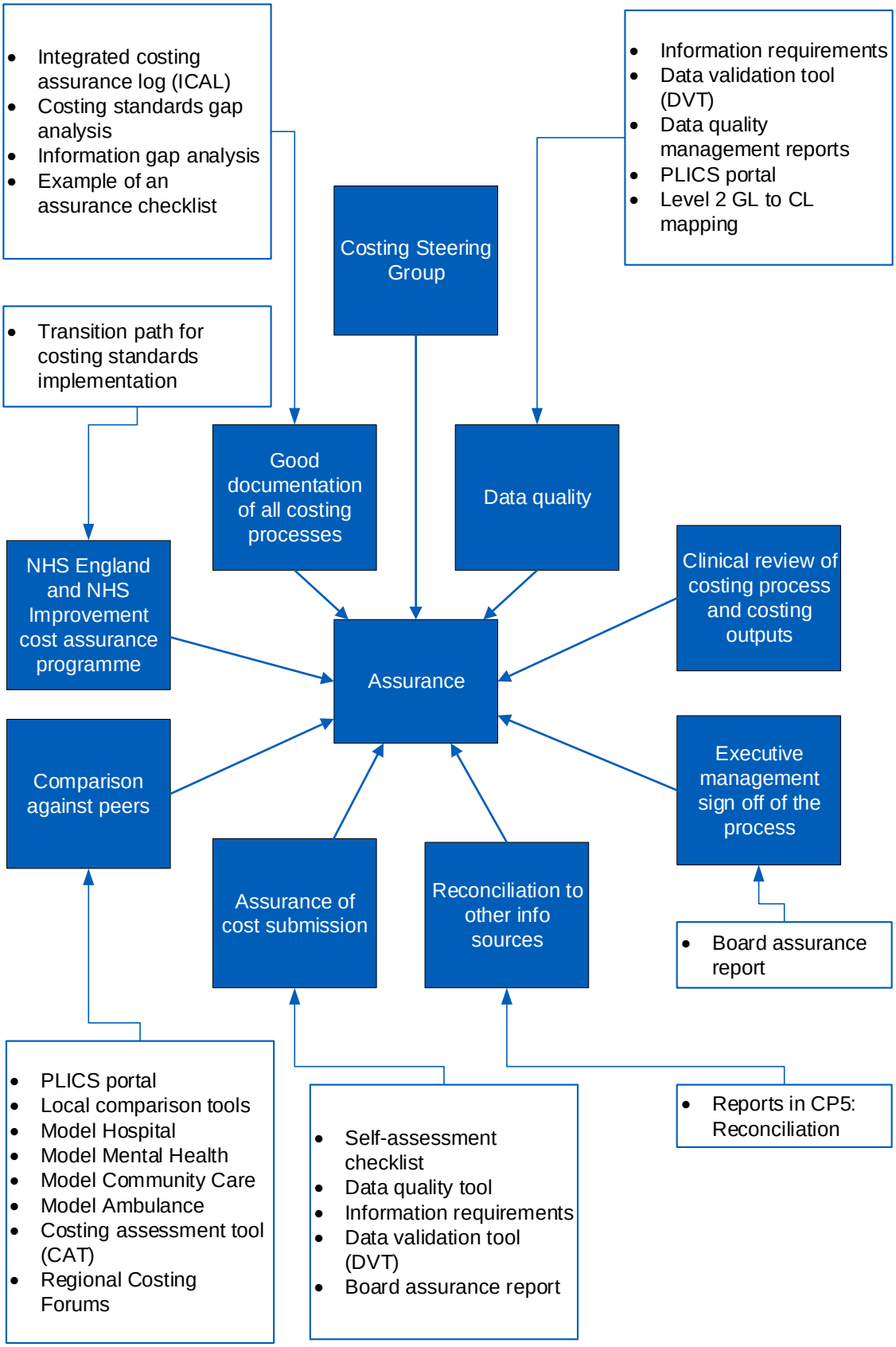
Approach

Documenting costing processes

8. You should use our tools to document your organisation's costing processes.[31] In particular:
   - The **ICAL** helps document compliance with the standards. You can use it to record where you have made local adjustments and the reasons for them. It will also ensure your organisation retains costing knowledge and expertise when costing practitioners change.
   - The **SGAT** summarises the costing process standards to help your organisation plan and prioritise implementing the standards.

[31] See tools and templates to help implement the standards: https://improvement.nhs.uk/resources/approved-costing-guidance-2019

Figure CP6.1: Assurance tools



- The **IGAT** helps assess the gaps between the information collected and what the information requirement standards require. This will help discussions between informatics teams and costing practitioners on assessing and closing the gaps identified.
- The **CAT** helps providers understand and record their progress in implementing the standards. It will help you focus your attention on areas to develop and improve based on their materiality.
- **Spreadsheet: Transition path** describes a three-year plan for implementing the standards.
- The **Model Hospital, Model Mental Health and Model Community**[32] have useful information for reviewing cost data.

9. Documenting all costing processes effectively brings benefits that include:
   - being able to show the assumptions and source data to end users, which will improve the outputs' credibility and increase confidence in their usefulness
   - a clear audit trail – an integral part of good documentation – will facilitate reconciliation and assurance, as well as provide evidence for the management of the overall process; it will also provide a template for improving future calculation of costs
   - understandable assumptions that can more easily be challenged, leading to improvements in the costing process.

Assurance on the quality of costing processes and outputs

10. Costing is a material and significant system in providers as it supports national and local pricing processes and generates the underlying data for business and investment decisions. Therefore, we expect providers to ensure costing is included in internal and external audits. This will provide assurance on the accuracy of cost data for internal and external users.

11. National reviews of the quality of the data submitted will be scheduled periodically – this is known as the costing assurance programme.

12. Cost information must be linked to the organisation's ongoing management, so it continues to accurately reflect the services being delivered.

[32] https://improvement.nhs.uk/resources/model-hospital/

13. The more services use cost information, the more they will understand the cost data and how it has been calculated and be able to contribute to improvements and add detail. This in turn will build their confidence in the cost information for their service and enable its use for the transformation of care. Therefore, it is vital to offer an opportunity for services to review and give feedback on their cost data.

14. Cost information should be owned by senior managers and clinicians. The finance function needs engagement from across the organisation if it is to provide meaningful support.

Local costing steering group

15. To assure the information held within and extracted from PLICS, the organisation should form a 'costing steering group' with executive and clinical membership. Ideally, the chair will be a clinician.

16. Such a group's overall purpose is to provide assurance of the quality of cost information and support improvement where necessary; and oversee, provide ideas for, encourage and evaluate the use and understanding of costing information in the organisation.[33]

17. It can achieve this by:

    - reviewing cost information and the cost submission
    - reviewing the quality and coverage of the underlying data
    - reviewing existing costing processes
    - agreeing priorities for reviewing and developing the system.

18. To assist with this, the group should be supported by members from:

    - IT (technical services)
    - informatics (information services)[34]
    - clinical coding (if relevant)
    - finance
    - service managers

[33] See also Standard IR3: Use of patient-level information.
[34] IT technical services and information services may form one department or be separate. Regardless, both should be appropriately represented as they are critical to PLICS.

- other care providers including senior nursing
- E&T lead
- a clinical champion (any discipline).

19. This type of review should be part of a rolling programme rather than a one-off as part of a national mandated collection.

20. The group may be required to report to existing trust groups to fit local arrangements. For example, the costing steering group may be required to report on the national cost collection to the audit and assurance committee.

21. The group may delegate to appropriate existing or new specific subgroups for tasks as needed.

Regular assurance processes

22. You should have a rolling programme for reviewing the costing processes and outputs to provide assurance that the costing information is sufficiently accurate for its intended use. The effort given to this type of validation should be proportionate to the significance of the costs being measured, and to the costing purpose in line with the principle of materiality.

23. You should work with clinicians, other healthcare providers and service managers so you can:

    - understand all the resources and activities involved in delivering patient care
    - understand the information sources available to support costing
    - identify the expected costs associated with that care
    - ensure all information is reflected in the costing processes within your costing system.

24. Effective engagement between an organisation’s board and its costing team is a prerequisite for improving and making better use of patient-level cost information. Boards have an important role in securing greater engagement between clinical and costing staff.

25. Effective executive support will also lead to more and better governance, including documenting and defining policies and procedures.

Assurance on the reconciliation to other information sources

26. Reconciliation to financial and activity sources is an important part of providing assurance on the costing outputs' quality. It is important to provide assurance that a single source of data is used for all decision-making. Follow the guidance in Standard CP5: Reconciliation to ensure you are reconciling to the appropriate information sources.

Assurance on information governance

27. You should ensure local and national information governance protocols are followed for patient-level data within PLICS data feeds, processing and outputs. Work with the trust information governance lead and informatics to gain sign off from both, to provide assurance to the costing user group.

Assurance on the quality of the cost submission[35]

28. We provide tools to help you with the quality of your cost submission. These include:

    - **The self-assessment checklist** at the end of this standard ensures providers are reviewing their data quality and including executive review and sign-off, and minimum expected quality checks.
    - **The PLICS data quality tool** (Tableau) is accessed via NHS Improvement's single sign-in website. It reviews the submitted cost data, quickly identifying quality issues, and informs providers if resubmission is required. Providers will receive a quality/index report to help inform their costing and data investigation. It also enables providers to review their costs with peers.
    - **The data validation tool (DVT)** comprises mandatory validations as part of the collection process that indicate whether the submission will fail based on the field and values formatting requirements for uploading the data. The tool also includes checks where analysing the data reveals warnings about expected outputs. These warnings are non-mandatory and should help your investigation, validation and assurance of the cost data uploaded.

[35] Information on these tools and where to find them is given in the *Approved Costing Guidance*: https://improvement.nhs.uk/resources/approved-costing-guidance or by emailing costing@improvement.nhs.uk

Comparison with peers

29. Acute providers that have submitted PLICS data can access the national PLICS portal via NHS Improvement's single sign-on website.36 The PLICS portal enables them to review their submitted data and anonymously compare their outputs with those of their peers. In this way a provider can identify its outlying areas and focus on reviewing the activity and costing for these. The PLICS portal provides reports on where providers can improve their costing and assurance of their data. It also identifies potential productivity opportunities and other metrics such as the weighted average unit.

30. The DVT provides a baseline analysis of warnings that give assurance that the data input by all providers submitting data is comparable and subject to the same validations. The work that follows the warnings generated by the DVT will give additional assurance that providers have investigated and corrected their data to best fit the expected costs of the submission and those of their peers.

31. The CAT provides a dashboard that allows comparison of CAT scores against those of your peers.

32. You should have a rolling programme of local exercises to regularly compare your organisation's costs with those of your peers.

Costing assurance programme[37]

33. The aim of the assurance process is to provide evidence of the work undertaken and the reasoning behind the decisions made. As such, the audit trail, evidence of data flows, discussions and meetings, discussions with clinicians, etc should be maintained but not be an end in itself. The ICAL should be populated as a central location for evidence, or for signposting to where the evidence is stored.

[36] PLICS portals for Mental Health, Ambulance and Community services are in development.
[37] See *The Approved Costing Guidance 2020– what you need to know and what you need to do* for details of the costing assurance programme: https://improvement.nhs.uk/resources/approved-costing-guidance/

34. Providing evidence for an external assurance audit should not be the main purpose of collecting this information.

35. The evidence provided should also be in harmony with the costing principles.[38]

36. As part of the costing assurance project we recommend your organisation has a clear and robust plan for costing, so priorities and achievements can be easily communicated.[39]

[38] See *The costing principles:* https://improvement.nhs.uk/resources/approved-costing-guidance/
[39] Example project plans and an assurance checklist are available on the Online Learning Platform at https://www.openlearning.com/nhs/courses/costing-improvement/creating_a_project_plan/ and https://www.openlearning.com/nhs/courses/costing-improvement/costing_assurance_checklist/ if you require access to this document, please email costing@improvement.nhs.uk

Appendix 1: Relative weight values specification – Pathology

Pathology process	Field name	Full field name
Data requirements	Investigation code	Data requirements – investigation code
	Investigation name	Data requirements – investigation name
	Lab department	Data requirements – lab department
	Sent away or in-house	Data requirements – sent away or in-house
Preparation	Band	Preparation – band
	Time (min)	Preparation – time (min)
	Cost ledger code	Preparation – cost ledger code
	Resource	Preparation – resource
Running of the test	Band	Running of the test – band
	Time (min)	Running of the test – time (min)
	Cost ledger code	Running of the test – cost ledger code

Integrated costing processes

Pathology process	Field name	Full field name
	Resource	Running of the test – resource
Reviewing the test	Band	Reviewing the test – band
	Time (min)	Reviewing the test – time (min)
	Cost ledger code	Reviewing the test – cost ledger code
	Resource	Reviewing the test – resource
Consultant review	Time (min)	Consultant review – time (min)
	Cost ledger code	Consultant review – cost ledger code
	Resource	Consultant review – resource
Reagents	Cost (£)	Reagents – cost (£)
	Cost ledger code	Reagents – cost ledger code
	Resource	Reagents – resource
Specialist equipment	Cost (£)	Specialist equipment – cost (£)
	Cost ledger code	Specialist equipment – cost ledger code
	Resource	Specialist equipment – resource
Other significant consumables	Cost (£)	Other significant consumables – cost (£)

Integrated costing processes

Pathology process	Field name	Full field name
	Cost ledger code	Other significant consumables – cost ledger code
	Resource	Other significant consumables – resource
Equipment maintenance	Cost (£)	Equipment maintenance – cost (£) To calculate costs at test level, divide total maintenance cost for a specific machine by the number of tests conducted using that machine
	Cost ledger code	Equipment maintenance – cost ledger code
	Resource	Equipment maintenance – resource
Equipment depreciation	Cost (£)	Equipment depreciation – cost (£) *To calculate costs at test level, collect depreciation cost for a specific machine from the fixed asset register and divide by the number of tests conducted using that machine
	Cost ledger code	Equipment depreciation – cost ledger code
	Resource	Equipment depreciation – resource
Sent away costs	Cost (£)	Sent away costs – cost (£) The cost of each test sent away can be ascertained from the general ledger. Carriage costs such as dry ice must also be considered
	Cost ledger code	Sent away costs – cost ledger code
	Resource	Sent away costs – resource

Appendix 2: Relative weight values specification – Diagnostic imaging

Diagnostic imaging process	Field name	Full field name
Data requirements	Examination code	Data requirements – examination code
	Examination name	Data requirements – examination name
	Modality	Data requirements – modality
	Scanner used	Data requirements – scanner used
	Location	Data requirements – location
Preparation	Band	Preparation – band
	Time (min)	Preparation – time (min)
	Cost ledger code	Preparation – cost ledger code
	Resource	Preparation – resource
Radiographer	Band	Radiographer – band
	Time (min)	Radiographer – time (min)

Integrated costing processes

Diagnostic imaging process	Field name	Full field name
	Cost ledger code	Radiographer – cost ledger code
	Resource	Radiographer – resource
Consultant (test)	Time (min)	Consultant (test) – time (min)
	Cost ledger code	Consultant (test) – cost ledger code
	Resource	Consultant (test) – resource
Consultant (review)	Time (min)	Consultant (review) – time (min)
	Cost ledger code	Consultant (review) – cost ledger code
	Resource	Consultant (review) – resource
Contrast/tracer agents	Description	Contrast/tracer agents – description
	Cost (£)	Contrast/tracer agents – cost (£)
	Cost ledger code	Contrast/tracer agents – cost ledger code
	Resource	Contrast/tracer agents – resource
Specialist equipment	Cost (£)	Specialist equipment – cost (£)
	Cost ledger code	Specialist equipment – cost ledger code
	Resource	Specialist equipment – resource

Integrated costing processes

Diagnostic imaging process	Field name	Full field name
Other significant consumables	Cost (£)	Other significant consumables – cost (£)
	Cost ledger code	Other significant consumables – cost ledger code
	Resource	Other significant consumables – resource
Equipment maintenance	Cost (£) (annual maintenance cost/annual number of tests)	Equipment maintenance – cost (£) To calculate costs at test level, divide total maintenance cost for a specific machine by the number of tests conducted using that machine
	Cost ledger code	Equipment maintenance – cost ledger code
	Resource	Equipment maintenance – resource
Equipment depreciation	Cost (£) (annual depreciation cost/annual number of tests)	Equipment depreciation – cost (£) To calculate costs at test level, collect depreciation cost for a specific machine from the fixed asset register and divide by the number of tests conducted using that machine
	Cost ledger code	Equipment depreciation – cost ledger code
	Resource	Equipment depreciation – resource
Equipment energy consumption	Time (min)	Equipment energy consumption – time (min)
	Cost (£)	Equipment energy consumption – cost (£)

Integrated costing processes

Diagnostic imaging process	Field name	Full field name
	Cost ledger code	Equipment energy consumption – cost ledger code
	Resource	Equipment energy consumption – resource

Contact us:

costing@improvement.nhs.uk

NHS England and NHS Improvement
Wellington House
133-155 Waterloo Road
London
SE1 8UG

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