NHS

Approved Costing Guidance – Standards

Ambulance costing methods

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Contents

CM31: Allocating costs across job cycle elements[1]

Purpose: To provide methods for allocating costs to the activities that make up the job cycle for single and multiple patient incidents.

Objectives

1. To provide a method for allocating resources to activities of providing care to patients based on elements of the job cycle and that can be used consistently by all ambulance providers.

2. To provide a method for costing at the patient level for single, multiple and no-patient incidents.

Scope

3. This standard covers all job cycles within the costing period.

4. The job cycle comprises the series of activities ensuing from the emergency operations centre (EOC) receiving a call, deciding on an action, sending one or more responses to treat one or more patients, the treatment at the scene and conveying patients to a treatment location.

5. A job cycle starts when either:
   - a call is received – if the call comes through the 999 call centre
   - a response[2] is assigned – if the patient is referred from other services such as NHS 111

[1] The standard numbers are set across all sectors; therefore, the costing method standards for ambulance costing do not start at CM1.
[2] A response involves vehicle and staff.

- a response is self-assigned – if a staffed emergency vehicle or clinician encounters an incident before a call is made, and they are immediately on scene with the patient (also known as a running incident).

6. A job cycle ends when the response is ready to be sent on another job.

7. This standard covers the allocation of costs to activities at a patient level. The method is based on information recorded for the job cycle elements for activity that goes through the 999 control centre.

What you need to implement this standard

- Ambulance standard IR1: Collecting information for costing
- Ambulance standard CP3: Allocating costs to activities
- Ambulance standard CP4: Matching costed activities to incidents and patients
- Technical document:
  - Spreadsheet IR1.2: Field requirements for the activity feeds
  - Spreadsheet CP3.1: Resource list
  - Spreadsheet CP3.2: Activity list
  - Spreadsheet CP3.3: Methods to allocate resources to activities

  Spreadsheets CM31.1 and CM31.2: Costing ambulance activity flowcharts – single and multiple patients.

Overview

8. The duration of each stage of the job cycle is an important cost driver and is affected by multiple factors, including demand, supply, location (rural, urban), level of traffic, nature of clinical complaint, clinical decisions, hospital A&E capacity, hospital handover procedure and ambulance turnaround procedure.

9. One job cycle process model should represent all incidents. But to clarify how different combinations of activities fit into the model, we have divided the approach into these sections:
   - job cycle stages and activities
   - costing call stage activities
   - costing physical response stage activities

- costing multiple-patient incidents
- costing incidents with no patients.

Approach

Job cycle stages

10. The job cycle consists of one to three call stages, and one to six physical response stages, as listed below.[3,4] Call and physical response stages can occur at the same time, but physical response stages never overlap for the same response.

    - **Call stages (stage 1):**
      - Stage 1.1: Call handling (answering and finding out location – call stages T0 to T2 for most computer-aided dispatch (CAD) systems)
      - Stage 1.2: Triage (call stages T3 to T6 for most CAD systems)
      - Stage 1.3: Telephone clinical advice provided by EOC clinicians.
    - **Physical response stages (stages 2 to 6):**
      - Stage 2.1: Mobilisation
      - Stage 2.2: Travel to scene
      - Stage 3: On scene
      - Stage 4: Travel to treatment location
      - Stage 5: Handover
      - Stage 6: Handover to clear.

11. The start and end points of these stages are recorded on the CAD system. Duration may be recorded or may need to be calculated.

12. See the flowchart in Spreadsheet CM31.1 for a guide to the elements that make up an incident.

13. An incident can terminate at the end of any of the five stages shown in Table CM31.1, depending on the scenario.[5]

[3] These stages were identified in an informatics exercise involving the three roadmap partners.
[4] See the flowchart (Costing ambulance activity) in Spreadsheet CM31.1 for details of each stage.
[5] See Spreadsheet IR1.3 for examples of the information required for costing each of the scenarios.

Table CM31.1: Scenarios of incidents terminating at different stages of a full job cycle

Scenario	Incident terminating stage[6]
A call resulting in no further response, eg a duplicate or information call	Stage 1.1: Call handling
A call which, after initial contact with the call taker, results in telephone clinical advice, either through transfer or call back	Stage 1.3: Telephone clinical advice
A response is dispatched but then cancelled before arriving at the patient's location	Stages 2.3 to 2.7: Physical response cancelled, but stage 6 must still be completed
No patient at the scene, patient(s) treated at the scene or referred for further treatment without being conveyed from the scene	Stage 3: On scene, but stage 6 must still be completed
Patient(s) conveyed to treatment location	Stage 6: Handover to clear

14. Although the telephone clinical advice is primarily an alternative to sending a physical response, it can be given alongside physical response dispatch in these circumstances:
    - a response was dispatched before the call was triaged down to a 'hear and treat'; it was subsequently cancelled before arriving at the scene
    - a caller requires telephone advice while a response is on its way to them; examples include giving advice to women in labour and on performing resuscitation
    - ambulance staff on scene call the clinical hub for advice – for example, on toxicology where there is a suspected overdose or poisoning.

Job cycle stage activities

15. Eight patient-facing activities are prescribed in the standards based on the job cycle stages. See Ambulance standard CP3: Appropriate cost allocation methods and Spreadsheet CP3.2 for detailed definitions of the prescribed activities. The job cycle stages map to the prescribed list of activities, as shown in Table CM31.2, but the two are not identical. The exception is the

[6] See Spreadsheet CM31.1 for details of each stage.

dispatch and control (AMA181) activity, which can occur during any response stage.

Table CM31.2: Mapping job cycle stages to activities

Job cycle stage		Activity	
Call stage	1.1 Call handling	AMA180 Call handling and telephone clinical advice	AMA181 Dispatch and control
	1.2 Triage		
	1.3 Telephone clinical advice		
Physical response stage	2.1 Mobilisation	AMA182 Allocation to mobile	
	2.2 Travel to scene	AMA183 Mobile to scene	
	3 On scene	AMA184 Treating patient on scene	
	4 Travel to treatment location	AMA185 Convey patient to treatment location	
	5 Handover	AMA186 Patient handover	
	6 Handover to clear	AMA187 Handover to clear	

16. The costing information for these stages is described below, in two sections: the call and telephone clinical advice stage, and then the physical response stage.

Costing call stage activities (call handling and telephone clinical advice)

Input information

17. Obtain the incident information feed (feed 20) and patient information feed (feed 22) for all call stage activity as prescribed in Ambulance standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2.

18. Use the matching fields in column H in Spreadsheet IR1.1 to ensure the supplement feeds such as the staff information feed match to the correct calls.

19. The key data fields in the incident information feed (feed 20) that contain information used in cost allocation are shown in Table CM31.3.

Table CM31.3: Excerpt from Spreadsheet IR1.2 showing key data fields in the incident information feed (feed 20) for costing call stage activities

Data field name	Description
Call or telephone clinical advice connection date and time	Date and time at which the call was answered, or the telephone clinical advice session began
Call or telephone clinical advice end date and time	Date and time at which the call or the telephone clinical advice session ended
Duration of call or telephone clinical advice	Duration of call in seconds
Clock start date and time	Date at time of clock start for the incident
Number of response units mobilised for the incident	Number of staffed vehicles or on foot responders mobilised to respond for the whole incident

Allocating costs

20. Spreadsheet CP3.3 specifies the detailed methods to allocate costs to call stage activities.

21. Where duration of call (in seconds) is used as weighting for cost allocation, use the duration of the main call associated with the incident.[7]

[7] Currently, CAD systems do not enable the user to identify all calls relating to the same incident. The National Ambulance Information Group has indicated this may not be difficult to solve, but one complication is that trusts use different CAD systems. For this version we only use the duration of the main call. If data collection improves in future, we will update the standard.

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CAD system

22. Cost of the CAD system should be allocated equally to all call stage and physical response stage activities regardless of their duration, as time is not a driver for this cost.

Call handler and EOC clinician

23. Allocate relevant call handler (AMR149) and EOC clinician (AMR150) resources to the activity: call handling and telephone clinical advice (AMA180).

24. The duration of clinical advice given to ambulance staff on scene is not currently recorded; however, where it can be costed (eg by recording whether clinical advice was given to the crew), this should be allocated to the treating patient on scene (AMA184) activity in the physical response stage.

25. Where EOC activity is contracted to a third-party provider, the costs should be allocated to the relevant call stage activities using duration (in seconds) as a weighting.[8]

EOC telephony

26. Allocate EOC telephony (AMR148) costs to call handling and telephone clinical advice (AMA180) using the duration (in seconds) of each activity as a weighting.

EOC dispatchers

27. Use the number of responses allocated to each incident (number of allocations) as a weighting to allocate the costs of EOC dispatchers (AMR151) (that is, the people who dispatch responses) to the dispatch and control (AMA181) activity. Do not use the duration of the actual activity as the weighting as this is difficult to record (the ‘dispatch part’ is very short and the ‘control part’ occurs simultaneously for several incidents).

28. Table CM31.4 is an excerpt from Spreadsheet CP3.3 showing the resources the call stage activities are linked to.

[8] Further information on this can be found in Integrated standard CM8: Other activities.

29. A cost allocation method is prescribed (see columns F to H of Spreadsheet CP3.3) for each of the resource and activity combinations below.

Table CM31.4: Excerpt from Spreadsheet CP3.3 showing the resource and activity combinations for the call stage activities

Link ID (new)	Resource	Activity
AMR147–AMA180 AMR147–AMA181	CAD system	Call handling and telephone clinical advice Dispatch and control
AMR148–AMA180	EOC telephony	Call handling and telephone clinical advice
AMR149–AMA180	EOC call-taking staff	Call handling and telephone clinical advice
AMR150–AMA180	EOC clinicians	Call handling and telephone clinical advice
AMR151–AMA181	EOC dispatchers	Dispatch and control
AMR146–AMA180	Third-party resources	Call handling and telephone clinical advice

Matching to incidents and linking to patients

30. Activity information on call taking and telephone clinical advice is recorded in the incident information feed (feed 20). Therefore, it does not require matching to the incident.

31. Use the incident ID and patient ID recorded on the patient information feed (feed 22) to link the costed call stage activities to patient(s).

Output cost information

32. Table CM31.5 below shows an example of the costing output of call stage costs in the resource and activity matrix.

Table CM31.5: Example of call stage costs in the resource and activity matrix

Patient ID: XXXX

Incident ID: XXXXXX

Resource	Activity Call handling and telephone clinical advice	Dispatch and control
Computer-aided dispatch (CAD) system	£X	£X
Emergency operations centre (EOC) telephony	£X	
Emergency operations centre (EOC) call-taking staff	£X	
Emergency operations centre (EOC) clinicians	£X	
Emergency operations centre (EOC) dispatchers		£X
Third-party resources	£X	

Costing physical response stage activities

Input information

33. Obtain the incident information feed (feed 20) and response information feed (Feed 21) for all physical response stage activities as prescribed in Ambulance standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2.

34. Use the linking fields in column H in Spreadsheet IR1.1 to ensure the feeds such as staff and fleet information feeds (feeds 23 and 24) link to the correct physical responses (feed 21).

35. The key data fields in the response information feed (feed 21) that contain information used to allocate costs are shown in Table CM31.6 below.

Table CM31.6: Excerpt from Spreadsheet IR1.2 showing the key data fields in the response information feed (feed 21) for costing physical response stage activities

Data field name	Description
Allocation date and time	Date and time at which the response unit was allocated to the incident by the dispatch team
Mobile date and time	Date and time at which the response unit became mobile
At scene date and time	Date and time at which the response unit reached the scene of the incident
Left scene date and time	Date and time at which the response unit left the scene of the incident
At treatment location date and time	Date and time at which the response unit reached the hospital or other destination where the patient was treated
Patient handover date and time	Date and time at which care of the patient was handed over to another provider
Clear date and time	Date and time at which the response unit was ready to respond to another incident

Allocating costs

36. Spreadsheet CP3.3 specifies the detailed methods to allocate costs to physical response stage activities.

Fleet resources and frontline staff resources

37. Fleet resources and frontline staff resources need to be apportioned between non-responding time and patient-facing activities. Please see Ambulance standard CM33: Non-responding time, for details.

38. Fleet resources apportioned to patient-facing activities should then be allocated to physical response activities using the allocation methods specified in Ambulance standard CM32: Fleet costs and Spreadsheet CP3.3.

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39. Note that fleet resources are not allocated to the activity allocation to mobile (AMA182). This is because the time of allocation to mobile consists mainly of staff time, eg getting to the vehicle and getting ready to mobilise. If the staff are in the vehicle when a job is allocated, it usually takes very little time to mobilise.

40. Frontline staff resources apportioned to patient-facing activities should be allocated to all job cycle activities delivered by each staff member, using the duration (in seconds) of each physical response stage activity as a weighting, as specified in Spreadsheet CP3.3.

Community first responders

41. The costs of the community first responder service should be allocated to the activities allocation to mobile (AMA182), mobile to scene (AMA183) and treating patient on scene (AMA184) for all incidents within the responsible area of the community first responder service, using the duration (in seconds) of each activity as a weighting.

Medicines, clinical supplies and consumables

42. Medicines, clinical supplies and consumables costs should be allocated equally to all incidents that take up any on-scene time. This is because currently these costs cannot be matched to incidents and time is not a cost driver for this group of costs – that is, time does not predict drug or dressing use. The costs should be allocated to incidents within locally defined areas or service lines to ensure the consumable costs are allocated to the correct incidents. Allocate the costs to treating patient on scene (AMA184), convey patient to treatment location (AMA185) and patient handover (AMA186) activities.

Third-party resources

43. Where activity is contracted to another provider such as a private ambulance service, the costs should be allocated across each physical response stage activity of the relevant incidents using duration (in seconds) as a weighting.[9]

[9] Further information on this can be found in the Integrated standard CM8: Clinical and commercial services supplied or received, https://improvement.nhs.uk/resources/approved-costing-guidance-2019

44. Third-party patient transport costs (eg taxi to convey patients) should be allocated to the relevant convey patient to treatment location (AMA185) activities using actual spend as a weighting.

Hospital ambulance liaison officers

45. Costs of hospital ambulance liaison officers (HALOs) should be allocated to the patient handover (AMA186) activity using the duration (in seconds) of the activity as a weighting.

46. Sometimes the duration of patient handover is not recorded in the CAD system. In these cases, use the national target of 15 minutes for patient handover as a proxy for the duration. The duration of handover to clear can then be calculated by subtracting the duration of patient handover from the recorded time between arriving at the treatment location and clear.

47. Table CM31.7 is an excerpt from Spreadsheet CP3.3 showing resources linked to the physical response stage activities. Note that fleet resources are grouped in this table; details are provided in Table CM32.1.

48. A cost allocation method is prescribed (see columns F to H of Spreadsheet CP3.3) for each of the resource and activity combinations below.

Table CM31.7: Excerpt from Spreadsheet CP3.3 showing the resource and activity combinations for the physical response stage activities

Link ID (new)	Resource	Activity
AMR147–AMA182 AMR147–AMA183 AMR147–AMA184 AMR147–AMA185 AMR147–AMA186 AMR147–AMA187	Computer-aided dispatch (CAD) system	Allocation to mobile Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear
MDR044–AMA184 MDR044–AMA185 MDR044–AMA186	Medicines	Treating patient on scene Convey patient to treatment location Patient handover
AMR146–AMA184 AMR146–AMA185 AMR146–AMA186	Medical and surgical consumables	Treating patient on scene Convey patient to treatment location Patient handover
AMR148–AMA184	Emergency operations centre (EOC) telephony	Treating patient on scene
AMR150–AMA184	Emergency operations centre (EOC) clinicians	Treating patient on scene
MDR047–AMA184 MDR047–AMA185 MDR047–AMA186	Medical and surgical equipment	Treating patient on scene Convey patient to treatment location Patient handover
AMR140–AMA182 AMR140–AMA183 AMR140–AMA184 AMR140–AMA185 AMR140–AMA186 AMR140–AMA187	Frontline staff – Band 6	Allocation to mobile Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear

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Link ID (new)	Resource	Activity
AMR145–AMA182 AMR145–AMA183 AMR145–AMA184	Community first responder	Allocation to mobile Mobile to scene Treating patient on scene
AMR159–AMA186	Hospital ambulance liaison officers (HALOs)	Patient handover
AMR157–AMA183 AMR157– MA185	Fuel	Mobile to scene Convey patient to treatment location
SPR117 – AMA185	Patient transport	Convey patient to treatment location
AMR152 to AMR158 –AMA183 –AMA184 – AMA185 – AMA186 – AMA187	Fleet resources (excluding fuel) *	 Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear

*See Table CM32.1 for details of the resource and activity combinations for fleet resources.

Matching to incidents and linking to patients

49. Use the matching fields specified in Spreadsheet IR1.1 to match physical response activities in the response feed (feed 21) to incident in the incident information feed (feed 20).

50. Use the incident ID and patient ID recorded on the patient information feed (feed 22) to link the costed activities to patients. See Ambulance standard CP4: Matching costed activities to incidents and patients, for details.

Output cost information

51. Table CM31.8 shows an example of the costing output of physical response stage activities in the resource and activity matrix.

Table CM31.8: Example of physical stage costs in the resource and activity matrix

Patient ID: XXXX

Incident ID: XXXXXX

Activity	Resource						
	Frontline staff – Band 5	Frontline staff – Band 6	Fleet resources*	Fuel	HALOs	Medical and surgical con-sumables	CAD system
Allocation to mobile	£X	£X					£X
Mobile to scene	£X	£X	£X	£X			£X
Treating patient on scene	£X	£X	£X			£X	£X
Convey patient to treatment location	£X	£X	£X	£X		£X	£X
Patient handover	£X	£X	£X		£X	£X	£X
Handover to clear	£X	£X	£X				£X

*See Table CM32.2 for example output of fleet resources.

Costing multiple-patient incidents

52. Please see Ambulance standard CP4: Matching costed activities to incidents and patients, for more details of matching costed activities to multiple patients involved in an incident.

53. Currently, most providers do not record the number of patients treated in an incident.[10] The number of patients conveyed to a treatment location can be estimated from the number of vehicles making this journey: ambulances usually transport one patient each. In this version of the standards we assume

[10] See Ambulance standard IR1: Collecting information for costing and Ambulance standard IR2: Managing information for costing, for more detail on data collection, management and assumptions.

that one response conveys one patient. We understand that not all vehicles can transport patients in a conventional sense, and in rare cases a vehicle can convey more than one patient.

54. The steps involved in multiple-patient incidents and the ways to cost them are shown in the flowchart in Spreadsheet CM31.2.

Allocating costs for multiple patients seen and treated at the scene only

55. The cost of seeing and treating multiple patients at the scene includes all costs incurred up until a response unit leaves the scene, including resources to deliver activities:
    - call handling and telephone clinical advice (AMA180)
    - dispatch and control (AMA181)
    - allocation to mobile (AMA182)
    - mobile to scene (AMA183)
    - treating patient on scene (AMA184).

56. As a count of patients treated at the scene cannot currently be obtained, these incidents should be flagged as multiple-patient incidents but costed as if there were only one patient. You should do this by:
    - following the steps for costing call stage and physical response stage activities
    - linking the costs to the one patient recorded on the CAD system (or your electronic patient record (EPR) system if that is available).

57. Note that such incidents costed as single patient incidents should still have the multiple-patient incident flag.

58. The costing output for incidents that involve multiple patients treated at the scene only is the same as that for single-patient incidents, as illustrated in Tables CM31.5 and CM31.8 above.

59. We appreciate this is not the most accurate approach to allocate on-scene costs as it allocates the costs of treating multiple patients to one patient. This can result in variable patient-level costs for treatment on scene.

60. 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 ambulance sector has adopted the EPR system more widely.

Allocating costs where some or all patients involved in the incident are conveyed for treatment

61. The data field in the incident information feed (feed 20) that contains the information giving the proxy number of patients conveyed for treatment is shown in Table CM31.9.

Table CM31.9: Excerpt from Spreadsheet IR1.2 showing the data field in the incident information feed (feed 20) for proxy number of patients

Data field name	Description
Number of vehicles conveying patient(s) for treatment	Number of vehicles transporting patients from the scene for treatment over the whole incident. This is used to estimate the number of patients transported because providers do not currently record the number of patients per conveying resource. Number of patients is based on the number of response units that have a non-null value in the **at treatment location date and time** and **patient handover date and time** fields.

62. The cost of a patient treated on scene includes all the costs of each response sent until it leaves the scene. You should:

- follow the steps for costing single-patient incidents to allocate costs to relevant activities
- split the costs allocated to call handling and telephone clinical advice (AMA180), dispatch and control (AMA181), allocation to mobile (AMA182), mobile to scene (AMA183) and treating patient on scene (AMA184) between the patients conveyed.

63. Match the costs allocated to activities convey patient to treatment location (AMA185), patient handover (AMA186) and handover to clear (AMA187) to the response and then to the incident.

64. Link patient information feed (feed 22) to the response feed (feed 21) using patient ID and response ID to create patient-level cost.

65. The costing output for incidents that involve multiple patients and for which patient(s) are conveyed for treatment is the same as that for single-patient incidents, as illustrated in Tables CM31.5 and CM31.8 above. However, costs of each resource and activity combination need to be split between the patients conveyed to produce a report for each patient – for example, if three patients are conveyed, there will be three outputs for the incident.

66. We appreciate this is not the most accurate approach to allocating costs, as the costs of treating patients who are not conveyed are allocated to those who are.

Costing incidents with no patients

67. Some incidents involve no patients – for example, when a call is cancelled while a response is on its way to the scene because a patient informs the ambulance service there is no emergency, or when the ambulance arrives at the scene but the patient has left the area and cannot be found. These incidents are covered in scenarios 2.6, 2.7 and 3.1 in the flowchart in Spreadsheet CM31.1.

68. Activities for an incident with no patient should be costed as for a single-patient incident and assigned a flag indicating there was no patient. In this way the number of such incidents and their costs are recorded. We acknowledge that the information necessary to flag in the CAD system whether a patient is at the scene is not always collected.

Example: Allocating costs in different scenarios

Scenario	Number of patients treated on scene only	Number of patients conveyed	Multiple-patient incident?	Allocating costs to patient level
Incident with no patients	0	0	No	Treat as a single-patient incident
No patients treated on scene only, one patient conveyed	0	1	No	Single-patient incident
No patients treated on scene only, multiple patients conveyed	0	2+	Yes	Use the number of conveying vehicles as a proxy to split costs between the patients conveyed
One patient treated on scene	1	0	No	Single-patient incident
One patient treated on scene, one patient conveyed	1	1	Yes	Treat as a single-patient incident. Allocate all costs to the patient conveyed
One patient treated on scene, multiple patients conveyed	1	2+	Yes	Allocate all costs to the patients conveyed. Use the number of conveying vehicles as a proxy to split costs between the patients conveyed
Multiple patients treated on scene, no patients conveyed	2+	0	Yes	Treat as a single-patient incident. Allocate all costs to the patient recorded on CAD
Multiple patients treated on scene, one patient conveyed	2+	1	Yes	Treat as a single-patient incident. Allocate all costs to the patient conveyed
Multiple patients treated on scene, multiple patients conveyed	2+	2+	Yes	Allocate all costs to the patients conveyed. Use the number of conveying vehicles as a proxy to split costs between the patients conveyed.

CM32: Fleet costs

Purpose: To define methods for allocating fleet costs to activity.

Objective

1. To ensure fleet costs are consistently and correctly allocated to patient care activities, resulting in better comparison with peers.

Scope

2. This standard covers the steps involved in allocating fleet costs within the costing period. Fleet costs are defined here as costs relating to:
   - depreciation of vehicles
   - lease of vehicles
   - insurance for vehicles
   - maintenance and repair of vehicles
   - vehicle preparation/cleaning
   - fuel
   - support costs for vehicles.

What you need to implement this standard

- Ambulance standard IR1: Collecting information for costing
- Ambulance standard CP2: Clearly identifying costs
- Ambulance standard CP3: Appropriate cost allocation methods
- Technical document:
  - Spreadsheet IR1.2: Field requirements for the activity feeds
  - Spreadsheet CP2.2: Overheads (type 1 support costs) allocation method
  - Spreadsheet CP3.1: Resource list
  - Spreadsheet CP3.2: Activity list
  - Spreadsheet CP3.3: Methods to allocate resources to activities

Overview

3. Whether a fleet cost is considered a patient-facing or a support cost largely depends on the type and use of the vehicle. You must follow the definition of patient-facing and support costs in Ambulance standard CP2: Clearly identifying costs, to determine which vehicles are patient-facing and which non patient-facing, to categorise fleet costs.

Overheads (type 1 support costs) for fleet

4. For non patient-facing vehicles, depreciation, lease, insurance, fuel, and maintenance and repair (including the facilities required to do these) are categorised as overheads (type 1 support costs) for fleet.

5. Fleet management and administration costs for both patient-facing and non patient-facing vehicles are categorised as overheads (type 1 support costs) for fleet.

6. Overheads (type 1 support costs) for all fleet vehicles in each service line should be allocated using the method specified in Ambulance standard CP2: Clearly identifying costs and Spreadsheet CP2.2.

Patient-facing fleet costs

7. For patient-facing vehicles, depreciation, lease, insurance, vehicle preparation and cleaning, fuel and maintenance and repair (including the facilities required to do these) costs are categorised as patient-facing costs.

8. These costs are mapped to the patient-facing fleet resources which are allocated to physical response stage activities using the methods specified in Ambulance standard CP3: Appropriate cost allocation methods and Spreadsheet CP3.3.

Approach

Apportioning fleet costs to different service lines

9. In some organisations, the same vehicles may be used for activity going through the 999 control centre **and** the patient transport service (PTS), and potentially other services too (eg commercial services). It should be possible

to record which service a vehicle is working for during a shift so that costs can be allocated correctly.

10. Patient-facing fleet costs need to be apportioned to the correct service line using locally developed relative weight values.

11. Overheads (type 1 support costs) for fleet need to be apportioned to all relevant service lines using the consistent methods specified in Ambulance standard CP2: Clearly identifying costs and Spreadsheet CP2.2.

Allocating overheads (type 1 support costs) for fleet

12. Overheads (type 1 support costs) for fleet apportioned to the 999 service line should be allocated to patient-facing resources in the relevant teams or locally defined/geographical areas[11] using the method specified in Ambulance standard CP2: Clearly identifying costs and Spreadsheet CP2.2.

Patient-facing fleet resources

Depreciation, lease and insurance costs

13. Depreciation schedules provide the data for allocation of vehicle depreciation. The cost of depreciation for each vehicle should be calculated quarterly as a minimum. All these costs should be mapped to the vehicle depreciation resource (AMR153).

14. For leased vehicles, quarterly (or more frequently) lease costs can be recorded or calculated for each vehicle. All these costs should be mapped to the vehicle lease resource (AMR156).

15. For both leased and owned vehicles, insurance is a significant part of the cost. Insurance cost records provide the data for insurance allocation to individual vehicles and should be calculated quarterly as a minimum. All these costs should be mapped to the vehicle insurance resource (AMR155).

[11] The area across which the fleet support costs are allocated should be chosen so that the allocation to the vehicles is as accurate as possible, given the available data.

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Maintenance and repair costs

16. For providers that use their own workshops, a breakdown of the cost by vehicle for repairs should be obtained, including labour, parts and workshop support costs. These costs should be mapped to the fleet maintenance and repair – internal resource (AMR154).

17. Facilities are required to carry out maintenance and repairs, and to house vehicles not in use. The costs of these should be mapped to the fleet maintenance and repair – internal resource (AMR154).

18. For providers that contract third-party workshops, the costs of maintenance and repairs should be mapped to the fleet maintenance and repairs – external contracts resource (AMR152). As these costs will not be attributable at vehicle level, a different allocation method is used from that for the fleet maintenance and repair internal resource.

Vehicle preparation and cleaning costs

19. You should map all costs on vehicle deep cleaning (make ready) to the fleet preparation/cleaning resource (AMR158). For providers that contract third-party make-ready services, the costs of the contracts should be mapped to the same resource.

Fuel costs

20. You should map all costs on fuel for patient-facing vehicles to the fuel resource (AMR157).

Linking patient-facing fleet costs to specific vehicles

21. All the patient-facing fleet costs should be linked to the relevant vehicles by fleet reference number or vehicle ID.

22. Your fleet management system should provide the information required to make the link. However, not all providers can currently access this information.[12] If your organisation cannot link these costs to specific vehicles,

[12] This is based on feedback from the National Ambulance Information Group.

the costs should be allocated across all relevant vehicles using locally defined allocation methods.

Allocating patient-facing fleet costs

Input information

23. Obtain the response information feed (feed 21) and fleet information feed (feed 24) for all physical response stage activity as prescribed in Ambulance standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2.

24. Use the vehicle ID in column H in Spreadsheet IR1.1 to ensure the fleet information links to the correct response.

Allocating costs

25. Spreadsheet CP3.3 specifies the detailed methods to allocate fleet costs to physical response stage activities and non-responding time.

26. Vehicle depreciation (AMR153), lease (AMR156) and insurance (AMR155) resources and fleet maintenance and repairs (AMR152 and AMR154) resources should be apportioned between patient-facing activities and non-responding time (AMA188) using the methods specified in Ambulance standard CP3: Appropriate cost allocation methods and Ambulance standard CM33: Non-responding time. Note that fuel (AMR157) and fleet preparation/cleaning (AMR158) resources should not be apportioned to non-responding time.

27. Allocate all the fleet resources apportioned to non-responding time equally to all non-responding time (AMA188) activities as specified in Ambulance standard CM33: Non-responding time and Spreadsheet CP3.3.

28. Allocate the resources, except fuel, that have been apportioned job cycle time to the five patient-facing activities using the duration (in seconds) of each activity as a weighting, as specified in Ambulance standard CM31: Allocating costs across job cycle elements and Spreadsheet CP3.3:
    - mobile to scene (AMA183)
    - treating patient on scene (AMA184)

- convey patient to treatment location (AMA185)
- patient handover (AMA186)
- handover to clear (AMA187).

29. Allocate fuel (AMR157) resource to travelling activities only (mobile to scene (AMA183) and convey patient to treatment location (AMA185)) using the duration (in seconds) of each activity as a weighting.

30. For incidents that involve multiple patients, split all the patient-facing fleet costs allocated to the relevant activities between the patients linked to the incidents, as specified in Ambulance standard CP4: Matching costed activities to incidents and patients and Spreadsheet CP3.3.

31. Table CM32.1 is an excerpt from Spreadsheet CP3.3 showing some of the activities that fleet resources are linked to.

32. A cost allocation method is prescribed for each of the resource and activity combinations below (see columns F to H of Spreadsheet CP3.3).

Table CM32.1: Excerpt from Spreadsheet CP3.3 showing the activities that fleet resources are linked to

Link ID (new)	Resource	Activity
AMR157–AMA183 AMR157–AMA185	Fuel	Mobile to scene Convey patient to treatment location
AMR153–AMA183 AMR153–AMA184 AMR153–AMA185 AMR153–AMA186 AMR153–AMA187 AMR153–AMA188	Vehicle depreciation	Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear Non-responding time
AMR155–AMA183 AMR155–AMA184 AMR155–AMA185 AMR155–AMA186 AMR155–AMA187 AMR155–AMA188	Vehicle insurance	Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear Non-responding time

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Link ID (new)	Resource	Activity
AMR156–AMA183 AMR156–AMA184 AMR156–AMA185 AMR156–AMA186 AMR156–AMA187 AMR156–AMA188	Vehicle lease	Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear Non-responding time
AMR154–AMA183 AMR154–AMA184 AMR154–AMA185 AMR154–AMA186 AMR154–AMA187 AMR154–AMA188	Fleet maintenance and repairs – internal	Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear Non-responding time
AMR152–AMA183 AMR152–AMA184 AMR152–AMA185 AMR152–AMA186 AMR152–AMA187 AMR152–AMA188	Fleet maintenance and repairs – external	Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear Non-responding time
AMR158–AMA183 AMR158–AMA184 AMR158–AMA185 AMR158–AMA186 AMR158–AMA187	Fleet preparation/ cleaning	Mobile to scene Treating patient on scene Convey patient to treatment location Patient handover Handover to clear

Output cost information

33. Table CM32.2 shows an example of the costing output of fleet costs in the resource and activity matrix.

Table CM32.2: Example of fleet costs in the resource and activity matrix

Patient ID: XXXX

Incident ID: XXXXXX

Activity	Resource				
	Vehicle depreciation	Vehicle insurance	Fleet maintenance and repairs – internal	Fuel	Fleet preparation/ cleaning
Mobile to scene	£X	£X	£X	£X	£X
Time on scene	£X	£X	£X		£X
Convey patient to treatment location	£X	£X	£X	£X	£X
Patient handover	£X	£X	£X		£X
Handover to clear	£X	£X	£X		£X
Non-responding time	£X	£X	£X		

CM33: Non-responding time

Purpose: To define the method for allocating the staff and vehicle costs of non-responding time to activities.

Objective

1. To define non-responding time for costing purposes.

2. To give the method for allocating the costs of non-responding time. This ensures costing consistency and results in better comparison with peers.

Scope

3. This standard covers the steps involved in allocating costs to non-responding time within the costing period.

4. This standard excludes non-responding time for the hazardous area response team (HART).

What you need to implement this standard

- Ambulance standard IR1: Collecting information for costing
- Ambulance standard CP2: Clearly identifying costs
- Ambulance standard CP3: Appropriate cost allocation methods
- Technical document:
  - Spreadsheet IR1.2: Field requirements for the activity feeds
  - Spreadsheet CP3.1: Resource list
  - Spreadsheet CP3.3: Methods to allocate resources to activities
  - Spreadsheet CM33.1: Definition of non-responding time

Overview

5. A safe ambulance service requires a minimum level of response available at all times, even though the resources kept available for this purpose may be used infrequently in some areas.

6. Non-responding time is defined as the time that frontline staff and vehicles are available to respond to a 999 call but do not actually respond to an incident.

7. The diagram in Spreadsheet CM33.1 defines different blocks of time for frontline resources, including for staff and vehicles:
   - absence (planned and unplanned)
   - downtime
   - time available, not responding
   - time actively responding.

8. Non-responding time should be the ‘time available, not responding’ only.

9. The cost of non-responding time for frontline staff and vehicles should be allocated to the activity **non-responding time** (AMA188).

Approach

Calculating non-responding time for vehicles and staff

10. Non-responding time for each frontline staff member is calculated by subtracting the total time spent responding to incidents (job time), absence (planned and unplanned) and downtime from the total recorded working hours over a costing period (eg month). See Spreadsheet CM33.1 for definitions of the time blocks.

11. Non-responding time for each patient-facing vehicle is calculated by subtracting the total time spent responding to incidents (job time), absence (planned and unplanned) and downtime from the total time of the costing period (eg month). See Spreadsheet CM33.1 for definitions of the time blocks.

12. The information needed to calculate non-responding time is shown in Spreadsheet IR1.2:

- working hours and absence for frontline staff – from the staff information feed (feed 23)
- off-road time for vehicles – from the fleet information feed (feed 24)
- job time – from the response information feed (feed 21).

13. We are aware that staff are paid compensation when their meal breaks are interrupted. However, since these cannot be traced to individual shifts they must be included within the cost of the relevant staff across all the activities they perform.

14. The data fields in the response information feed (feed 21), staff information feed (feed 23) and fleet information feed (feed 24) that contain information needed to calculate non-responding time are shown in Table CM33.1 below.

Table CM33.1: Excerpt from Spreadsheet IR1.2 showing the data fields in the response information feed, staff information feed and fleet information feed for calculating non-responding time

Feed number	Feed title	Data field name	Description
21	Response information	Call sign	Unique designation for a response unit. Note that the format and use vary between providers: some indicate station and service that may change over time; others use it as a fixed reference for a vehicle
21	Response information	Allocation date and time	Date and time at which the response unit was allocated to the incident by the dispatch team
21	Response information	Clear date and time	Date and time at which the response unit was ready to respond to another incident.
21	Response information	Responder staff ID	Unique identifier for a staff member
21	Response information	Vehicle ID	Unique identifier for the vehicle involved in the response. The number used must make it possible for you to match fleet maintenance and lease or depreciation records with the vehicle
23	Staff information	Staff ID	Unique identifier for a staff member

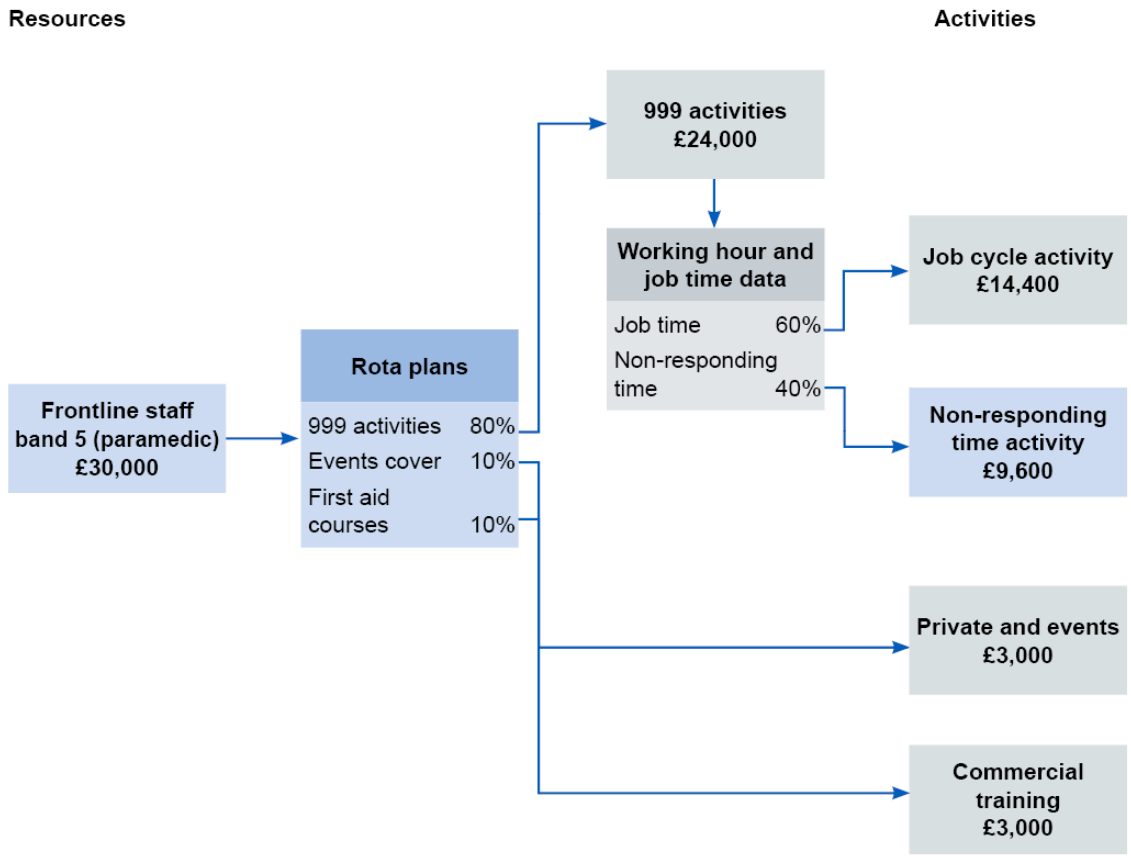
Feed number	Feed title	Data field name	Description
23	Staff information	Shift ID	Unique identifier for the shift worked by the staff member
23	Staff information	Shift start date and time	Date and time at which the shift actually began
23	Staff information	Shift end date and time	Date and time at which the shift actually ended
23	Staff information	Vehicle ID	Unique identifier for the vehicle associated with the staff member during the shift
23	Staff information	Shift call sign	Identifier for the call sign under which the staff member worked during the shift
23	Staff information	Staff WTE	% whole-time equivalent of the staff
23	Staff information	Down time start date and time	Date and time at which the down time actually began
23	Staff information	Down time end date and time	Date and time at which the down time actually ended
23	Staff information	Down time duration	Duration of down time in seconds
24	Fleet information	Vehicle ID	Unique identifier for a vehicle
24	Fleet information	Duration of time off road	Time in hours the vehicle was unavailable to respond

Using relative weight values to split non-responding time at the resource level

15. Once non-responding time has been calculated for each frontline staff member and vehicle, you can use it to calculate the percentage division of different blocks of time including job time, non-responding time, absence and downtime for each resource. This percentage division is used to apportion costs to job cycle activities and non-responding time activities (see Figure CM33.1 below for an example).

16. Time of absence and downtime should be grouped with responding time and the costs of these times allocated to job cycle activities: allocation to mobile (AMA182), mobile to scene (AMA183), treating patient on scene (AMA184), convey patient to treatment location (AMA185), patient handover (AMA186) and handover to clear (AMA187) (see Ambulance standard CM31: Allocating costs across job cycle elements).

Figure CM33.1: Identifying the correct quantum of cost to be apportioned to non-responding time activities



Allocating costs to non-responding time activity

17. Treat non-responding time as an activity (AMA188) that consumes the frontline staff and fleet resources in the same way as responding to an incident does. The exclusions and reasons for them are:

    - fleet preparation/cleaning (AMR158): as these resources are only consumed to treat patients
    - fuel (AMR157): although a vehicle may be driven when it is not responding to an incident, we have not included fuel costs, as recording this movement

for costing is not currently practical; the fuel costs incurred during non-responding time should be allocated to job cycle activities: mobile to scene (AMA183) and convey patient to treatment location (AMA185)

- frontline staff – officer or manager (AMR142): officers and managers sometimes cover frontline work and respond to incidents, but this is not their main job; costs of their time not spent on a job should not be treated as non-responding time but as support costs, eg operational support
- third-party resources (AMR146): non-responding time is relevant to own frontline resources only.

18. Costs of non-responding time should be allocated **equally**[13] to all jobs that:
    - the same patient-facing resource (either a staff member or a vehicle) responded to over a costing period (eg a month)
    - have a recorded duration (from allocation) of at least one minute (60 seconds).

19. Jobs where the response does not arrive at the scene should also be allocated costs of non-responding time: for example, because the incident was dealt with via telephone advice as a 'hear and treat' and the response was cancelled, or because the response was cancelled for any other reason.

20. We appreciate this is not the most accurate approach to allocating non-responding time costs as other factors that have not been weighted for can cause variations in non-responding time, eg urban versus rural differences. Especially in cases where resources cover both urban and rural areas, the cost of non-responding time waiting in a rural area may be allocated to jobs in an urban area covered by the same resource. However, allocating non-responding time to geographical area is not currently practical.

21. Table CM33.2 is an excerpt from Spreadsheet CP3.3 showing the resources that are linked to non-responding time activity.

22. A cost allocation method is prescribed (see columns F to H of Spreadsheet CP3.3) for each of the resource and activity combinations below.

[13] Splitting costs equally between all jobs that a resource responded to during a period is the fairest way, as no aspect of the job itself affects the time spent not responding.

Table CM33.2: Excerpt from Spreadsheet CP3.3 showing the resources combined with non-responding time activity

Link ID	Resource	Activity
AMR137–AMA188	Frontline staff – Band 3 and below	Non-responding time
AMR138–AMA188	Frontline staff – Band 4	
AMR139–AMA188	Frontline staff – Band 5	
AMR140–AMA188	Frontline staff – Band 6	
AMR141–AMA188	Frontline staff – Band 7	
AMR143–AMA188	Frontline staff – non-AfC	
AMR144–AMA188	Frontline staff – agency	
AMR152–AMA188	Fleet maintenance and repairs – external contracts	
AMR153–AMA188	Vehicle depreciation	
AMR154–AMA188	Fleet maintenance and repairs – internal	
AMR155–AMA188	Vehicle insurance	
AMR156–AMA188	Vehicle lease	

23. Table CM33.3 shows an example of the costing output of patient-facing resources allocated to non-responding time.

Table CM33.3: Example of costs allocated to non-responding time in the resource and activity matrix

Patient ID: XXXX

Incident ID: XXXXXX

Resource	Activity Non-responding time
Frontline staff – Band 5	£X
Frontline staff – Band 6	£X
Vehicle depreciation	£X
Vehicle insurance	£X
Fleet maintenance and repairs – Internal	£X

Example

Available information

Shift cost (vehicle and crew): £1,200

Total shift time (hours)											
1	2	3	4	5	6	7	8	9	10	11	12
NR	Job1	NR	Job2	NR	Job 3		NR		Job 4		
	Area 1		Area 1		Area 1				Area 2		

NR: non-responding time.

Allocation of non-responding time and costs

Total non-responding time costs (5 hours): £500

Equally allocated to jobs (four in shift): £125

Allocating non-responding time cost to jobs		
Job 1	Job cycle cost	£100
	Non-responding time	£125
	Total	**£225**
Job 2	Job cycle cost	£100
	Non-responding time	£125
	Total	**£225**
Job 3	Job cycle cost	£200
	Non-responding time	£125
	Total	**£325**
Job 4	Job cycle cost	£300
	Non-responding time	£125
	Total	**£425**

CM34: The income ledger

Purpose: To assign income to the correct costed activities in the correct proportion.

Objective

1. To support providers in accurately producing their service-line reports.

Scope

2. This standard covers all the income your organisation receives.

3. The standard is for guidance only. There are no plans to include income in the cost collection.

4. As ambulance services are paid at incident level where there is activity-based variation in payment, we refer to incident level not patient level.

5. You are not required to disaggregate incident-level income to patient level.

6. Please refer to Ambulance standard CP2: Clearly identifying costs for how to treat income as part of the costing process.

What you need to implement this standard

- Technical document:
  - Spreadsheet CM34.1: Examples of block income allocation

Overview

7. All income your organisation receives needs to be aligned to all the costs incurred, for the purposes of service-line reporting and management so it can be used effectively in internal decision-making.

8. You need to understand all the different types of income recorded in the general ledger and what costs the income relates to, so that the outputs from the costing system can be reconciled to the accounts.

9. The corporate income cost centres and subjective codes in the general ledger are at an aggregated level. Several types of income for different activities may also be recorded on a single line in the general ledger.

10. The general ledger is not the only source of income information available to you. Other sources provide the detail that will improve the allocation method for income at both incident and service-line levels.

11. For internal reporting, to calculate income at service-line level and to understand surplus and deficit positions at the incident level, you need to obtain incident-level income information from either the informatics or contracting departments.

12. Where more detailed income information is unavailable, you need to identify this income in the general ledger and develop local rules to allocate it at the incident level.

13. To avoid duplicating income in the costing system, if more detailed income information is loaded into the income ledger from another source – for example, a block income feed from the contracting team – the costing system should exclude the corresponding income value loaded from the general ledger output.

14. You should maintain a clear audit trail for all sources of information loaded into the costing system, ensuring this reconciles with data reported in your organisation's accounts.

Approach

15. You need to know the currency of the service provision for block contracts so that it can be used to drive the income allocation.

16. The income ledger is divided into five income groups as shown in Figure CM34.1.

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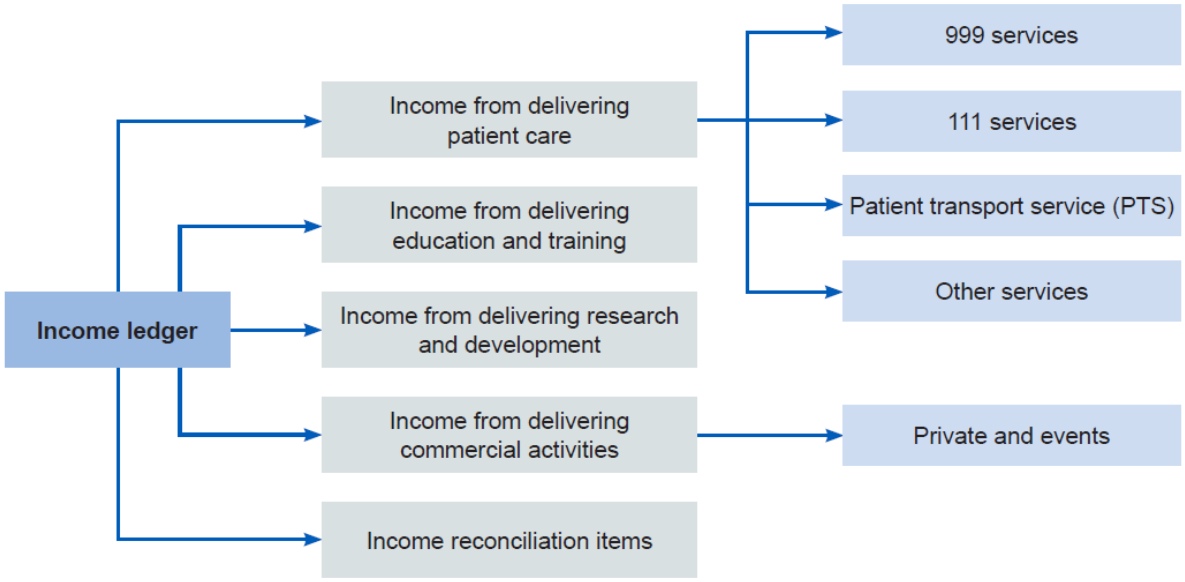
Figure CM34.1: Income groups



17. The **patient care income group** comprises the income relating to the provider's patient activity – that is, for patients funded by the English NHS, through national pricing or local pricing, including block contract arrangements by local variation to national prices or under local pricing arrangements (also known as healthcare income). This income group can be further divided based on service line:
    - 999 services
    - 111 services
    - patient transport service (PTS)
    - other services, eg out-of-hours GP services and minor injuries units.

18. The income for the different patient groups needs to be identified and allocated to them only.

19. Healthcare income is defined as the income a provider receives for the activity it undertakes for NHS commissioning organisations in England.

20. Ambulance 999 services receive different types of healthcare income that is locally agreed and not subject to national prices:
    - block contract income for each service line
    - standard level of payment with provision for more or less activity, ie cap and collar

- fixed elements for providing a specific service, eg funding for hospital ambulance liaison officers
- other contracts locally agreed with clinical commissioning groups – for example, use of specialist paramedics, cost cover for acute provider reconfiguration (eg closure of A&E departments) in the area.

21. Currently, ambulance services do not receive income based on national prices. In future, more types of healthcare income may be available to ambulance services. We will revise this standard to reflect future changes to the payment system.

22. All healthcare income streams should be allocated to incidents based on the activity undertaken.

23. Where a contract is paid for with block income, this income needs to be allocated using a locally agreed method. Spreadsheet CM34.1 gives examples of ways you can allocate block income.

24. The **education and training (E&T) income group** comprises the income the provider receives for E&T activities. You should set your organisation's own allocation method for this income.

25. The learning and development agreement (LDA) issued by Health Education England (HEE) breaks down this income by the specialty it relates to. If any of your E&T is funded by HEE, you should refer to the LDA to allocate that income. Otherwise, refer to the appropriate funding agreement for your organisation to allocate the income.

26. This income may be held in corporate cost centres or department cost centres. You need to identify where the income is held and ensure it is all reported in the E&T income group.

27. The **research income group** comprises the income the provider receives for research and development (R&D) activities. You should set the allocation method with the R&D department for this income. This includes:
    - comprehensive local research network
    - Health Education England

- commercial income where the funder is not the sponsor (ie a commercial grant)
- grants from charities and other organisations.

28. This income may be held in corporate cost centres or department cost centres. You need to understand where the income is held and ensure it is all reported in the research income group and allocated to research activities.

29. The **commercial activities** income group includes the following income relating to the providers:
    - sporting/public event additional ambulance cover
    - commercial first aid training
    - air ambulance charity income.

30. **Income reconciliation items income group** – this is income for which there is no corresponding activity – for example, grants or donations received by the provider.

31. Work with the financial management team to identify the costs and activities associated with the service-level agreement and update your information annually.

32. Make sure both income and costs are reported in the correct cost and income group and allocated to the correct activities, so that any profitable commercial activities do not reduce the total cost amount for your organisation's patient care activities.

33. As the income for the period must match the income reported to the board, a full reconciliation must be kept showing how the ledger income maps to the income loaded into the costing system. Follow the guidance in Ambulance standard CP5: Reconciliation and use the reconciliation report 'Input accounting reconciliation' in Spreadsheet CP5.1.

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