Overhead Allocation

Costing extension (formerly CP8)

Contents

Overhead Allocation

Introduction

1. This detailed guide provides further details and examples to *Standard CP2: Clearly identifying costs* on allocating overheads. This is to ensure overheads are allocated to patient-facing resources in a consistent way.

2. This document should be applied to all lines of the general ledger that are categorized as overheads, i.e. either a whole overhead cost centre or overhead cost lines in a patient-facing or support cost centre.
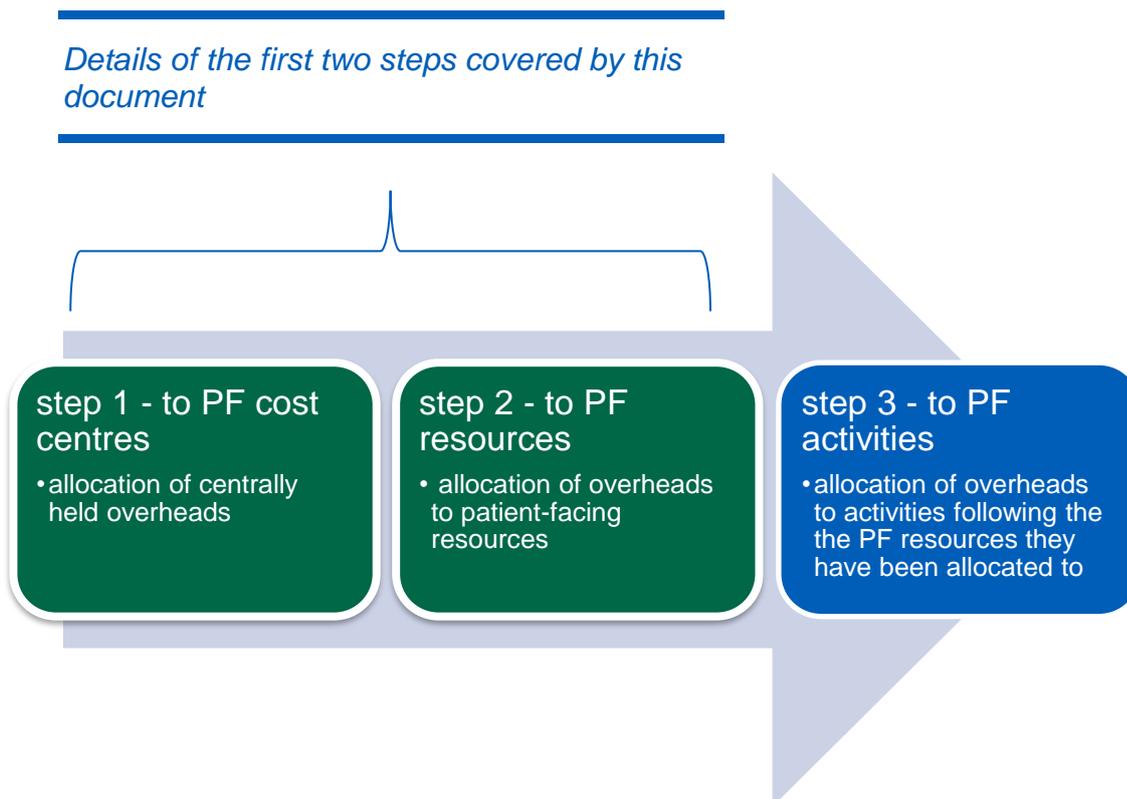
Categorisation of costs - overheads

3. Standard CP2 categorises costs on your GL to patient-facing costs and overheads. The standardised cost ledger (Spreadsheet CP2.1) categorizes the cost centre according to whether they are patient-facing or overheads.[1]

4. There are two types of overheads:

    - corporate overheads – costs of support services used by all other services in the organisation, such as corporate HR department costs
    - service overheads – costs of support services used only by certain areas in the organisation, such as project management costs specifically to a team.

5. Corporate overheads are usually held centrally as a cost centre in your GL. These costs should be allocated to all the services in your organisation.

6. Service overheads are usually held devolved into the cost centre where the cost is incurred. These costs should be allocated only to the areas that use the service.

7. Overheads, such as finance and HR, are allocated to all services that used them, using a non-activity-based allocation method such as actual usage or whole time equivalent (WTE).

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[1] See column C in Spreadsheet CP2.1 for how cost centres are categorised.

Allocating overheads to services that used them

8.   Standard CP2 prescribes:

   - a two-step process for allocating overheads to patient-facing resources

   - followed by a third step for overheads to follow the resources they have been allocated to and be allocated to an activity.

9.   Figure 1 illustrates the three steps in overheads allocation. This document explains in detail the first two steps of allocating overheads, ie up to the stage of allocating overheads to resources. Please refer to Standard CP3 for more details on the third step.
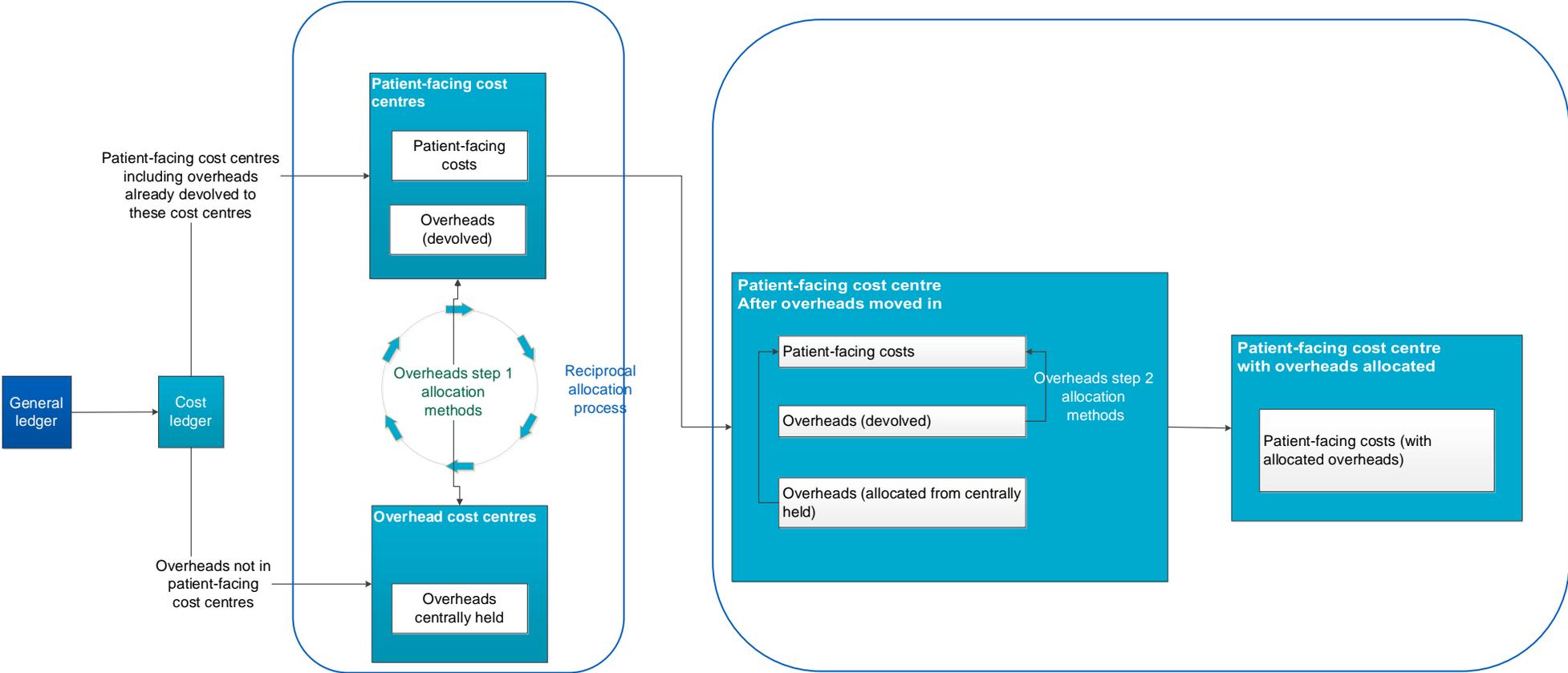
Figure 1: The three steps in overheads allocation

Details of the first two steps covered by this document

step 1 - to PF cost centres	step 2 - to PF resources	step 3 - to PF activities
• allocation of centrally held overheads	• allocation of overheads to patient-facing resources	• allocation of overheads to activities following the the PF resources they have been allocated to

10.   Figure 2 illustrates the two-step allocation process of overheads to patient-facing resources:

- Step 1: apportioning centrally held overheads (overhead cost centres) to other cost centres that use them

- Step 2: allocating overheads within patient-facing centres to patient-facing resources, either devolved in the cost centre in your ledger or apportioned to the cost centre from step 1.

11. Detailed allocation methods for both step 1 and step 2 allocation are prescribed in Spreadsheet CP2.2. Superior methods for allocating overheads are listed against the prescribed methods in Column J in Spreadsheet CP2.2.

12. The allocation methods prescribed are usually developing relative weight values (RWVs) based on eg actual whole time equivalent (WTE), headcount, floor area or actual expenditure.

13. All overheads in the cost ledger (Spreadsheet CP2.1) have been mapped to an overhead ID in Spreadsheet CP2.2. The overhead IDs identify the cost allocation method to use for each overhead.

14. The overhead IDs in Spreadsheet CP2.2 are grouped into pay and non-pay for analysis within the cost collection.

15. All overheads need to be separated from the patient-facing resources and grouped into the support costs resource in your PLICS submission.

Figure 2: Extract from the costing diagram

Patient-facing cost centres including overheads already devolved to these cost centres

Patient-facing cost centres
- Patient-facing costs
- Overheads (devolved)

Overheads step 1 allocation methods

Reciprocal allocation process

General ledger

Cost ledger

Overheads not in patient-facing cost centres

Overhead cost centres
- Overheads centrally held

Patient-facing cost centre After overheads moved in
- Patient-facing costs
- Overheads (devolved)
- Overheads (allocated from centrally held)

Overheads step 2 allocation methods

Patient-facing cost centre with overheads allocated
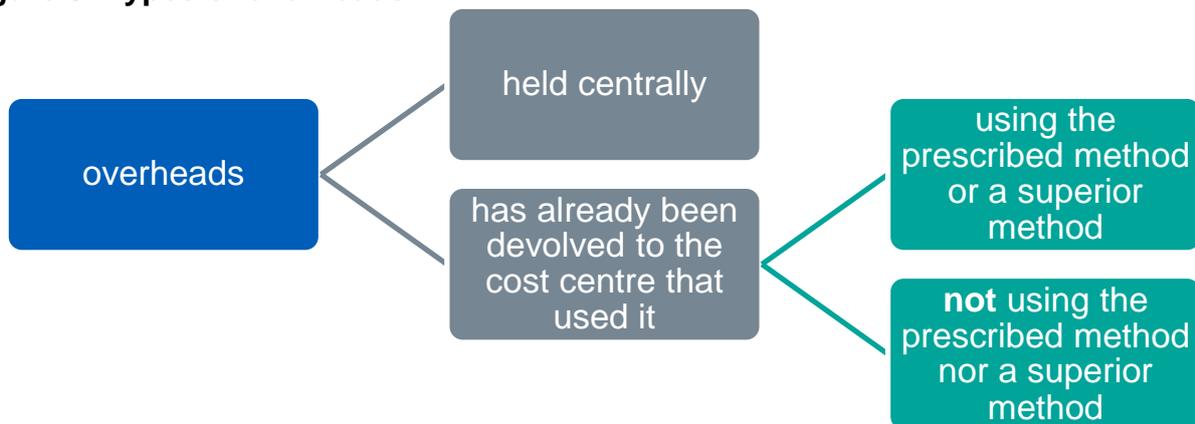- Patient-facing costs (with allocated overheads)

Step 1: allocation of centrally held overheads (overhead cost centres)

Step 2: allocation of devolved overheads (overheads within patient-facing cost centres)

Centrally held and devolved overheads

16. It is important to identify whether an overhead is centrally held or has already been devolved to the relevant cost centres in the standardised cost ledger. For example, are the computer hardware costs for clinical areas:

- held in a 'central' place in your cost ledger or
- purchased using a central code, but then recharged monthly to the service that used them (devolved) or
- already devolved in the cost centre for the clinical area

17. Figure 3 shows the steps to take for each overhead based on whether the overhead is centrally held or devolved; If devolved, whether it uses a prescribed or superior method.

Figure 3: Types of overheads

18. Centrally held overheads (costs in an overhead cost centre) should follow both step 1 and step 2 in Figure 2 to be allocated to a patient-facing resource.

19. Overheads that devolved in a patient-facing cost centre using the prescribed or superior method do not need to be reaggregate to a central place. These costs only need to go through the step 2 allocation in Figure 2:

- Some overheads will already be reported in the area that used them, such as ward clerks on a ward cost centre

- Other overheads such as ward security costs may have already been devolved in the general ledger, using an internal recharge[2].

- We also accept overheads devolved using the budget setting process.

20. If the overheads devolved in the general ledger did not use the prescribed (or superior) cost allocation method, they need to be reaggregated to a central location and then follow steps 1 and 2 to be allocated to a resource. Similar to a centrally held overheads. For example, telephone equipment recharged based on a standard cost (which is not a prescribed or superior allocation method), rather than actual WTEs per area.

21. The reaggregation may be done

- in your costing system using journals to move costs from the cost centre the overhead was devolved to, back to a central cost centre
- as part of the preparation work within the PLICS GL to CL mapping.

Figure 4: steps to follow for centrally held and devolved overheads
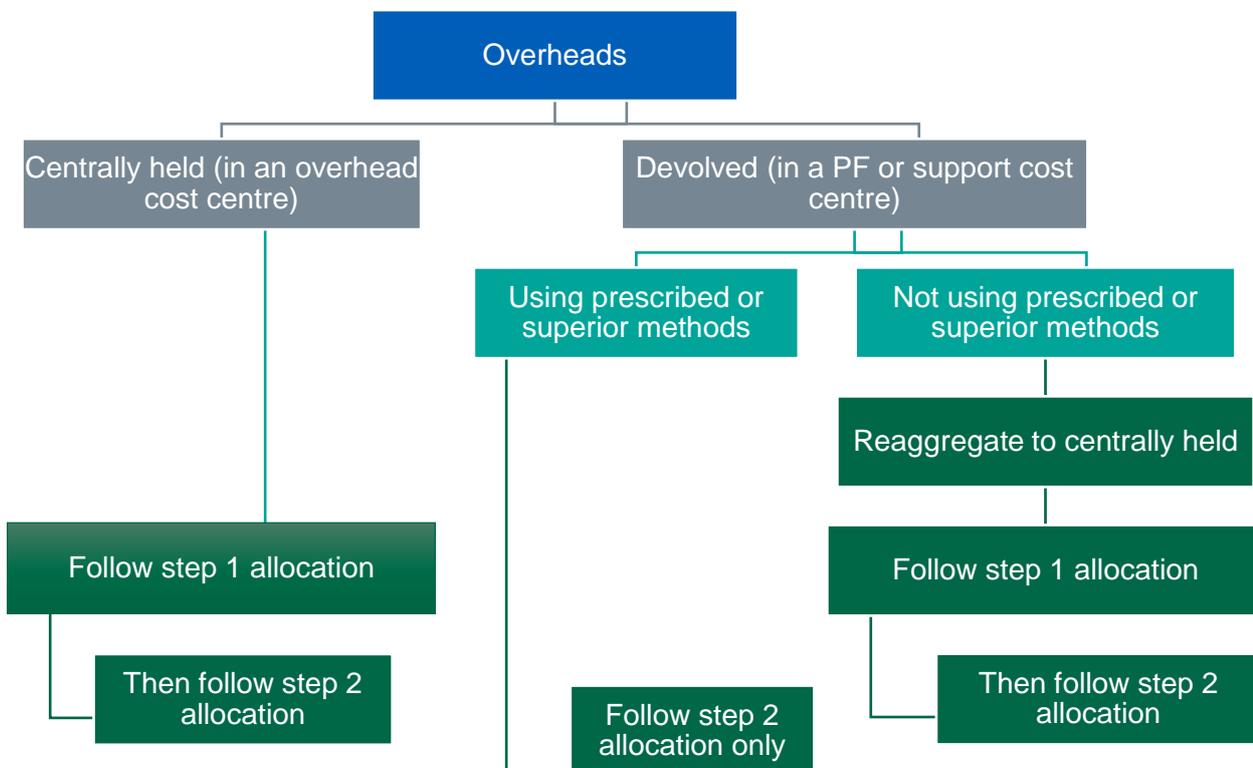
[2] Some organisations will call this a 'journal', using the accounting terminology for moving costs in the general ledger.

Example 1: Devolved medical equipment depreciation costs

The prescribed allocation method to treat devolved medical equipment depreciation costs (support cost ID: T1S023) is 'value of equipment in the area as reported in fixed asset register' (see Spreadsheet CP2.2).

If the depreciation has already been devolved to the cost centres that use the equipment using the prescribed allocation method, it will be in the correct position to allocate the costs to the patient-facing expense lines within the cost centre. It does not need to be reaggregated to a central depreciation cost centre.

If the depreciation has been allocated using any other method, the cost should be reaggregated to the central depreciation cost centre, so that the correct allocation method can be used as part of the costing process.

Step 1: Allocating centrally held overheads to patient-facing cost centres

22. Centrally held overheads need to follow step 1 allocation methods prescribed in Spreadsheet CP2.2 to be apportioned to patient-facing cost centres that use the service.

23. To allocate overheads in the correct proportion, you may need to identify Relative Weight Values (RWVs) by obtaining the relevant information from the departments.

24. An example of a statistic allocation table for the RWV of staff actual WTE is given in Table 1.

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

Table 1: Example of Actual WTE statistic allocation table

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

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

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

28. Depending on whether the overhead is corporate overheads or service overheads, you need to choose the correct cost centres to apply the RWVs in step 1. See Example 2 for more details

> ## Example 2: Choosing the correct cost centres to apply the RWVs in allocating centrally held overheads
>
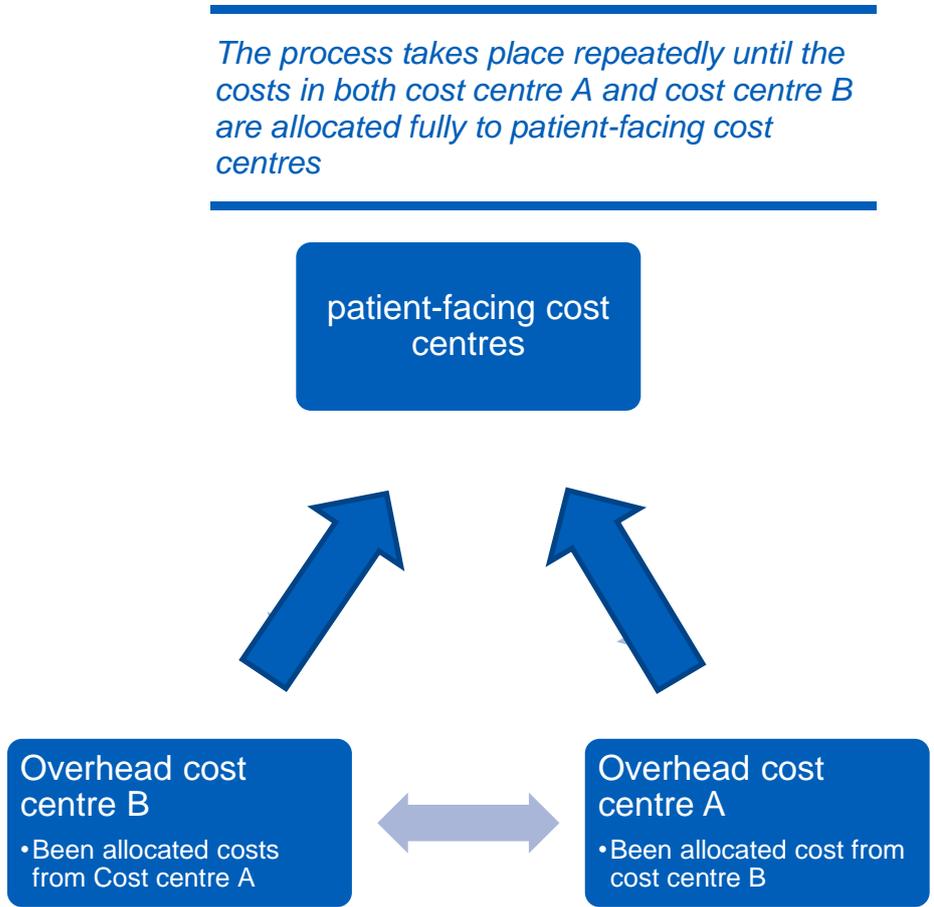> On your ledger you have the following two overhead cost centres
> - Cost centre XXX255 Administration support staff:
>   – contains service overhead costs of an admin team supporting a clinical team
>   – the whole cost centre maps to Overhead ID: T1S001 Administration support staff (pay)
>   – the step 1 allocation method for T1S001 is: Actual WTE of the service area
>
> - Cost centre XXX213 Communications:
>   – contains corporate overhead costs of the Corporate Communications department
>   – the whole cost centre maps to Overhead IDs: T1S002 Advertising, public relations expenses, public engagement, media
>   – the step 1 allocation method for T1S002 is: Actual WTE
>
> While both cost centres will use actual WTE as the RWV to allocate costs to patient-facing cost centres, the WTE considered for the two cost centres will be different.
> - XXX255 only contains service overheads, and the WTE to use should only be from the cost centres the admin team serve, i.e. WTE of the clinical team cost centre
>
> - XXX213 contains corporate overheads, the WTE to use should be WTE of every cost centre on your ledger as the Corporate Comms serves the whole organisation.

29. Allocating centrally held overheads (overhead cost centres) should involve a reciprocal allocation process in cost allocation (see Figure 5)

30. A **reciprocal** allocation method allows all corporate support service costs to be allocated to, **and** received from, other corporate support services. This process may take many calculations until the costs are allocated fully.

Figure 5: reciprocal costing

The process takes place repeatedly until the costs in both cost centre A and cost centre B are allocated fully to patient-facing cost centres

patient-facing cost centres

Overhead cost centre B
•Been allocated costs from Cost centre A

Overhead cost centre A
•Been allocated cost from cost centre B

31. Reciprocal costing must take place within the costing system.

32. Example 3 below provides detailed process of reciprocal costing. Please note that this process will happen in your costing system. This example is only to explain how the process works step by step.

Example 3: Reciprocal costing process

There are five cost centres:

- two patient-facing cost centres: ward (W) and pathology (P)
- three overhead cost centres: finance (F), human resources (HR) and estates (E).

In the cost ledger the expenditure balances are:

Table 2: Cost centre balances

Cost centre	Expenditure (£)
Finance (F)	13,000
HR (H)	18,000
Estates (E)	22,000
Ward (W)	31,000
Pathology (P)	16,000
	100,000

For each overhead cost centre there are relative weight values based on the appropriate cost allocation method, which are summarised in percentage terms:

Table 3: Apportionment statistics

Cost centre	Finance	HR	Estates	Ward	Pathology
Finance (F)	10%	25%	40%	15%	10%
HR (H)	30%	10%	20%	10%	30%
Estates (E)	15%	10%	10%	30%	35%

For the finance department,

- 25% of costs are apportioned to HR
- 40% to estates
- 15% to ward
- 10% to pathology and
- 10% to the finance department itself.

Finance in turn is apportioned costs from estates and HR.

Costs for each overhead cost centre can be apportioned to and received from the other support cost centres.

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.[3]

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:

Table 4: First pass

	Total	Finance	HR	Estates	Ward	Pathology
Finance (F)	13,000	1,300	3,250	5,200	1,950	1,300
HR (H)	18,000	5,400	1,800	3,600	1,800	5,400
Estates (E)	22,000	3,300	2,200	2,200	6,600	7,700
Ward (W)	31,000	0	0	0	0	0
Pathology (P)	16,000	0	0	0	0	0
	100,000	**10,000**	**7,250**	**11,000**	**10,350**	**14,400**

After the second pass the values are:

Table 5: Second pass

	Total	Finance	HR	Estates	Ward	Pathology
Finance (F)	10,000	1,000	2,500	4,000	1,500	1,000
HR (H)	7,250	2,175	725	1,450	725	2,175
Estates (E)	11,000	1,650	1,100	1,100	3,300	3,850
Ward (W)	41,350	0	0	0	0	0
Pathology (P)	30,400	0	0	0	0	0
	100,000	**4,825**	**4,325**	**6,550**	**5,525**	**7,025**

[3] We do not recommend one method over the other as the outcome for both will be the same.

As the expenditure on 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 is equal to the £100,000 total starting balance. The process of reapportionment is continued until, after the 10th pass, most of the expenditure appears against the patient-facing cost centres.

Table 6: Tenth pass

	Total	Finance	HR	Estates	Ward	Pathology
Finance (F)	72	7	18	29	11	7
HR (H)	61	18	6	12	6	18
Estates (E)	92	14	9	9	28	32
Ward (W)	53,604	0	0	0	0	0
Pathology (P)	46,171	0	0	0	0	0
	100,000	**39**	**33**	**50**	**45**	**58**

After multiple passes the balances left for overhead cost centres are sufficiently small to be allocated on a pro rata basis to the direct 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 overhead cost centres.

Table 7: Simultaneous equations

Cost centre	Total	Finance	HR	Estates
F	= 13,000	+0.1F	+0.3H	+0.15E
H	= 18,000	+0.25F	+0.1H	+0.1E
E	= 22,000	+0.4F	+0.2H	+0.1E
W	= 31,000	+0.15F	+0.1H	+0.3E
P	= 16,000	+0.1F	+0.3H	+0.35E

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

Table 8: Mathematical outcome

Pathology	46,298.24
Ward	53,701.75
	100,000.00

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

$$P = 16,000 + 0.1F + 0.3H + 0.35E$$

Since the values of F, H and E are now known, costs for pathology are broken down as follows:

Table 9: Pathology cost breakdown

Categorisation	Cost centres	£
Patient facing	Pathology	16,000.00
Overheads	Finance	3,385.96
Overheads	Human resources	10,394.74
Overheads	Estates	16,517.54
		46,298.24

This total value is the same as the solution for the value of the pathology cost centre that allows all the equations to be simultaneously true.

Step 2: Allocating overheads to patient-facing resources

33.   Within the costing system, overheads should be apportioned over the patient-facing expense lines within the cost centre, based on the allocation methods in Columncolumn I in Spreadsheet CP2.2 (step 2).

34.   Patient-facing cost lines, with their allocated portion of overheads, are then mapped to resources.

35. This step to apportion overheads to patient-facing resources is to allow them to be allocated using an activity-based method (i.e. Step 3 in Figure 1). Table 10 gives an example of different types of costs within a resource.[4]

Table 10: Example of costs within a patient-facing resource

Resource name	Patient-facing cost	Overhead - pay	Overhead – non pay	Total resource cost for the costing process
Nurse	XX	XX	XX	XX
Consultant	XX	XX	XX	XX

36. In some cases, overheads in a patient-facing cost centre can be mapped to resource directly and step 2 allocation is not necessary. For example, when all lines in a patient-facing cost centre map to one single resource.

37. Figure 6 shows different conditions where step 2 allocation needs to occur, or overheads can be mapped to resources directly.

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[4] Also see Req23 in Table10 in the minimum software requirements guidance and Standard IR3: Using patient-level information as part of the decision-making toolkit, for what the costing system requires to separate overheads (type 1 support costs) from patient-facing resources and report this in your dashboard.

Figure 6: Conditions where overheads can be mapped to resource directly or not
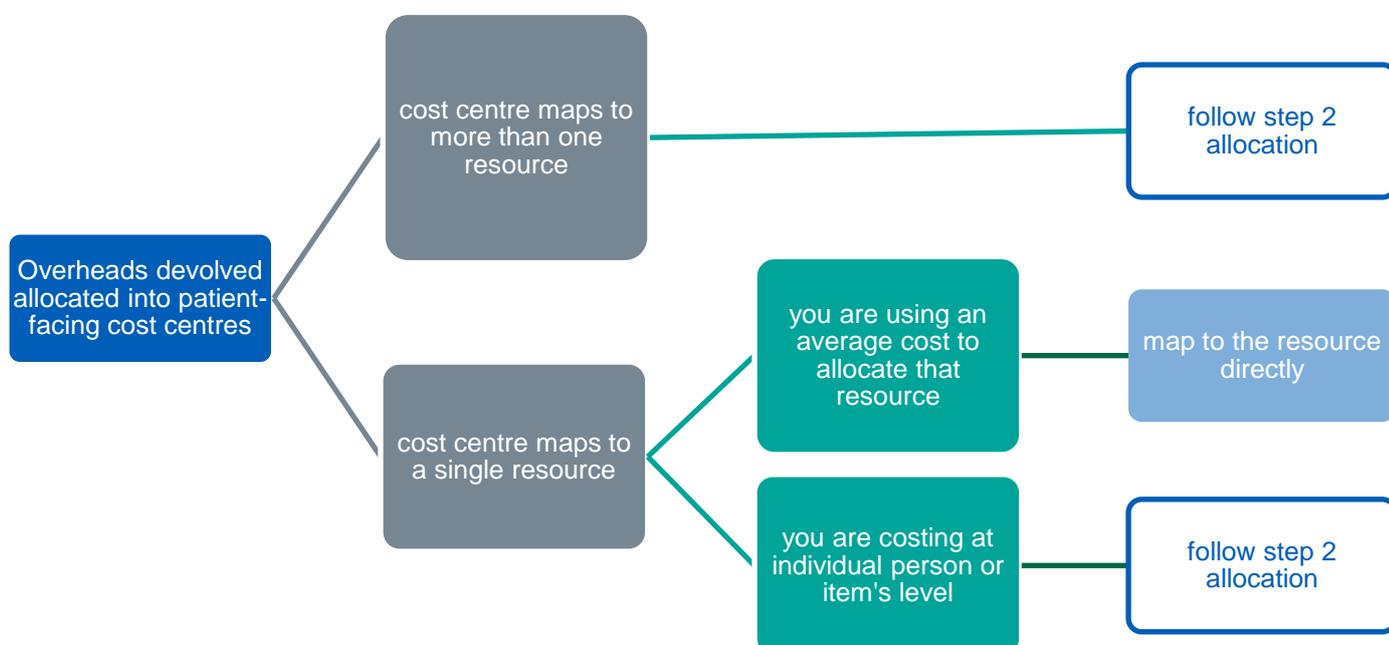
Overheads in patient-facing cost centres

38. You can map all overheads devolved or moved into a patient-facing cost centre directly to resources if:

    - all the lines in the patient-facing cost centre map to the same resource
    - you are using an average cost to allocate that resource, e.g. using average nurse costs per minute to allocate nurse costs.

39. However, we stress that the information in Table 10 will still need to be available if you allocate overheads in patient-facing cost centres directly to the patient-facing resource.

40. Where the standards state you should allocate the actual staffing costs to their named activity you will still need to allocate the overheads over the patient-facing expense lines even if all the costs in the cost centre are mapped to a single resource (i.e. follow step 2 allocation); if you do not, individual staff

members will not be allocated the correct amount of overheads. If the patient-facing cost centre is mapped to more than one resource, you cannot skip step 2 allocation. Otherwise the different resources will not get the correct amount of overheads.

41. The detailed allocation methods for step 2 allocation is prescribed in Column I in Spreadsheet CP2.2.

42. Example 4 illustrates how centrally held HR cost (HR cost centre) goes through the two-step allocation process and be absorbed to patient-facing resources.

Example 4: HR cost centre be absorbed to patient-facing resources

HR cost centre (XXX204) maps to overhead ID: T1S039.

Follow step 1 allocation method in CP2.2 for T1S039: allocate the cost to all other cost centres on your ledger based on Actual WTE of the cost centre.

After going through the reciprocal costing process in your costing system, all the costs in cost centre XXX204 are moved to patient-facing cost centres.

As a result of the step 1 allocation, £1,000 is apportioned to Ward A cost centre (XXX064).

Cost centre XXX064: Ward A is mapped to the following resources:

CMR306	Specialist foods supplied to patients
MDR044	Medicines
MDR045	Patient appliances
MDR046	Medical and surgical consumables
MDR047	Medical and surgical equipment and maintenance
MDR052	Other patient-specific consumables
MDR061	High cost drugs
SGR077	General Practitioner - secondary care
SLR081	Nurse
SLR082	Specialist nurse
SLR084	Healthcare assistant
SPR101	Patient travel costs reimbursed
SPR117	Patient transport
SPR128	Patient expenses
THR001	Therapist

There is more than one resource, therefore overheads cannot be mapped to resources directly and step 2 allocation need to happen (see Figure 4).

Follow step 2 allocation method (Actual WTE) to allocate the £1,000 HR costs to different cost lines within cost centre XXX064 Ward A and then mapped to the relevant resources.

After the step 2 allocation, the £1,000 HR costs moved from cost centre XXX204 to cost centre XXX064 should be absorbed to the following (pay) resources where Actual WTE can be reported:

SGR077	General Practitioner - secondary care
SLR081	Nurse
SLR082	Specialist nurse
SLR084	Healthcare assistant
THR001	Therapist

Things to consider when following this method

43.   Using an expenditure-based allocation method, some areas of the ledger may get a larger proportion of the allocated overheads because of specific high cost items, such as medicines or prostheses. If so, investigate the overheads allocation and use a more appropriate one.

Superior allocation methods for overheads

44.   If you are using an activity-based method to allocate an overhead cost, continue to do this and document it in ICAL worksheet 15: Superior costing methods. We have adopted this as a superior method in Spreadsheet CP3.5.

45.   See Example 5 of such a superior method.

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Example 5: Superior method – using activity based method to allocate medical secretary costs

You have £10,000 costs of medical secretary sitting in a central medical secretary cost centre (XXX261).

The cost centre is mapped to one Overhead ID: T1S001.

The prescribed method for T1S001 in CP2.2 is actual WTE to the service that incur the costs.

You have more detailed information on which team the medical secretary service is for, therefore can treat it as a local 'medical secretary' resource and allocate it using an activity based method, such length of stay of all the inpatients treated by the team. Activity-based methods for overheads is considered as a superior method.

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Going through the rest of the costing process

46. Once the overheads are allocated and absorbed into patient-facing resources, the overhead costs will follow the resource they have been absorbed into to follow the rest of the costing process.

47. They will be then allocated to the relevant activities and matched to patient events, following the same resource to activity allocation methods in Spreadsheet CP3.3 as the resources they have been absorbed into.

48. During the rest of the costing process, overheads are within the resources. However, your system should allow the information in Table 9 to be shown at any stage of the costing process, i.e., the proportion of overheads within each resource.

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Example 5: HR cost centre following the rest of the costing process

HR costs £1,000 apportioned to Ward A cost centre (XXX064) of which £500 are absorbed to Nurse resource (SLR081).
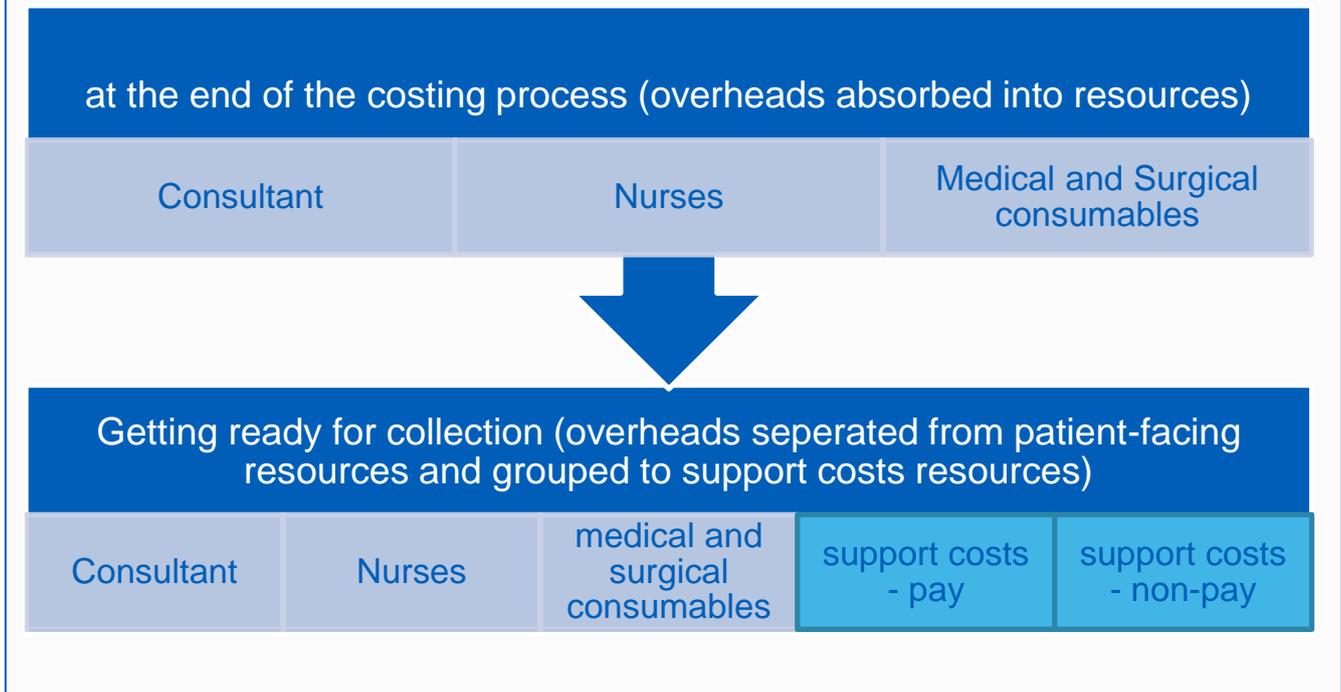
Follow the allocation methods for the nurse resource (SLR081) to activity (ward care SLA097) in Spreadsheet CP3.3.

Then follow the ward care activity and be matched to different inpatient events, i.e. each patient episode of that ward will be allocated a share of HR costs.

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Separate overheads from patient-facing resources for collection

49. In PLICS files within the National Cost Collection, all overheads allocated to patient-facing resources need to be separated from the patient-facing resources they have been absorbed into.

50. There are two support costs collection resources depending on whether they are pay costs or non-pay.

Example 6: A costed episode at the end of the costing process and getting ready for collection
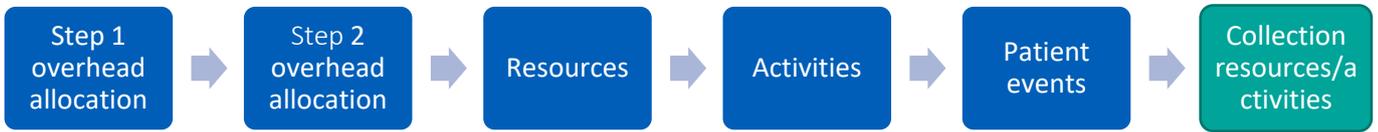

at the end of the costing process (overheads absorbed into resources)

Consultant	Nurses	Medical and Surgical consumables

Getting ready for collection (overheads seperated from patient-facing resources and grouped to support costs resources)

Consultant	Nurses	medical and surgical consumables	support costs - pay	support costs - non-pay

Summary

51.   Figure 7 shows treatment of overheads in each step of the costing process:
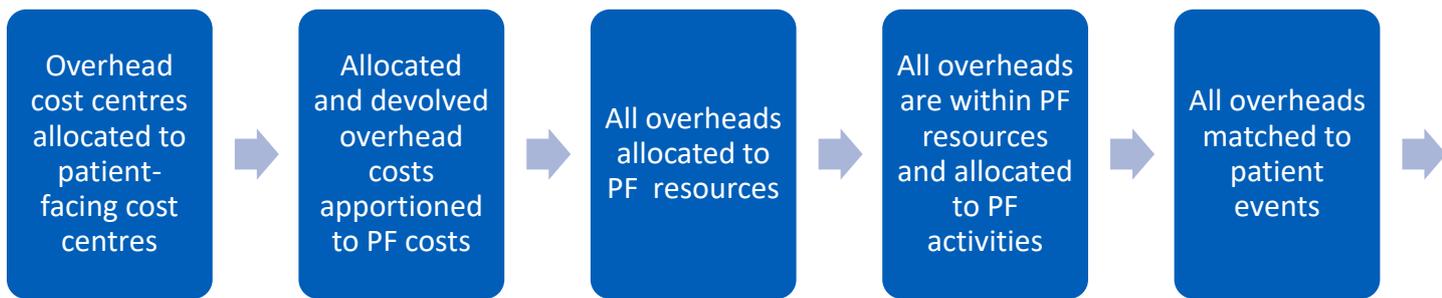
- two-step process to allocate overheads to patient-facing resources
- next follow the patient-facing resources to be allocated to activities
- then follow the patient-facing activities to be matched to patient events
- eventually sperate out overheads from patient-facing resources and aggregate to support resources for each patient event

Figure 7: Where are the overheads during the costing process

Costing process

| Step 1 overhead allocation | → | Step 2 overhead allocation | → | Resources | → | Activities | → | Patient events | → | Collection resources/activities |

Where are the overhead costs?

| Overhead cost centres allocated to patient-facing cost centres | → | Allocated and devolved overhead costs apportioned to PF costs | → | All overheads allocated to PF resources | → | All overheads are within PF resources and allocated to PF activities | → | All overheads matched to patient events | → |

Apportioned to PF resources

Following PF resources to be allocated to activities and matched to patient events

Reported separately