Healthcare costing standards for England
Information requirements and costing processes
Second version

Ambulance
We support providers to give patients safe, high quality, compassionate care within local health systems that are financially sustainable.
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Introduction

This is the second version of the *Healthcare costing standards for England: ambulance*. These standards should be applied to 2017/18 data and used for all national cost collections. They supersede all earlier versions. All paragraphs have equal importance.

These standards have been through two development cycles involving engagement, consultation and implementation. We would like to thank all those who have contributed to the development of these standards.

The main audience for the standards is costing professionals but they have been written with secondary audiences in mind, such as clinicians and informatics and finance colleagues.

For ambulance services, there are three types of standards: information requirements, costing processes and costing methods.

- **Information requirements** describe the activity information required to implement the other costing standards, and suggest how costing practitioners can work with informatics and service departments to obtain good quality data for costing.

- **Costing processes** apply to all services provided by your organisation and cover the costing process from the general ledger through to the final patient unit cost and reconciliation to audited accounts.

These first two sets of standards, contained in this document, make up the main costing process. They should be implemented in **numerical order**, before the costing methods.

- **Costing methods** focus on high volume and high value services or departments. These should be implemented after the information requirements and costing processes, and prioritised based on the value and volume of the service for your organisation.
All of the standards are published on NHS Improvement’s website.¹ An accompanying technical document contains information required to implement the standards, which is best presented in Excel. In this document, cross-references to spreadsheets (for example, Spreadsheet CP3.3) refer to the technical document.

We have ordered the standards linearly but, as aspects of the costing process can happen simultaneously, where helpful we have cross-referenced to information in later standards.

We also cross-reference to relevant costing principles. These principles should underpin all costing activity.²

We have produced a number of tools and templates to support you to implement the standards. These are available to download from https://improvement.nhs.uk/resources/approved-costing-guidance-standards

You can also download an evidence pro forma if you would like to give us feedback on the standards. Please send completed forms to costing@improvement.nhs.uk

¹ See https://improvement.nhs.uk/resources/approved-costing-guidance-standards
² For details see The costing principles, https://improvement.nhs.uk/resources/approved-costing-guidance/
Information requirements

IR1: Collecting information for costing

IR2: Managing information for costing
IR1: Collecting information for costing

Purpose: To set out the minimum information requirements for patient-level costing.

Objectives

1. To ensure all providers collect the same information for costing, comparison with peers and collection purposes.

2. To help allocate the correct quantum of cost to the correct activity using the prescribed cost allocation method.

3. To support local reporting of cost information by activity in the organisation’s dashboards.

Scope

4. The information requirements specified in this standard apply to all activity going through 999 control centres.

5. Activity information is required to cost a patient, not the patient. The aim is to divide an incident’s costs between all the patients treated, not to gather all data relating to each patient.

6. Data on clinical interventions falls outside the scope of this standard. This data is not currently available for costing and more appropriate drivers for ambulance service costs such as journey time and on-scene time are used.
Overview

7. This standard and Spreadsheets IR1.1 and IR1.2 specify five patient-level activity feeds as the minimum requirement for allocating resources.

8. Refer to columns B and C in Spreadsheet IR1.1 for the specific requirements and definitions. This standard gives the purposes of collecting the information as well as the ways to work with the relevant teams in your organisation to collect the minimum required data in a format suitable for costing.

9. Any costs not covered in the five patient-level feeds need to have relative weight values or other local information sources to allocate the costs. Use statistic allocation tables to store relative weight information to use in your costing systems where the standards prescribe using a relative weight\(^3\) to allocate costs.

10. You may be using additional sources of information for costing. If so, continue to use these and document this in your costing manual.

11. This standard specifies what information to collect, not how to collect it. If you collect several of the specified feeds in one dataset, you should continue to do so, as long as the information required is captured.

12. If you do not currently collect and use the minimum required activity information feeds, you should work with your informatics department and the departments providing the services to put in place systems to collect this information. We acknowledge that some requirements cannot be met by all providers currently. We provide a framework for working towards making the relevant data available (see Figure IR2.1 in Standard IR2: Managing information for costing) and a three-year transition path to meet the information requirement (see Column M in Spreadsheet IR1.2).

13. Note that the data tables and fields specified in this standard are neither reports that you need to produce nor a collection template. They specify the information you will need for costing and the production of the required outputs to populate a separate collection template.

\(^3\) Please see Standard CP3: Appropriate cost allocation methods paragraphs 40 to 48 for more information on relative weight values.
What you need to implement this standard

- Costing principle 1: Good costing should focus on materiality\(^4\)
- Spreadsheet IR1.1: Activity feeds required for costing
- Spreadsheet IR1.2: Field requirements for the activity feeds
- Spreadsheet IR1.3: Examples of feed data for different scenarios

Approach

Information required for allocating patient-facing costs

14. Information on the following is required for allocating patient-facing costs:
   - emergency response activity
   - patients
   - vehicles
   - staff.

Information feeds

15. We specify five activity information feeds:
   - feed 1: incident information – master feed
   - feed 2: response unit information – auxiliary feed
   - feed 3: patient information – auxiliary feed
   - feed 4: staff information – auxiliary feed
   - feed 5: fleet information – auxiliary feed.

16. Spreadsheet IR1.1 describes the detail required for the activity data for the five feeds. The specific data fields required for each feed are listed in Spreadsheet IR1.2.

17. Two types of feed support the matching process. They are classified in column G in Spreadsheet IR1.1:

\(^4\) See The costing principles, https://improvement.nhs.uk/resources/approved-costing-guidance/
• master feeds – the core patient-level activity feeds that the other feeds are matched to, eg the incident information feed
• auxiliary feeds – the information feeds that are matched to the master feeds, eg the staff and fleet information feeds.

18. These feeds can be matched to produce patient-level cost records for patient-level information and costing systems (PLICS) as well as incident-level costs for local reporting and other uses, while retaining the most detailed level of data.

19. Please note that, unlike the other information feeds, the fleet information feed (feed 5) is not an activity feed – that is, it contains no information about patient-facing activities. It is an information source to help allocate fleet costs at the level of each vehicle and thus improve cost allocation.

Activity information (feeds 1 and 2)

20. Activity information for ambulance services covers every stage of an emergency response – from receiving a call to treating and conveying the patient(s) to a treatment location, handing over care and preparing to respond again.\(^5\)

21. Activity data is collected from the call or another trigger (eg an ambulance passes a roadside incident or transfer from NHS 111 service) and any subsequent responses. This consists of:

• incident information (feed 1), eg start and end time of the call; number of response units dispatched
• response unit information\(^6\) (feed 2), eg timestamps of different stages in each job cycle.

22. Although data on call-handling activities\(^7\) is usually collected at the call level, this version of the standard only requires information on the main call associated with the incident (ie at incident level). This is because duplicate

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\(^5\) See Standard CM1: Allocating costs across job cycle elements for details of job cycle stages.
\(^6\) A response unit is the combination of staff and vehicle that responds to an incident. See the costing glossary for a full definition.
\(^7\) See Standard CM1: Allocating costs across job cycle elements for details of call stage activities.
calls associated with the same incident cannot be linked to the main call and the incident.\textsuperscript{8}

23. Data on telephone clinical advice activities\textsuperscript{9} is usually collected at the incident level (feed 1). Data on giving telephone clinical advice to the crew at the scene is not required for this version of the standards.

24. Data on the physical response stage activities\textsuperscript{10} is usually collected at the response unit level (feed 2), and may be more detailed than that at the patient level since one patient can be treated by multiple response units.

25. Providers will be required to collect an incident-level activity feed (feed 1) to bring together multiple response units’ activity for use in allocating costs to individual or multiple patients.

\textit{Costing standards relative to feeds 1 and 2}

- Standard CM1: Allocating costs across job cycle elements
- Standard CM3: Non-responding time
- Spreadsheet IR1.3: Examples of feed data for different scenarios\textsuperscript{11}

\textbf{Patient information (feed 3)}

26. Patient information collected during the emergency call and response can include:

- patient identifying information, eg NHS number or other patient ID
- demographic information, eg age, gender
- information relating to the emergency call, eg reasons for the call (also known as chief complaint)
- activity type:
  - hear and treat/refer
  - see and treat/refer

\textsuperscript{8} This is based on feedback from the National Ambulance Information Group.
\textsuperscript{9} See Standard CM1: Allocating costs across job cycle elements for details of call stage activities.
\textsuperscript{10} See Standard CM1: Allocating costs across job cycle elements for details of physical response stage activities.
\textsuperscript{11} See scenario examples in Spreadsheet IR1.3 for how the incident feed (feed1), response feed (feed 2) and patient feed (feed 3) link together and what specific data fields need to be populated in each scenario.
27. We acknowledge that for some patients not all of these details will be available. We expect available data to be recorded and an attempt made to find the NHS number using the batch-tracing service,\textsuperscript{12} NHS Spine\textsuperscript{13} or other services. In the technical document we provide codes to use when data is not available.

28. Note that for the patient identifiable information, information governance issues should be covered by the provider’s own procedures, not these standards.

29. For multiple-patient incidents, the number of conveying vehicles arriving at a treatment location should be used as a proxy for the number of patients involved in the incident.\textsuperscript{14} A patient record should be generated for each patient conveyed, even if the patient’s details are not available.

Costing standards relevant to feed 3

- Standard CM1: Allocating costs across job cycle elements
- Spreadsheet IR1.3: Examples of feed data for different scenarios\textsuperscript{15}

Staff information (feed 4)

30. Best practice is to use information from the actual rotas and staff pay. This data can directly link staff costs to the activities the staff were involved with and accurately distribute non-responding time across jobs. The aim is to match staff costs to the incidents those staff responded to.

31. Staff information includes:
   - shift start and end date and time
   - staff identifier

\textsuperscript{12} See https://digital.nhs.uk/media/31515/DBSB-NHS-Number-Batch-Tracing/doc/DBSB_-NHS_Number_Batch_Tracing for technical details on batch tracing.

\textsuperscript{13} See https://digital.nhs.uk/spine for details on Spine.

\textsuperscript{14} See Standard CM1: Allocating costs across job cycle elements for details of how to allocate costs to multiple patients involved in an incident.

\textsuperscript{15} See scenario examples in Spreadsheet IR1.3 for how the incident feed (feed1), response feed (feed 2) and patient feed (feed 3) link together and what specific data fields need to be populated in each scenario.
• vehicle identifier.

Costing standards relevant to feed 4

• Standard CM1: Allocating costs across job cycle elements
• Standard CM3: Non-responding time

Fleet information (feed 5)

32. Information is needed on the maintenance, lease, purchase and running of vehicles in the fleet, including:
   • vehicle identifier
   • parts used in repairs
   • time spent off road (in hours).

33. The fleet management system should provide the required information for allocating maintenance and repair costs to specific vehicles. However, fleet management information is not yet available for costing across all providers.\(^{(16)}\)

34. Future development of the standards will prioritise making fleet data available. As and when more detailed information is collected, the standards will be updated accordingly.

35. Deep-cleaning dates and costs should be collected at the individual vehicle level, using a fleet number or other unique identifier.

Costing standards relevant to feed 5

• Standard CM2: Fleet costs
• Standard CM3: Non-responding time

Locally specified information feeds

36. Organisations are encouraged to collect more patient-level activity data wherever this is practical, taking into account the principle of materiality (refer to the costing principles).

\(^{(16)}\) This is based on feedback from the National Ambulance Information Group.
37. If your organisation has a well-developed electronic patient record (EPR) system you may be able to capture more data on the care given to patients than the standards currently require. You should collect this additional data as it will increase local understanding of the costs associated with different activity and future versions of the standards may require it for costing.

38. The groups of information listed above are the minimum the standards require for costing, but do not cover all patient activities in ambulance services. You need to decide whether specific local costing needs require additional activity feeds. Examples of such feeds are:

- patient transport service
- NHS 111 service
- urgent care
- GP out-of-hours services
- commercial activities such as first aid training and sports events.

39. Three criteria govern the priority for obtaining these feeds:

- value of service
- volume of service
- priority of the service within the provider and the healthcare economy.

40. If you are already collecting additional patient-level activity data, you are encouraged to continue to do so as this is best practice. Record these additional feeds in your costing manual.

41. If you use fields additional to those specified for local reporting or more detailed costing, continue to use these and log them in your costing manual.

**Other considerations**

42. Spreadsheet IR1.2 gives the required data fields for the five information feeds. These fields have various functions, such as costing, collection or reporting.
43. The activity feeds do not contain any income information. Your organisation may decide to include the income for the feeds at patient level to enhance the value of its reporting dashboard.\(^{17}\)

44. The feed specifications in Spreadsheets IR1.1 and IR1.2 do not include description fields. You may ask for description fields to be included in the feeds; otherwise you need to maintain code and description look-up tables for each feed to understand the cost data supplied. You need a process to map and regularly (at least annually) revalidate the codes and descriptions for each service.

PLICS collection requirements

45. The master feed of Incidents forms the basis of the cost collection. See the Ambulance PLICS cost collection guidance for more details.\(^{18}\)

\(^{17}\) See Standard CM4: The income ledger for further information.

\(^{18}\) [https://improvement.nhs.uk/resources/approved-costing-guidance-collections/](https://improvement.nhs.uk/resources/approved-costing-guidance-collections/)
IR2: Managing information for costing

Purpose: To assess the availability of the information specified in Standard IR1: Collecting information for costing, and to recommend processes to manage this information.

Objectives

1. To explain how to use information in costing.
2. To explain how to support your organisation in improving data quality in information used 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. Costing practitioners are not responsible for the quality and coverage of information in your organisation. However, you are ideally placed to raise data quality issues in your organisation.

7. This standard provides guidance on how you can minimise the impact of poor quality activity information when producing cost information. These are considered to be short-term measures that allow you to produce cost
information 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 focuses on the steps you should take to be confident about the data used for costing and to support improvements in data quality in your organisation. Your organisation should have its own governance arrangements for managing data capture and flows, for ensuring data quality, and for compliance with relevant information governance requirements.

What you need to implement this standard

- Costing principle 1: Good costing should focus on materiality
- Costing principle 4: Good costing should be based on high quality data that supports confidence in the results.\(^\text{19}\)

Approach

Assessing the availability of information for costing

9. Most of the required information\(^\text{20}\) should be held on your information systems, but its availability will vary due to different information management practices and the capacity of your information technology. Here we provide guidance on assessing data availability. You should work with your informatics department and the relevant services to assess the availability of data against Standard IR1: Collecting information for costing and to streamline processes for extracting what is required.

10. The quality of information varies between organisations. The specific data fields in each feed are given in Spreadsheet IR1.2. Their availability can be grouped as follows:

- **Available from computer-aided dispatch (CAD) systems (most fields in feeds 1 to 3):** activity and patient data are recorded based on semi-automated job cycle stage triggers – for example, arriving at the scene, leaving the scene, arriving at the treatment location – from response vehicles and dispatchers, and callers’ answers to questions asked of them.

\(^{19}\) See *The costing principles*, https://improvement.nhs.uk/resources/approved-costing-guidance/

\(^{20}\) As specified in *Standard IR1: Collecting information for costing*. 
over the telephone by the call handler, and coded according to your triage system.

- **Available from your local information systems (feed 4 and 5):** this information is collected from local information systems other than the CAD. The availability of the information varies depending on the development of the local systems at your organisation – for example, some providers do not collect all the fleet and staff information required.

- **Available but not necessarily in a usable format (certain fields in feed 3):** activity and patient information data from patient report forms (PRFs) completed for each patient by frontline staff. This is often captured and stored on paper, making it difficult to incorporate with other data sources on any scale. Providers with integrated EPR systems in place should use this data source where possible and appropriate, either instead of information from the CAD system or as a supplement to it.

- **Not currently available (certain fields in feeds 1 to 3):** for example, number of patients treated at the scene.

11. Use NHS Improvement’s [Information gap analysis template](#) and work with your informatics colleagues and relevant services to assess data availability for costing. Use column M in Spreadsheet IR1.2 to inform these discussions.

12. If you are not collecting the required information, you must work with the relevant departments in your organisation to begin collecting it and to make it available for costing. Figure IR2.1 shows you how to access data for costing.

13. If you cannot achieve all the minimum requirements initially, you should prioritise accessing:

- fleet information
- staff information
- and data fields to:
  - flag whether an incident involves one or more patients
  - provide a proxy count of patients based on the number of vehicles arriving at a treatment location.
**Data available from systems other than the CAD**

14. Payroll data should be available from an internal system such as the electronic staff record (ESR) and rota data should be available from an internal system such as the global rota system (GRS) to provide the information required for the staff information feed (feed 4).

15. If you do not currently collect shift data, you should work with your informatics department and the relevant operational or scheduling departments to collect it.

16. You should use staff payroll data to allocate staff costs to the activities these staff deliver. Your CAD system should record which staff respond to which incidents. However, if it does not, continue to use your current method and work towards obtaining the required information. Record the information you collect and the approach you use in your costing manual.

17. Note that you must ensure that relevant information governance requirements are complied with when accessing individual payroll data.

18. Depending on the development of your fleet management system, the fleet information feed (feed 5) may or may not be available at your organisation.

19. If your organisation does not collect the required fleet information, continue to use your current method and work towards obtaining the required information. Record the information you collect and the approach you use in your costing manual.

**Data that is available but may not be suitable for use in costing**

20. Providers complete a PRF for each patient they treat or convey. In some cases, multiple forms may be completed for the same patient – for example, when care switches between different frontline staff, or when a patient is observed over a long time.

21. The adoption of EPR systems varies widely, with many providers still using paper forms; EPR systems vary in their ability to link to hospital systems.
22. PRF data is not currently used in costing. Any plans to incorporate PRF data into costing will have to ensure the data is available in a useable format and of high enough quality (see Figure IR2.1).

23. In future, quality PRF data could provide a rich and accurate source of data for costing at the patient level. Costing systems should be set up with the anticipation that this data source will become available.

Unavailable data and future requirements for data collection

Linking duplicate calls

24. All call-handling activities are recorded in your CAD system. However, when there is more than one call about an incident only the main call is linked to the incident; all duplicate calls are recorded separately.

25. To accurately allocate call-handling resources it is important to link activity data about all calls, including duplicates, to an incident. This enables you to allocate costs based on the duration of all relevant calls, not just the main call. Developing a way to obtain this information is a goal for future versions of the standards.

Telephone clinical advice

26. There are two issues with the activity data on giving telephone clinical advice:

- providers do not record time spent giving clinical advice to patients by telephone (ie hear and treat) in the same way; some record it separately from answering the call and triage, while others do not distinguish the two activities
- time clinical advisors spend talking to ambulance crews is not recorded.

27. Separating call-handling activities from telephone clinical advice activities is important as different resources need to be allocated to the two types of activity. Developing a way to obtain this information is a goal for future versions of the standards.

28. In this version of the standards we include a yes/no option for providers that can record when telephone clinical advice is given to ambulance crews.
Number of patients

29. In the absence of PRF data, the number of patients treated at the scene cannot currently be recorded. Developing a way to obtain this information is a goal for future versions of the standards.

30. The number of patients conveyed to hospital is not currently recorded by any ambulance provider. Developing a way to collect this data without increasing the workload for call takers or ambulance crews is a goal for future versions of the standards.

Other patient information

31. Some patient information, such as NHS number, age, gender and clinical data beyond chief complaint, is either unavailable or of poor quality. The full adoption of EPR systems will improve the quality of this information significantly. This information is important to produce meaningful analysis of the costs information.

32. All the issues above are summarised in Table IR2.1.

Table IR2.1: Varibly available CAD system outputs

<table>
<thead>
<tr>
<th>Unavailable items or items with varying availability</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linking duplicate calls</td>
<td>CAD systems only allow one major call to be linked to an incident. Duplicate calls about the same incident cannot be linked.</td>
</tr>
<tr>
<td>Separate timestamps for call handling and providing telephone advice to patients</td>
<td>Some providers do not distinguish between hear and treat and call-handling time.</td>
</tr>
<tr>
<td>Timestamps for when clinicians provide telephone advice to ambulance crews</td>
<td>Some providers do not distinguish between hear and treat and providing telephone advice to ambulance crews; others have separate resources for each.</td>
</tr>
<tr>
<td>Number of patients at the scene</td>
<td>Field exists in some CAD systems based on a question asked during emergency calls, but call handlers are known often to make coding errors when recording numbers and the number reported by the caller is unlikely to be accurate. Providers using EPR can count the forms completed for unique patients.</td>
</tr>
</tbody>
</table>
### Unavailable items or items with varying availability

<table>
<thead>
<tr>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients conveyed to hospital</td>
</tr>
<tr>
<td>Field exists in some CAD systems, but is reported not to be widely used and when it is, the data is not collected systematically.</td>
</tr>
<tr>
<td>Patient information (NHS number, age, gender, etc)</td>
</tr>
<tr>
<td>Missing values for a significant number of patients.</td>
</tr>
<tr>
<td>Clinical data beyond chief complaint</td>
</tr>
<tr>
<td>Main source is PRF, which is often available in paper format only and data cannot currently be integrated into the costing system.</td>
</tr>
</tbody>
</table>

### Managing information feeds

33. You should keep a log of data feeds in your costing manual for each entry including:

- the feed’s source system, data table name, department, named person and a deputy responsible for providing the data source to you
- whether it is an in-month or year-to-date feed
- period covered by the feed – for example, all activities undertaken in the calendar month
- format of information to be loaded into the costing system: SQL script, Excel spreadsheet or text file (eg CSV)
- the working day on which the costing practitioner will receive the feed
- any known quality issue with the data source and solutions
- number of records on the feed.

### Supporting your organisation to improve data quality for costing and managing data quality issues in the short term

### Data quality issues

34. The quality of timestamp data for job-cycle elements varies. Some providers may have many missing values for job-cycle element start and end time. This information is vital in cost allocation as duration of job-cycle elements is used as a weighting in many of the allocation methods prescribed. You need to talk to your Informatics colleagues to look for ways to improve the data quality.
Methods to treat gaps caused by missing timestamps in job cycles should be developed locally and recorded in your costing manual.

35. You need to be aware that the chief complaint or initial diagnosis recorded for a patient does not always accurately reflect their medical problem. This is because it is based on symptoms reported according to triage system coding, not a medical diagnosis by a clinician who has assessed the patient in person.

36. For providers that have fleet management systems, their use and the quality of data available from them vary. You should be aware of this and perform quality checks on fleet data (see Figure IR2.2) before incorporating it into your costing system.

Data quality checks

37. Follow a three-step quality-checking process for costing data:

- **Step 1 – Review the source data:** identify any deficiencies in the feed, including file format, incomplete data, missing values, incorrect values, insufficient detail, inconsistent values, outliers and duplicates.

- **Step 2 – Cleanse the source data:** remedy/fix the identified deficiencies. Follow consistent rules and log your alterations, creating a ‘before’ and ‘after’ copy of the data feed. Applying 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 processes. Keep data amendments to the minimum, only making them when fully justified and documenting them clearly.

- **Step 3 – Validate the source data:** you need a system that checks 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 informatics team.

38. Consider automating the quality check to reduce human errors and varied formats. Automatic validation, via either an ETL (extract, transform, load) function of the costing software or a self-built process, can save time. But take care that the process tolerates differences in input data and if not, that this
data is consistent. Otherwise you risk spending disproportionate time fixing the automation.

39. Your organisation should continuously improve data quality for audit purposes. Request changes to the data feeds from the source department or informatics team, then review the revised data for areas to improve. Set up a formal process to guide these data quality improvement measures and ensure those most useful to costing are prioritised. Figure IR2.2 shows the process.

When information is not available for costing

40. Information for costing may be unavailable because data is not:

• collected at an individual patient level
• given to the costing practitioner
• in a usable format for costing
• loaded into the costing system and included in costing processes.

41. If you are missing any of the required data fields in Spreadsheet IR1.2, you should follow the steps shown in Figure IR2.1 to make the data available for costing.

42. Until the data becomes available, you need to:

• continue to use your current methods
• document these in your costing manual
• start discussions with the department on how to obtain the information for costing.
Figure IR2.1: Making data available for costing

Does your organisation deliver this service?  
<table>
<thead>
<tr>
<th>No</th>
<th>No need for the patient-level feed</th>
</tr>
</thead>
</table>
| Yes | Does informatics collect all required patient-level information?  
|     | No  | Work with the informatics team to collect it |
| Yes | Is it provided to the costing team?  
|     | No  | Work with the informatics team to make it available to the costing team |
|     | Is it in a usable format?  
|     | No  | Work with the informatics team to make the format usable |
|     | Yes | No need for the patient-level feed |
|     |     | Informatics starts collecting all the required patient-level information |
|     |     | Information provided to the costing team |
|     |     | Information in a usable format |
|     |     | Data loaded into the costing system |
|     |     | Data for the patient-level costing available |

Identify resources and activities for the feed, identify costing methods and input into the costing system to check outputs
Duration caps

43. Duration caps moderate outlier values by rounding them up or down to bring them within accepted perimeters. These will be locally defined and can be overridden where investigation reveals that the data correctly reflects an unusual occurrence.

44. Review the data fields to decide where to apply duration caps and build them into the costing system.

45. You can apply a cap to reduce outliers – for example, a call that is not properly closed and appears to last over six hours could be reduced to six
hours. Duration caps mean that unreasonable unit costs do not need to be explained when sharing costing information.

46. Capped data needs to be reported and investigated as part of the data quality check to make sure it does not remove the true variation. The caps need to be signed off by the relevant service.

47. An example duration cap is given in Table IR2.2. Such caps should be used as the default in the absence of better local assumptions.

**Table IR2.2: Example of duration caps**

<table>
<thead>
<tr>
<th>Feed no</th>
<th>Feed name</th>
<th>Field name</th>
<th>Duration (seconds)</th>
<th>Replace with</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Incident information</td>
<td>Call duration</td>
<td>≥3,601</td>
<td>3,600</td>
</tr>
</tbody>
</table>
Costing processes

CP1: Role of the general ledger in costing

CP2: Clearly identifiable costs

CP3: Appropriate cost allocation methods

CP4: Matching costed activities to incidents and patients

CP5: Reconciliation
CP1: Role of the general ledger in costing

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

Objective

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

Scope

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

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 subjective code level, and is a snapshot of the general ledger. You do not require balance sheet items for costing.

4. You must include all expenditure and income in the general ledger output, which must reconcile with the financial position reported by your board and in the final audited accounts.

5. The general ledger is closed down at the end of the period, after which it cannot be revised.\(^{21}\) 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,

\(^{21}\)Some systems may allow you to back post payroll journals.
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.

6. 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.

7. 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.

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
- Spreadsheet CP1.1 General ledger output required fields

Approach

Obtaining the general ledger output

8. 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.

9. Keep a record of all these adjustments, 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.

10. See Spreadsheet CP1.1 for a list of what the extract from the general ledger output must include.

---

22 See The costing principles, https://improvement.nhs.uk/resources/approved-costing-guidance/
11. **Ensure the process for extracting the general ledger output is documented.**

Ensure the process for extracting the general ledger output is documented. You should extract this once the finance team has told you it has closed the general ledger for the period.

12. **The finance team should tell you when it has set up new cost centres and subjective codes in the general ledger, and when there are material movements in costs or income between subjective codes or cost centres.**

The finance team should tell you when it has set up new cost centres and subjective codes in the general ledger, and when there are material movements in costs or income between subjective codes or cost centres. One way to do this is to circulate a general ledger changes form to all appropriate teams, including costing. Cross-team approval increases the different teams’ understanding of how any changes affect them.

13. **Finance teams should not rename, merge or use existing cost centres for something else** as this causes problems for costing if you are not informed. Finance teams should close a cost centre and set up a new one rather than renaming it. If this is not possible, you should be told about any changes.

14. **The new general ledger cost centres and subjective codes need to be mapped to the cost ledger.**

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

15. **‘Dump’ ledger codes need to be addressed so that all costs can be assigned accurately to incidents and patients.**

‘Dump’ ledger codes need to be addressed so that all costs can be assigned accurately to incidents and patients. Work with your finance colleagues to determine what these ‘dump’ codes contain so that they are mapped to the correct lines of the cost ledger.

16. **You should have a rolling programme in place to regularly meet with your finance colleagues to review the general ledger and its role in costing.**

You should have a rolling programme in place to regularly meet with your finance colleagues to review the general ledger and its role in costing.
CP2: Clearly identifiable costs

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

Objectives

1. To ensure all costs are in the correct starting position and correctly labelled for the costing process.
2. To ensure the same costs are mapped to the same resources.
3. To ensure all costs are classified in a consistent way.
4. To ensure income is not netted off against costs.

Scope

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

Overview

6. The general ledger is often set up to meet the provider’s financial management needs rather than those of costing. Therefore some of the costs it contains have to be transferred to other ledger codes, or aggregated or disaggregated in the cost ledger to ensure the costs are in the right starting position for costing.

7. We have received feedback from those who use the national cost datasets to say that the inconsistency in how costs are labelled limits meaningful analysis.
8. To ensure the accuracy of cost data, the costs at the beginning of the process need to be in the right place with the right label.

9. This is one of the reasons we have introduced a standardised cost ledger. It enables you to investigate the general ledger in depth to understand the costs it contains, and provides a way to get the costs into the right starting position with the right label. This is important as it allows the correct cost allocation method to be applied to the cost.

**Classification of costs**

10. The standardised cost ledger classifies costs at both the cost centre and expense code level, according to whether they are patient facing or support

   - **Patient-facing costs** are those directly related to delivering patient care and are driven by patient activity. They should have a clear activity-based allocation method, and will be both pay and non-pay. **These costs use resources and activities in the costing process.**
   - **Support costs** do not directly relate to delivering patient care. Many relate to running the organisation (eg board costs, HR, finance, estates). Other support costs may be service-level support costs such as service management costs.

11. To help with the costing process, support costs have been classified as type 1 and type 2:

   - **type 1** – support costs such as finance and HR allocated to all the services that used them, using a prescribed allocation method such as headcount or actual usage. These costs do not use resources and activities in the costing process
   - **type 2** – support costs allocated to the patient using an activity-based method, eg costs on Clinical Negligence Scheme for Trusts (CNST). These costs use resources and activities in the costing process.

12. The nature of the cost determines the classification, not the allocation method. The standards apply an activity-based allocation method to a type 2 support cost as this is believed to be a more accurate way to allocate this cost.

23 Please see columns D and H in Spreadsheet CP2.1 in the technical document for how cost centres and expense codes are classified, respectively.
However, the classification of the cost is still a support cost. It does not change to a patient-facing classification.

13. Some providers may have sophisticated data systems that allow them to allocate a type 1 support cost using an activity-based method, but this does not change the classification.

14. We understand that providers use other cost classifications for local reporting. The standards do not provide guidance on these.

**Income**

15. To maintain transparency in the costing process, income should not be netted off from the costs. The only exceptions to this rule are:

- Where 100% of an individual healthcare professional's costs are reported in your general ledger but they spend part of their time at another organisation. The income received for this activity at another provider can be netted off the healthcare professional's pay costs to avoid inflating the cost of the provider's own-patient care activity. It is important to determine whether the recharged value includes type 1 support costs recovery, as netting this additional income off staff costs would understate the remaining resource cost.

- Where the materiality principle applies – for very small value contracts or service-level agreements there is no need to determine the associated costs.

**Salary recharges**

16. These are described as ‘pay recharge to’ and ‘pay recharge from’ in the standardised cost ledger.

17. In line with the first bullet in paragraph 15, a ‘pay recharge to’ is where you invoice another trust for an element of someone's salary. This needs to be netted off against their salary so that 100% cost is not attributed to 50% activity. The ‘pay recharge to’ needs to be moved to the cost ledger line for the individual and netted off regardless of whether non-clinical or clinical.
18. The ‘pay charge from’ needs to be moved to the cost centre that is paying for the activity so the pay costs can be allocated to the activity.

Commercial activities

19. Commercial activities for which there are costs and income, such as providing additional ambulance cover for commercial events, should be reported in line with Standard CP5: Reconciliation under ‘other activities’. This is so that providers’ commercial activities do not inflate or deflate the costs of patient care.

20. Where income is generated but costs are difficult to identify, such as car parking, you must make a sensible estimate after discussion with the appropriate teams. Report the costs and income under ‘other activities’.

21. Where your organisation holds the budget and therefore the costs for a service, but you do not record the activity, report these costs under ‘costs and income reconciliation items’. This includes both your organisation’s own costs where there is no activity and costs incurred on another organisation’s behalf – for example, an employee working for the air ambulance service.

22. If your organisation is taking part in a national programme, treat the costs of this as ‘other activities’ until it becomes business as usual.

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 3: Good costing should show the relationship between activities and resources consumed
- Costing principle 4: Good costing should involve transparent processes that allow detailed analysis
- Costing principle 5: Good costing should focus on materiality
- Spreadsheet CP2.1: Standardised cost ledger (with mapping to resources)
- Spreadsheet CP2.2: Type 1 support costs allocation methods

23. Approach Before proceeding, review Spreadsheet: Costing diagram. This is a high level visual aid to the costing process described in these steps.

24 See The costing principles, https://improvement.nhs.uk/resources/approved-costing-guidance/
24. We describe the process in steps to make it easier to understand, but in reality the steps may happen simultaneously in the costing system.

25. You can use different software solutions to achieve the costing process.

**Setting up the costing process in your costing system**

26. The costing process described here is linear, with each element mapping to the next in a standardised way, as shown in Figure CP2.1.

27. There are three elements:

- analysing your general ledger and understanding how costs need to be disaggregated to ensure they are allocated properly, or where they need to be moved to ensure they have the right label and are in the right starting position
- using the information from this analysis to inform the processing rules in your costing system
- having the prepopulated cost ledger in your costing system; when you load your general ledger output the processing rules from above map it to the appropriate line in the cost ledger.

**Figure CP2.1: Mapping the costing process components**

28. Mapping from the general ledger to cost ledger is achieved by following the steps described below.

29. The mappings from:

- the cost ledger account codes to the resources and
- these resources to the collections resources

are provided in columns J and P in Spreadsheet CP2.1, respectively.

30. The cost ledger, resources and collections resources – with their coding structure and the mapping between them – should be prepopulated in your
costing system. If these mappings change, we will provide the information to update your costing systems.

31. Depending on what costing system you use, costing may take place at a level lower than resources (see column B in Spreadsheet CP3.1). Your system may use cost items, local resources or other classifications of costs. You can continue using any of these methods in your costing system, but be aware that it adds an additional mapping exercise to your set-up.

32. The cost allocation methods prescribed in Spreadsheet CP3.3 take into account that costing may happen at a lower level than the resource description.

33. The only mapping exercise you need to do is mapping your general ledger to the cost ledger as described below.

34. If you use a local resource in your costing process you must map your cost ledger to your local resources, then your local resources to the prescribed resources. You must document your mapping assumptions in your costing manual.

35. The mapping process still needs to be linear to maintain standardisation and consistency. Figure CP2.2A illustrates the mapping process with the additional component of a local resource.

36. Do not treat these mapping exercises as separate entities. It is important to ensure that everyone puts the same costs in the same place, to maintain the linear mapping. Figure CP2.2B is an example of how not to approach the mapping exercises.
Figure CP2.2: Linear mapping of the costing process components

A (✓)

General ledger → Cost ledger → Local resource → Resource → Collection resource

B (✗)

General ledger → Cost ledger
General ledger → Local resource
General ledger → Resource
General ledger → Collection resource

Analyse your general ledger to get your costs in the starting position with the right label

37. For the cost data to be credible we need to ensure that everyone puts the same costs in the same place before the costing process begins.

38. To achieve this you need to ensure all the costs recorded in your general ledger are in the right starting position and have the right label.

39. Use the standardised cost ledger template (column H in Spreadsheet CP2.1) to map your general ledger to the cost ledger account codes, and ensure all your costs are in the right starting position and have the right label for the costing process.
40. Analyse your general ledger to understand how costs are recorded in it and what steps you need to take to get the costs in the right starting position with the right label.

41. This will include disaggregating costs that need to be mapped as different resources, or where the labels on the general ledger do not correspond to the costs recorded on that line in the general ledger.

42. If your general ledger uses sub-analysis codes, you will need to map these codes to the correct line on the cost ledger.

43. Figure CP2.3 gives an example of the disaggregation. You may have an emergency operations centre (EOC) cost centre in your general ledger, and on the expense line ‘band 5’ you have call takers and dispatchers. The costs for the call takers and dispatchers must be disaggregated as they need to go to different resources. You can use relative weight values to determine the apportionment of costs between the two lines in the standardised cost ledger.

**Figure CP2.3: Example of disaggregation between the general ledger and the costing ledger**
44. To help prioritise what you analyse, use the GL to CL auto-mapper application matching the expense code descriptions in your general ledger output to those in the standardised cost ledger\(^{25}\) in column E in Spreadsheet CP2.1.

45. Where the GL to CL auto-mapper application does not identify an appropriate line in the cost ledger, you must analyse the general ledger line, identify what cost sits there and map it to the appropriate line in the cost ledger. Columns I and J in the standardised cost ledger contain the mapping to the resources that, with the prescribed activity, identifies the prescribed cost allocation to use. This means that everyone treats the same cost in the same way, and variation in activity costs will not be due to variations in the costing process.

46. Use the information from your in-depth investigation of your general ledger to inform the processing rules for your costing system.

47. You will not be able to analyse each line of the general ledger in depth the first time you do this exercise, but over time – with good communication between you and your finance colleagues – this can be refined, starting with where the largest costs are involved.

48. You need a rolling programme for analysing your general ledger over time to ensure that costs in the cost ledger continue to be in the right starting position with the right label.

**Load your general ledger output into your costing system**

49. The general ledger output must be transformed into the cost ledger **within the costing system** to ensure that any changes can be traced and reconciled to the provider’s general ledger.

50. You should populate the cost ledger template in your costing system. This means that when you load your general ledger input into your costing system in step 1, it uses the information from your analysis of the general ledger in step 0 to map the costs against the appropriate line in the cost ledger.

51. You will then have the right costs in the right starting position with the right label ready for the costing process to begin.

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\(^{25}\) The GL-CL auto-mapper application is available as part of the early implementer support package, and to others on request.
Moving type 1 support costs to patient-facing cost centres and type 2 support cost centres

**Figure CP2.4: Extract from the spreadsheet costing diagram in the technical document**

52. All type 1 support costs have been mapped to an allocation method in columns L and M in Spreadsheet CP2.1.

**Centrally held and devolved type 1 support costs**

53. You need to identify whether a type 1 support cost is centrally held or has already been devolved to the relevant cost centres in the cost ledger.

54. This is because the standards prescribe a two-step process for allocating type 1 support costs:

   • step 1: apportioning type 1 support costs to other cost centres that use them
   • step 2: getting those type1 support costs into the right place in the cost centre to be mapped to the resources for the costing process to start.

55. The standards describe the costing process in this way to make it transparent.

56. Move centrally held type 1 support costs (that is, type 1 support cost centres) to patient-facing and type 2 support cost centres using the allocation methods prescribed in column E in Spreadsheet CP2.2.
57. The account codes for these centrally held type 1 support costs are flagged as ‘step 1’ in Column N in the standardised cost ledger (Spreadsheet CP2.1) to enable mapping to the correct allocation methods in Spreadsheet CP2.2. For cost centres of non-999 services, such as NHS 111 service cost centres, the methods specified in Spreadsheet CP2.2 should be followed to allocate centrally held type 1 support costs. This is to ensure consistent support cost allocation across all service lines.

58. If the type 1 support cost has already been devolved in the cost ledger (identified as ‘step 2’ in column N in Spreadsheet CP2.1), you do not need to do step 1 in Spreadsheet CP2.2.

Examples of type 1 support costs that should be devolved to the cost centres that use them

59. Some type 1 support costs will have already been reported in patient-facing cost centres and type 2 support cost centres, eg stationery and therefore do not need to be moved.

60. Other type 1 support costs – such as station security – may have already been devolved in the general ledger, based on an internal recharge. There is no need to repeat this step for these costs, providing the prescribed costing allocation method has been used.

61. Type 2 support costs, such as CNST, should sit in their cost centres in the cost ledger as there are specific activity-based allocation methods for these, specified in Spreadsheet CP3.3.

62. If you are using an activity-based method to allocate a type 1 support cost, continue to use this and document it in your costing manual. We have adopted this as a superior method.

Reciprocal costing

63. This step includes the reallocation of type 1 support costs between each other. You should do this using a reciprocal allocation method to allow all corporate support service costs to be allocated to, and received from, other corporate support services.

64. Reciprocal costing must take place within the costing system.
65. Type 1 support costs should **not** be allocated using a hierarchical method as this only allows corporate support services costs to be allocated in one direction.

66. A reciprocal allocation method accurately reflects the interactions between support departments, and therefore provides more accurate full-cost results than a hierarchical approach. An example of the reciprocal allocation method is given at the end of this standard.

**Apportioning type 1 support cost in patient-facing and type 2 support cost centres**

**Figure CP2.5: Extract from the spreadsheet costing diagram in the technical document**

67. Within the costing system, apportion type 1 support costs over the patient-facing and type 2 support expense lines in the same cost centre, based on the allocation methods prescribed in columns F and G of Spreadsheet CP2.2.

68. The account codes for these costs are flagged as ‘step 2’ in column N in the standardised cost ledger (Spreadsheet CP2.1) to enable mapping to the correct allocation methods in Spreadsheet CP2.2.

69. Patient-facing costs and type 2 support costs, with their allocated portion of type 1 support costs, are then mapped to resources. Table CP2.1 shows an example of this.
Table CP2.1: Example of costs within a patient-facing resource

<table>
<thead>
<tr>
<th>Resource name</th>
<th>Patient-facing cost</th>
<th>Type 1 support cost</th>
<th>Total resource cost for the costing process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontline staff</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Fleet maintenance and repairs – Internal</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
</tbody>
</table>

How to treat type 1 support costs in type 2 cost centres

70. All type 1 support costs in type 2 cost centres have been mapped to the type 2 support cost allocation method and should use the prescribed allocation method in column D of Spreadsheet CP3.3.

71. This is because type 2 support cost centres all map to the same resource and use the same allocation method.

72. Therefore it is not necessary to allocate type 1 costs first over the type 2 expense lines in the same cost centre.

73. However, we must emphasise that the information in Table CP2.1 still needs to be available if you allocate type 1 support costs in type 2 support cost centres directly to the support cost resource.

How to treat type 1 support costs in patient-facing costs

74. You do not need to allocate type 1 support costs over the patient-facing expense lines if:

- all the lines in the patient-facing cost centre map to the same resource and
- you are using an average cost per minute to allocate out that resource.

75. However, we must emphasise that the information in Table CP2.1 still needs to be available if you allocate type 1 support costs in patient-facing cost centres directly to the patient-facing resource.
76. Where the standards state you should allocate the actual staffing costs to their named frontline staff activity, you need to allocate the type 1 support costs over the patient-facing expense lines; if you do not, individual staff members will not be allocated their correct amount of type 1 support costs.

77. If the lines in the patient-facing cost centre are mapped to different resources, you need to allocate the type 1 support costs over the individual patient-facing expense lines; if you do not, the different resources will not be allocated their correct amount of type 1 support costs.

78. To do this, use the prescribed allocation methods in column F of Spreadsheet CP2.2.

**Things to consider when following this method**

79. Using an expenditure-based allocation method, some areas of the ledger may get a larger proportion of the allocated type 1 support costs because of specific high cost items, such as specialist staff members. If so, investigate the type 1 support cost allocation and use a more appropriate method.

**Other considerations**

**Negative costs in the cost ledger**

80. Negative costs arise for various reasons, such as a journal moving more cost than is actually in the expense code. Include all costs, including negative costs, in the costing process to enable a full reconciliation to your organisation’s accounts.

81. With the wider finance team, you must consider the materiality of each cost centre’s negative costs and subjective code combination. If the negative value is sufficiently material, you may want to treat it as a reconciling item. The main questions to ask before deciding are:

- What negative costs are there?
- Are they distorting the real costs of providing a service?
- Are they material?
- Do they relate to commercial activities?
82. With the wider finance team, you need to investigate why any negative cost balances have arisen. Several issues can lead to negative values in the general ledger being carried into the cost ledger. With suggested solutions, these are:

- **Miscoding**: actual expenditure and accruals costs are not matched to the same cost centre and subjective code combination. Ideally, the responsible finance team rectifies such anomalies to give you a clean general ledger output.

- **Value of journal exceeds value in the cost centre**: If the value transferred from the cost centre exceeds the value in the cost centre, this will create a negative cost. Again ideally, the responsible finance team rectifies such anomalies.

- **Timing of accrual release**: An inaccurate accrual release can result in a negative cost value. When this happens, you must consider whether the negative cost is material and whether its timing creates an issue. You may need to report some negative costs caused by timing issues as a reconciliation item.

83. Negative costs can be an issue because of **traceable costs**. If a particular cost per unit is known and allocated to an activity rather than used as a weighting, and the total actual cost multiplied by the number of activities is greater than the cost sitting in the costing accounting code, a negative cost will be created.

84. Traceable costs should be used as a relative weight value. The only exception is where the traceable cost is of a material value and using the actual cost as a relative weight value will distort the final patient unit cost.

85. Negative costs may also be found in the cost ledger if, during the required ledger movements, more cost is moved than is actually in the expense code. To avoid this, use relative weight value or percentages to move costs rather than actual values.
PLICS collection requirements

Netting off other operating income

86. For the ambulance PLICS cost collection, other operating income must be netted off from the patient care costs (ie other operating income is not included in the total costs collected). This includes education and training and research income. Non-patient care costs must be allocated to patient care activity using the standardised allocation methods or appropriate local allocation rules.

Support costs

87. Type 1 and type 2 supports costs for the PLICS cost collection must be mapped to the support cost collection resource and reported in the PLICS collection extract. See Spreadsheet CP2.1 for the collection resource mapping. If you have any questions, contact costing@improvement.nhs.uk.

Example: Reciprocal type 1 support cost allocation

There are five cost centres:

- two patient-facing cost centres: emergency operational centre (C) and stations (S)
- three type 1 support cost centres: finance (F), human resources (HR) and estates (E).

In the general ledger the expenditure balances are:

Table CP2.2: Cost centre balances

<table>
<thead>
<tr>
<th>Cost centre</th>
<th>Expenditure (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (F)</td>
<td>13,000</td>
</tr>
<tr>
<td>HR (H)</td>
<td>18,000</td>
</tr>
<tr>
<td>Estates (E)</td>
<td>22,000</td>
</tr>
<tr>
<td>EOC (C)</td>
<td>31,000</td>
</tr>
<tr>
<td>Station (S)</td>
<td>16,000</td>
</tr>
<tr>
<td>Total</td>
<td>100,000</td>
</tr>
</tbody>
</table>
Each support cost centre has apportionment statistics based on the appropriate cost allocation method, which are summarised in percentage terms:

Table CP2.3: Apportionment statistics

<table>
<thead>
<tr>
<th>Cost centre</th>
<th>Finance</th>
<th>HR</th>
<th>Estates</th>
<th>EOC</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (F)</td>
<td>10%</td>
<td>25%</td>
<td>40%</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>HR (H)</td>
<td>30%</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
<td>30%</td>
</tr>
<tr>
<td>Estates (E)</td>
<td>15%</td>
<td>10%</td>
<td>10%</td>
<td>30%</td>
<td>35%</td>
</tr>
</tbody>
</table>

For the finance department, 35% is apportioned to HR, 40% to estates, 15% to the EOC and 10% to the station. Finance in turn is apportioned costs from estates and HR.

Costs for each type 1 support cost centre can be apportioned to and received from the other type 1 support cost centres. This is referred to in the standard as ‘reciprocal apportionment’.

The two possible methods for resolving such a reciprocal apportionment are:

- repeated distribution
- algebraic.

Whichever method is chosen, reciprocal allocation must be calculated within the costing system.\(^\text{26}\)

**Repeated distribution**

This method applies the apportionment statistics to each expenditure balance and involves making a number of passes or iterations to apportion costs backwards and forwards.

After the first pass the expenditure values apportioned to each cost centre are:

\(^{26}\) We do not recommend one method over the other as the outcome for both is the same.
Table CP2.4: First pass

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Finance</th>
<th>HR</th>
<th>Estates</th>
<th>EOC</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (F)</td>
<td>13,000</td>
<td>1,300</td>
<td>3,250</td>
<td>5,200</td>
<td>1,950</td>
<td>1,300</td>
</tr>
<tr>
<td>HR (H)</td>
<td>18,000</td>
<td>5,400</td>
<td>1,800</td>
<td>3,600</td>
<td>1,800</td>
<td>5,400</td>
</tr>
<tr>
<td>Estates (E)</td>
<td>22,000</td>
<td>3,300</td>
<td>2,200</td>
<td>2,200</td>
<td>6,600</td>
<td>7,700</td>
</tr>
<tr>
<td>EOC (C)</td>
<td>31,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Station (S)</td>
<td>16,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>100,000</td>
<td>10,000</td>
<td>7,250</td>
<td>11,000</td>
<td>10,350</td>
<td>14,400</td>
</tr>
</tbody>
</table>

After the second pass the values are:

Table CP2.5: Second pass

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Finance</th>
<th>HR</th>
<th>Estates</th>
<th>EOC</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (F)</td>
<td>10,000</td>
<td>1000</td>
<td>2,500</td>
<td>4,000</td>
<td>1,500</td>
<td>1000</td>
</tr>
<tr>
<td>HR (H)</td>
<td>7,250</td>
<td>2,175</td>
<td>725</td>
<td>1,450</td>
<td>725</td>
<td>2,175</td>
</tr>
<tr>
<td>Estates (E)</td>
<td>11,000</td>
<td>1,650</td>
<td>1,100</td>
<td>1,100</td>
<td>3,300</td>
<td>3,850</td>
</tr>
<tr>
<td>EOC (C)</td>
<td>41,350</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Station (S)</td>
<td>30,400</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>100,000</td>
<td>4,825</td>
<td>4,325</td>
<td>6,550</td>
<td>5,525</td>
<td>7,025</td>
</tr>
</tbody>
</table>

As the expenditure sitting in the patient-facing cost centres is not apportioned to any other cost centres, the balance for these cost centres keeps growing until the total for the patient-facing cost centres equals the £100,000 total starting balance. The process of re-apportionment is continued until, after the tenth pass, most of the expenditure appears against the patient-facing cost centres.
Table CP2.6: Tenth pass

<table>
<thead>
<tr>
<th>Cost centre</th>
<th>Total</th>
<th>Finance</th>
<th>HR</th>
<th>Estates</th>
<th>EOC</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (F)</td>
<td>72</td>
<td>7</td>
<td>18</td>
<td>29</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>HR (H)</td>
<td>61</td>
<td>18</td>
<td>6</td>
<td>12</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Estates (E)</td>
<td>92</td>
<td>14</td>
<td>9</td>
<td>9</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>EOC (C)</td>
<td>53,604</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Station (S)</td>
<td>46,171</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>100,000</td>
<td>39</td>
<td>33</td>
<td>50</td>
<td>45</td>
<td>58</td>
</tr>
</tbody>
</table>

After multiple passes the balances left on support cost centres are sufficiently small to be allocated on a pro rata basis to the patient-facing cost centres without a material difference to the result.

**Algebraic**

The algebraic approach expresses the reciprocal apportionments as a set of simultaneous equations. Each equation shows that the value of the cost centre is based on the original ledger amount plus the apportionments from each of the support cost centres.

Table CP2.7: Simultaneous equations

<table>
<thead>
<tr>
<th>Cost centre</th>
<th>Total</th>
<th>Finance</th>
<th>HR</th>
<th>Estates</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>13,000</td>
<td>+0.1F</td>
<td>+0.3H</td>
<td>+0.15E</td>
</tr>
<tr>
<td>H</td>
<td>18,000</td>
<td>+0.25F</td>
<td>+0.1H</td>
<td>+0.1E</td>
</tr>
<tr>
<td>E</td>
<td>22,000</td>
<td>+0.4F</td>
<td>+0.2H</td>
<td>+0.1E</td>
</tr>
<tr>
<td>C</td>
<td>31,000</td>
<td>+0.15F</td>
<td>+0.1H</td>
<td>+0.3E</td>
</tr>
<tr>
<td>S</td>
<td>16,000</td>
<td>+0.1F</td>
<td>+0.3H</td>
<td>+0.35E</td>
</tr>
</tbody>
</table>

Only one value for each of the cost centres – finance, HR, estates, EOC and station – allows all the above equations to be simultaneously true.
The simultaneous equations may be solved using a converging algorithm or a mathematical approach. The latter produces an exact solution to the problem of reciprocal apportionment:

**Table CP2.8: Mathematical outcome**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stations</td>
<td>46,298.24</td>
</tr>
<tr>
<td></td>
<td>EOC</td>
<td>53,701.75</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100,000.00</td>
</tr>
</tbody>
</table>

The mathematical approach also serves to answer questions about where the costs have come from – for example, the costs of station are based on the patient-facing ledger expenditure plus the values apportioned from the type 1 support cost centres:

\[ P = 16,000 + 0.1F + 0.4H + 0.35E \]

Since the values of F, H and E are now known, the breakdown of costs for stations is as follows:

**Table CP2.9: Stations cost breakdown**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Cost centres</th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient-facing costs</td>
<td>Station</td>
<td>16,000.00</td>
</tr>
<tr>
<td>Type 1 support costs</td>
<td>Finance</td>
<td>3,385.96</td>
</tr>
<tr>
<td>Type 1 support costs</td>
<td>Human resources</td>
<td>10,394.74</td>
</tr>
<tr>
<td>Type 1 support costs</td>
<td>Estates</td>
<td>16,517.54</td>
</tr>
</tbody>
</table>

This total value is the same as the solution for the value of the stations cost centre that allows all the equations to be simultaneously true.
CP3: Appropriate cost allocation methods

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 reflect how costs are incurred.

Scope

5. This standard should be applied to all costs reported in the cost ledger.

6. All activities going through the 999 service control centre and undertaken by the organisation.

7. This standard covers relative weight values.
Overview

8. The standardised costing process using resources and activities aims to capture cost information by reflecting the causality of costs.

9. The costing process allocates resources to incidents and patients in two steps:
   • allocate resources to activities (this standard)
   • match costed activities to the correct incident and patient (Standard CP4: Matching costed activities to incidents and patients).

10. The allocation methods prescribed in the standards in most cases do not include a relative weight value for acuity or intensity. If you are using a relative weight value for acuity or intensity with the prescribed allocation method, continue to do this and record it in your costing manual.

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
• Spreadsheet CP3.1: Resources for patient-facing and type 2 support costs
• Spreadsheet CP3.2: Activities
• Spreadsheet CP3.3: Allocation methods to allocate patient-facing and type 2 support resources, first to activities then to incidents and finally to patients

Approach

Resources

11. Resources are what the provider purchases to help deliver the service. A resource may be a care provider, equipment or a consumable.

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27 See The costing principles, https://improvement.nhs.uk/resources/approved-costing-guidance/
12. The costs within a resource may have different information sources and cost drivers. For example, the patient-facing frontline staff resource could include the costs of frontline staff salaries, and type 1 support costs such as operational manager costs, station non-pay costs, 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 type 2 support resources to be used for the costing process.

16. Resources are classified as either patient facing or support type 2 (see column E in Spreadsheet CP3.1).

17. Spreadsheet CP2.1 contains the mapping from each line in the cost ledger to the patient-facing and type 2 support resources (see columns I and J).

Activities

18. Activities are the work undertaken by resources to deliver the services required by patients to achieve desired outcomes: for example, answering a call or treating patients at the scene.

19. Together, resources and activities form a two-dimensional view of what costs were incurred to deliver what activities.

20. Activities are classified 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 type 2 support activities in column B in Spreadsheet CP3.2.

22. Some activities are informed by patient-level feeds: for example, the activity ‘mobile to scene’ uses information from the response feed (feed 2) for costing.
23. Some activities use other information sources for costing: for example, the activity ‘CNST indemnity’ requires the CNST schedule to allocate the resources correctly.

24. Spreadsheet CP3.3 contains the mapping between resources and activities and the methods prescribed to allocate resources to activities.

**Allocate resources to activities**

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

<table>
<thead>
<tr>
<th>Resources</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient-facing</td>
<td>Patient-facing</td>
</tr>
<tr>
<td></td>
<td>activity</td>
</tr>
<tr>
<td>Support</td>
<td>Support</td>
</tr>
<tr>
<td></td>
<td>activity</td>
</tr>
</tbody>
</table>

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

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

27. You can ignore the resource and activity combinations in the technical document for activities your organisation does not provide.

28. You must allocate your resources to the activities using the methods prescribed in column D of Spreadsheet CP3.3.
29. Resources need to be allocated to activities in the correct proportion. There are three ways to do this:

- based on actual time or costs\(^28\) from the relevant feed
- using relative weight values\(^29\) created in partnership with the relevant departments
- using a local information source.

30. Where resources need to be apportioned to several activities, you need to determine the percentage of the cost to apportion to each, after discussions with clinicians and managers, supported by documented evidence where available (eg paramedic rota plans).

31. One way to do this is to disaggregate the cost ledger further to resource/activity level. Figure CP3.2 shows how this could look in the resource/activity matrix for a division of frontline staffing costs.

32. Note that frontline staffing resources do **not** need to be apportioned to each job cycle activity\(^30\) as this is done when allocating resources to activities – that is, apportioning and allocating resources happens in one step (see Standard CM1: Allocating costs to job cycle elements).

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\(^{28}\) The costs should be used as a weighting rather than a fixed cost.

\(^{29}\) Relative weight values are statistics to allocate costs in proportion to the total cost incurred. They are an agreed weighting of an item used to allocate costs at a patient event.

\(^{30}\) Includes the following activities: allocation to mobile, mobile to scene, time on scene, convey patients to treatment location, patient handover and handover to clear.
33. Do not apportion resources equally to all activities without clear evidence that they are used in this way, and do not apportion costs indiscriminately to activities.

34. Use a relative weight value unless there is a local reason for applying a fixed cost.

35. 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 treating patient at the scene use the driver duration of the activity, you can add them together for the cost calculation.

36. If you have a more sophisticated cost allocation method for allocating patient-facing or type 2 support resources to their activities:
   - keep using it
   - document it in your costing manual
   - tell us about it.
37. We do not accept some cost allocation methods as superior to the prescribed methods. These include using income or national averages to weight costs.

38. The patient-level feeds will inform the cost allocation methods providing key cost drivers, such as duration of each job cycle element. The activity feeds will also provide information for relative weight values to be used in the costing process, such as fleet repairs and maintenance costs in the fleet information feed (feed 5).

39. Investigate any costs not driven to an activity, or any activities that have not received a cost, and correct this.

Relative weight values

40. Relative weight values are values or statistics used to allocate costs to a patient event in proportion to the total cost incurred.

41. One way to store the relative weight values for use in your costing system is to compile statistic allocation tables.

42. Income values and national cost averages should not be used as relative weight values.

43. Relative weight values are used to allocate costs when other drivers are not available or appropriate. They must be developed and agreed with the relevant service managers and clinicians to ascertain all aspects of the costs involved and ensure these are as accurate as possible.

44. You should allocate all costs to patients based on actual usage or consumption. Where you cannot do this, you should use a relative weight value to allocate costs to a patient.

45. Relative weight values should be reviewed on a rolling programme or when a significant change occurs in the relevant department.

Relative weight values for type 1 support costs

46. To allocate type 1 support costs in the correct proportion, relative weight values may need to be identified by obtaining the relevant information from the departments.
47. An example of a statistic allocation table for the relative weight value of staff budgeted headcount is given in Table CP3.1; this could be further weighted to derive a relative weight value.

48. You may add additional information to weight a relative value even further. For example, you may add cleaning rotas or location weighting to floor area so that a greater proportion of cleaning costs is allocated to fleet workshops to corridors. If you do this, continue to do it and document it in your costing model.

Table CP3.1: Budgeted headcount statistic allocation table

<table>
<thead>
<tr>
<th>Department</th>
<th>Budgeted headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency operations control centre</td>
<td>40</td>
</tr>
<tr>
<td>Stations (relevant subset)</td>
<td>30</td>
</tr>
<tr>
<td>Headquarters reception</td>
<td>5</td>
</tr>
<tr>
<td>Human resources</td>
<td>15</td>
</tr>
<tr>
<td>Finance office</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>
CP4: Matching costed activities to incidents and patients

Purpose: To achieve consistency across organisations in assigning costed activities to the correct incidents and patients.

Objectives

1. To assign costed activities to the correct incident and patient to produce patient unit costs.

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

Scope

3. This standard should be applied to all costed activities.

Overview

4. Matching is integral to accurate patient-level costing. For an accurate final patient unit cost, the costed activities need to be matched first to the incident and then to the patient.

5. Matching of physical response stage activities and some call stage activities to incidents takes place before the costing process – it is done in your computer aided dispatch (CAD) system (see Standard IR1: Collecting

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31 Including activities: allocation to mobile, mobile to scene, time on scene, convey patients to treatment locations, patient handover and handover to clear.

32 Including call taking and telephone clinical advice.
information for costing). Therefore there is no need to repeat this step to match these activities in the costing process.

6. Matching costed activities to incidents and patients involves two approaches:
   - for activities informed by an activity feed, use the matching fields in the activity feeds (see column F in Spreadsheet IR1.1)
   - for all other activities, use the prescribed cost allocation methods to match the costed activities to incidents and patients.

7. Limitations of the data on number of patients and other patient information (see Standard IR2: Managing information for costing for details) mean that exact matching of costed activities to each patient involved in one incident is not currently possible. The standards prescribe cost allocation rules to match these to patient unit costs (that is, a patient-level cost).

8. We will update this standard with rules to match costed activities to individual patients once information is available to enable this; we anticipate this will be possible once the electronic patient record (EPR) system has been more widely adopted by the ambulance sector.

**What you need to implement this standard**

- Spreadsheet CP3.3: Allocation methods to allocate resources, first to activities then to incidents and finally to patients

**Approach**

**Matching costed activities**

9. The matching process for costed activities involves two steps:
   - matching activities to incidents
   - matching costed incidents to patients.

10. This two-step matching process is used because more than one patient can be treated in any one incident (which is widely used as the activity unit for ambulance emergency responses). To derive the patient unit cost, you need to match costed activities first to the incident and then to the patient.
11. Figure CP4.1, adapted from the costing diagram in the technical document, shows the two-step matching process. Please refer to Spreadsheet CP3.3 for details of the matching and allocation rules.

**Figure CP4.1: Extract from the spreadsheet costing diagram in the technical document showing matching of costed activities to incidents and patients**

**Matching to single-patient incident and patient**

12. The prescribed matching fields ensure the relevant auxiliary data feeds can be attached to the correct incident and patient.

13. The incident, call or response ID always generates the best match.

14. If you obtain your auxiliary data feeds from the CAD system and you can include the incident ID in the feeds, use this ID to match the auxiliary feed (eg response information feed) to the master feed (incident information feed).

15. Matching physical response stage activities and some of the call stage activities to incidents is done in your organisation’s CAD system (see column E in Spreadsheet 3.3 for details).

16. However, there are problems matching activities to incidents when:
• duplicate calls are taken
• clinical advice is provided to an ambulance crew at the scene.

These problems are discussed in Standard IR1: Collecting information for costing.

17. For these activities, as well as type 2 support activities, you should follow the cost allocation rules and methods prescribed in column E (step 2) in Spreadsheet CP3.3 to allocate the costs to an incident.

18. After matching the costed activities to single-patient incidents, you should have the patient unit cost – cost at a patient level. Where possible, you should then match the costed incidents to patients using recorded patient identifiers. We know that patient identifiers are not always collected, as described in paragraph 7 of this standard.

Matching to multiple-patient incident and patients

19. Follow the same approach to match costed activities to a multiple-patient incident as for a single-patient incident.

20. Limitations of the information collected on patients mean matching every patient involved in a multiple-patient incident is not currently possible (see Standard IR2: Managing information for costing).

21. Use the cost allocation rules prescribed in column F (step 3) Spreadsheet CP3.3 to allocate the incident-level costs to all the patients involved in an incident to derive the patient unit cost.

22. Use number of vehicles arriving at the treatment location as a proxy for the number of patients conveyed, and then split the costs between this number of patients. See Standard CM1: Allocating costs to job cycle elements and Standard IR2: Managing information for costing for reasons of the proxy used.

23. The accuracy with which costed activities are matched depends on the quality of both the master feeds and the auxiliary feeds. Follow the guidance in Standard IR2: Managing information for costing to help your organisation improve its data quality.
24. If your matching rules are more sophisticated than the prescribed matching fields and improve the accuracy of your matching, continue to use them and record them in your costing manual.

Other considerations

25. Your costing system should produce a report of the matching criteria used in the system as described in Table CP5.1 in Standard CP5: Reconciliation, and you should have a rolling programme to review this.

Reporting unmatched activity for local business intelligence

26. Organisations have traditionally treated the cost of the unmatched activity in different ways. Most commonly, it has been absorbed by matched activity, a practice which can have a material impact on the cost of matched activity, particularly when reviewing the cost at an individual patient level for benchmarking and tariff calculation.

27. For local reporting purposes we recommend you do not assign unmatched activity to other incidents or patients but report them as reconciliation items.

28. If reported unmatched activity forms a material proportion 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. Please follow the guidance in Standard IR2: Managing information for costing to support your organisation in improving its data quality.

PLICS collection requirements

29. For the PLICS collection, costs should be aggregated at incident level.

30. Unmatched cost should not be reported separately. All unmatched costs should be allocated to incidents using matched activity. See the ambulance PLICS cost collection guidance for more information.33

33 https://improvement.nhs.uk/resources/approved-costing-guidance-collections/
CP5: Reconciliation

Purpose: 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.

Overview

4. All outputs of the costing process must reconcile to the information reported to the board, and in the final audited accounts. This ensures a clear link between these outputs and the costs and activity information captured in the source data.

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

34 See The costing principles, https://improvement.nhs.uk/resources/approved-costing-guidance/
Approach

Reconciliation of costs and income

5. The costs and income outputs must reconcile to the main sources of this information, the general ledger and the organisation’s reported financial position.35

6. To demonstrate that the outputs of the costing process reconcile to the main sources of information, the reports listed in Table CP5.1 must be available from your costing system.

Table CP5.1: Cost reconciliation reports

<table>
<thead>
<tr>
<th>Report name</th>
<th>Report purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input accounting reconciliation</strong></td>
<td>Enables the totals for the cost ledger and income ledger to be reconciled to the monthly statement of comprehensive income (SOCI) reported by the board for the period reported on, as well as to the final audited accounts at year-end.</td>
</tr>
<tr>
<td><strong>Internal reporting reconciliation</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Locality or service level reports</strong></td>
<td>Detailed reports of income and costs at provider level, service-line level, localities (e.g., clinical commissioning groups (CCGs) or locally defined operational areas), down to the level of each incident and patient. This should encourage operational engagement, as details of the resources and activities involved in each individual pathway will be available.</td>
</tr>
<tr>
<td><strong>Output accounting reconciliation</strong></td>
<td>Checks that the final costing outputs reconcile to those in the 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 reconcile to these earlier reports.</td>
</tr>
<tr>
<td><strong>Adjustments and Documents</strong></td>
<td>Documents all the adjustments and exclusions to the total</td>
</tr>
</tbody>
</table>

35 See Standard CP2: Clearly identifiable costs for guidance on where adjustments may be made between the general ledger output and the cost ledger, to be included in your reconciliation.
<table>
<thead>
<tr>
<th>Report name</th>
<th>Report purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>exclusions report</td>
<td>quantum. This must also reconcile annually to the final audited accounts to provide assurance when submitting data for mandatory cost collections.</td>
</tr>
<tr>
<td>Reference cost reconciliation</td>
<td>Documents the calculation of each of the appropriate cost quanta, demonstrating where and why the two quanta may not be the same. This is important where reference costs and patient-level information and costing system (PLICS) data are being produced concurrently, and their respective costing methods differ.</td>
</tr>
<tr>
<td>Cost centre and classification reports</td>
<td>Assures 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, pay/non-pay/income and patient-facing/support costs.</td>
</tr>
<tr>
<td>Cost group reconciliation</td>
<td>When the costing process is complete, enables the costs within the five cost groups to be reconciled to the cost ledger, with the total cost within these cost groups equalling the total in the cost ledger.</td>
</tr>
</tbody>
</table>

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

**Table CP5.2: Cost and activity groups**

<table>
<thead>
<tr>
<th>Cost group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient care</strong></td>
<td>Includes the costs relating to the organisation’s:</td>
</tr>
<tr>
<td></td>
<td>• 999 service</td>
</tr>
<tr>
<td></td>
<td>• patient transport service</td>
</tr>
<tr>
<td></td>
<td>• NHS 111 service</td>
</tr>
<tr>
<td></td>
<td>• GP out-of-hour service</td>
</tr>
<tr>
<td></td>
<td>• other services</td>
</tr>
<tr>
<td><strong>Education and training (E&amp;T)</strong></td>
<td>Costs relating to E&amp;T in the organisation</td>
</tr>
<tr>
<td><strong>Research and development (R&amp;D)</strong></td>
<td>Costs relating to R&amp;D in the organisation</td>
</tr>
</tbody>
</table>
### Cost group | Description
--- | ---
**Commercial activities** | Includes the costs related to the organisation’s commercial activities

### Cost and activity reconciliation items

Includes:
- costs for which there is no corresponding activity, such as a frontline staff member who is employed by a provider to perform air ambulance service activity and the provider is unable to include this in its costing system
- activity for which there are no corresponding costs, such as help from another provider to cover a major incident

8. Cost and activity reconciliation items have the following benefits:

   • patient unit costs reflect the true cost of treatment, undistorted by provider-incurred costs that are not patient-related
   • the true cost is more appropriate for benchmarking between providers as non patient-related costs can significantly affect cost reporting by different providers.

### Reconciliation of activity

9. The activity outputs must reconcile to what your organisation reports. For example, if your organisation reports XX incidents in any costing period, your activity costing outputs should reconcile to this number. To avoid any reconciliation differences due to timing, information feeds used in the costing process and those reported by the organisation should be created at the same time.

10. Some activity datasets should be reconciled to external sources such as the national ambulance quality indicators return. Organisations should also reconcile activity to their contracting reports and other national submissions relevant to each service line, to ensure all data produced and submitted by an organisation is consistent and accurate.

11. To demonstrate that the costing system’s outputs reconcile to the main sources of activity information, the activity reconciliation reports listed in Table CP5.3 must be available from your costing system.
Table CP5.3: Activity reconciliation reports

<table>
<thead>
<tr>
<th>Report name</th>
<th>Report purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core activity reconciliation</td>
<td>Shows the core ambulance activity used in the costing model reconciled to the original source data – for example, number of calls, number of physical responses, number of incidents, number of patients – with all exclusions and amendments clearly recorded and explained.</td>
</tr>
<tr>
<td>Board report reconciliation</td>
<td>Enables reconciliation of incidents used in the costing model to the board report based on geographical areas – for example, locally defined operational areas or CCGs. This activity must also be reconciled to the outputs of the costing system to ensure that all activity has been processed.</td>
</tr>
<tr>
<td>Full cost reconciliation</td>
<td>Shows the full costs for all the activities loaded into the costing system as part of the outputs of the costing model.</td>
</tr>
<tr>
<td>Output activity reconciliation</td>
<td>Reconciliation should be performed by costing practitioners 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.</td>
</tr>
</tbody>
</table>

12. You should also reconcile the activity outputs to the activity in the source datasets to ensure all the activity you entered into your costing system has been costed and then included in the costing output.

13. In your costing process do **not** include activity that is recorded in your data feeds but the costs of which are incurred by another organisation. Report this activity in ‘cost and activity reconciliation items’.

14. To reconcile the activity used in the system to that actually carried out by the department/service, the activity count must be correct in the information feeds. Use the information feed log in *Standard IR2: Managing information for costing* to record this information.
PLICS collection requirements

15. For collection, the provider’s PLICS quantum must reconcile to its final audited accounts. See the ambulance PLICS cost collection guidance for more information.\(^{36}\)

\(^{36}\) [https://improvement.nhs.uk/resources/approved-costing-guidance-collections/](https://improvement.nhs.uk/resources/approved-costing-guidance-collections/)
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