

# Healthcare costing standards for England

## Acute: Costing approaches

For data being collected in 2020 for  
financial year 2019/20

Final

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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 final version of the *Healthcare costing standards for England* – acute should be applied to 2019/20 data and used for all national cost collections. It supersedes all earlier versions. All paragraphs have equal importance.

There are four types of standards: information requirements, costing processes, costing methods and costing approaches.

The information requirements and costing processes standards make up the main costing process and should be implemented first. **This document contains the costing approaches standards.** These focus on high volume or high value procedures and procedures that can be difficult to cost well. They should be implemented after the costing methods and prioritised by volume and value of the activity for your organisation.

All the standards are published on NHS Improvement's website.<sup>1</sup> An accompanying **technical document** contains information required to implement the standards, which is best presented in Excel. Cross-references to spreadsheets (for example, Spreadsheet CA3.3) 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.<sup>2</sup>

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-2019/>

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](mailto:costing@improvement.nhs.uk)

<sup>1</sup> See <https://improvement.nhs.uk/resources/approved-costing-guidance/>

<sup>2</sup> For details see *The costing principles*, <https://improvement.nhs.uk/resources/approved-costing-2019/>

# CA1: Tonsillectomy, 18 years and under

Purpose: To ensure tonsillectomies in patients 18 years old and under are costed in a consistent way.

## Objective

1. To improve the quality of cost data for tonsillectomies in patients 18 years old and under.

## Scope

2. This standard covers the costing of the inpatient episode only.
3. Take care to ensure the costs of pre-assessment and follow-up care are identified and separated appropriately. This care is normally delivered at outpatient attendances.
4. You should apply Integrated standards CP1 to CP6 to costing tonsillectomies for patients aged 18 years and under.

## Overview

5. A tonsillectomy is a surgical procedure to remove the tonsils when these become infected, or to treat breathing problems like heavy snoring and sleep apnoea.
6. The care pathway is likely to be divided into:
  - preoperative assessment
  - the inpatient episode (including the procedure)
  - aftercare and follow-up.

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7. Surgeons can use different techniques for the procedure, for example:
  - cold knife (steel) dissection, where the tonsils are removed with a scalpel – this is the traditional method
  - diathermy, where a probe is used to destroy the tissue around the tonsils, allowing them to be removed
  - coblation – similar to diathermy but at a lower temperature
  - laser or ultrasound ablation, although these are less common.
8. The inpatient episode of care normally consists of:
  - preoperative assessment
  - surgery
  - postoperative care:
    - overnight stay of one night (if not a day case)
    - the consultant may or may not assess the patient once on the ward; you need to establish this in discussion with clinical and service leads
    - if a day case, the length of recovery on the unit may be around four hours post-surgery.

## Approach

9. Work with the ear, nose and throat (ENT) or paediatric service, depending on which delivers the care, to map the care pathways to inform the costing process.
10. Discuss with the service the difference between tonsillectomies for adults and for children and young people. The healthcare resource groups (HRGs) specify under and over 19, but many services have their own protocols for age that will generally have an impact on costing. For example:
  - Some differentiate between children under and over 12. This makes little difference to the surgery but does impact on anaesthesia input, particularly the pre and postoperative care. Children usually take longer to put to sleep, and wake-up time is likely to be considerably longer for younger children. Anaesthetists may also use different equipment for children.

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- Different equipment may be used depending on the patient's age (or size). The same equipment will generally be used for all children, but as children get older (eg ages 12 to 15) adult equipment may be used instead.
- Input from paediatric nurses may be driven by protocols around age (or by national standards). Patients aged up to 16 are likely to have paediatric nurse input as well as those older than 16 with learning disabilities.

### **Identifying the activity**

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11. The procedure mainly groups to HRGs CA60A (tonsillectomy, 19 years and over) and CA60B (tonsillectomy, 18 years and under). It may also group to CA61Z (adenotonsillectomy); this involves removing the adenoid glands along with the tonsils, which is most commonly done in children.
12. These patients may be treated under treatment function codes (TFCs) 120 (ENT), 215 (paediatric ENT) or 420 (paediatrics).
13. Tonsillectomy activity is recorded on the admitted patient care (APC) feeds.
14. Ward stay, diagnostics, theatres and medicines are recorded on the patient-level feeds.
15. Specialist nursing is recorded on the supporting contacts feed.

### **Identifying the costs**

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16. Identify with finance colleagues all costs directly associated with the procedure. These costs fall into the following main areas:

#### **Theatres**

17. Work with finance colleagues who manage the cost centres for theatres, as well as the general managers for theatres, paediatrics and ENT, to determine the regularity of paediatric ENT sessions, whether there is a dedicated or usual theatre, and the staffing for each session.
18. Use the information on the theatres feed to allocate staff costs.
19. Non-pay expenditure in theatres is significant. You need to work closely with the theatre managers to establish each procedure's likely non-pay cost. You

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should meet the theatre managers to determine if there are any standard packs, and if so, if there are any circumstances in which they cannot be used.

### **Pathology and diagnostic imaging**

20. Use the information on the patient-level feeds and the relative weight values developed using Spreadsheets CP3.6 and CP3.7 to identify the costs.

### **Medicines<sup>3</sup>**

21. Using the medicines dispensed feed, drugs can be matched to the correct patients. Any non-patient identifiable drug costs used on the ward or in theatres are allocated using the drugs allocation methods in columns F and G in Spreadsheet CP3.3.

### **Specialist nursing**

22. Costs for paediatric specialist nurses may be held in a separate cost centre in the standardised cost ledger from the paediatric ward. Work with the manager or team leader to determine whether they provide any care for these patients.
23. Paediatric nurses are likely to provide considerable input for children under 16 (exact cut-off age will depend on individual protocols) on the ward or day-case unit, and particularly for those under three. You should identify paediatric nurses in the cost ledger and allocate their costs appropriately.

### **Other considerations**

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24. Some patient co-morbidities may affect procedure time, such as sickle cell disease, asthma and hypertension.

<sup>3</sup> For further guidance on the costing methods for pharmacy and medicines, please see Acute standard CM10: Pharmacy and medicines.

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Table CA1.1: Example of tonsillectomy inpatient stay costs in the resource and activity matrix

Resource	Activity							
	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Dispense non patient-identifiable drugs	X-ray	Supporting contact
Medical and surgical consumables	XX		XX		XX		XX	
Medical and surgical equipment and maintenance	XX		XX				XX	
Operating department practitioner	XX			XX				
Operating department assistant	XX			XX				
Nurse	XX				XX			
Healthcare assistant					XX			
Specialist nurse	XX							XX
Consultant		XX					XX	
Non-consultant medical staff		XX					XX	
Consultant – anaesthetist			XX	XX				

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	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Dispense non patient-identifiable drugs	X-ray	Supporting contact
<b>Non-consultant medical staff – anaesthetist</b>			XX	XX				
<b>Drugs</b>						XX		
<b>Pharmacy technician</b>						XX		
<b>Radiographer</b>							XX	
<b>Radiography assistant</b>							XX	
<b>Medical physicist</b>							XX	

# CA2: Cochlear implant surgery

Purpose: To ensure cochlear implant surgery is costed in a consistent way.

## Objective

1. To improve the quality of cost data for cochlear implant surgery.

## Scope

2. This standard covers the costing of the inpatient episode only.
3. Take care to ensure the costs of assessment and aftercare are identified and separated appropriately.
4. You should apply Integrated standards CP1 to CP6 to costing cochlear implant surgery.

## Overview

5. A cochlear implant is an electronic device that may help children and adults who do not benefit sufficiently from conventional hearing aids. Conventional hearing aids work by making sounds louder. A cochlear implant turns sounds into tiny electrical pulses that are sent direct to the hearing nerve.
6. In the UK 21 NHS centres can carry out this procedure. NHS England has produced a national service specification<sup>4</sup> for possible care pathways and minimum service requirements. The British Cochlear Implant Group has

<sup>4</sup> [www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2014/04/d09-ear-surg-coch-0414.pdf](http://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2014/04/d09-ear-surg-coch-0414.pdf)

## Acute costing approaches

produced quality standards for both adults and children and young people that provide more guidance on recommended care pathways.<sup>5</sup>

7. Based on NHS England's specification, the overall care pathway is normally divided into:
  - assessment of suitability for implant
  - inpatient episode (including the procedure)
  - aftercare, continuing care and rehabilitation.
  
8. The inpatient episode normally consists of:
  - preoperative assessment
  - surgery
  - other intraoperative testing and procedures when clinically necessary
  - postoperative care:
    - overnight stay of one night (if not a day case)
    - antibiotics
    - at least one X-ray
    - the consultant may or may not assess the patient once on the ward; you need to establish this in discussions with clinical and service leads.

## Approach

9. Work with the cochlear implant service to map the care pathways to inform the costing process.
  
10. Establish whether the patient pathway for children and young people is different from that for adults. If it is, this should be reflected in the costs, eg:
  - additional pain relief
  - different theatre staffing, eg paediatric nurses
  - different ward staffing, eg additional paediatric staff not normally held in the ward costs centre
  - paediatric specialist input before discharge.

<sup>5</sup> [www.bcig.org.uk/bcig-constitution-quality-standard/](http://www.bcig.org.uk/bcig-constitution-quality-standard/)

## **Acute costing approaches**

### **Identifying the activity**

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11. There are two procedure codes<sup>6</sup> for implanting cochlear implants: D241 (implantation of intracochlear prostheses) and D242 (implantation of extracochlear prostheses). These group to two healthcare resource groups (HRGs):
  - CA42Z Unilateral cochlear implant
  - CA41Z Bilateral cochlear implants.
12. There are other procedure codes<sup>6</sup> for attention to (D243) or removal of (D246) a cochlear prosthesis. These group to other HRGs in the CA chapter (eg major or intermediate ear procedures).
13. Cochlear implant surgery activity is recorded on the admitted patient care (APC) patient-level feeds.
14. Devices and implants, ward stay, diagnostics, theatres and medicines are recorded on the patient-level feeds.
15. Specialist nursing is recorded on the supporting contacts feed.

### **Identifying the costs**

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16. Identify with finance colleagues all costs directly associated with the procedure. These costs fall into the following main areas:

#### **Devices and implants**

17. Devices should be reported on the prostheses, implants and devices patient-level feed as described in paragraphs 95 to 101 in Acute standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2.
18. Use the prescribed matching rules in columns H to O in Spreadsheet CP4.1 for this patient-level feed to ensure the costed devices are matched to the correct patient episode.

<sup>6</sup> Please work with your clinical coding team to identify the codes used in your organisation for this activity.

## **Acute costing approaches**

19. Device costs make up the bulk of the episode costs and vary greatly depending on the supplier. Costs of cochlear implant devices, even if currently excluded from national prices, must be included in the relevant HRGs for costing purposes. Costs submitted against cochlear implant HRGs should cover the external processor (which may be activated at a later time) as well as the cochlear implant itself.
20. If the device fails and is under warranty and within the appropriate terms and conditions, the manufacturer covers the device costs. The NHS picks up the cost of the procedure and follow-up care only.
21. Ensure you have accurately identified the device costs in the cost ledger. They may be coded against audiology (840) rather than ENT (120) or paediatric ENT (215). If these costs are not identified properly, they can be incorrectly allocated as a type 1 support cost across audiology, so greatly understating the unit costs of cochlear implants.
22. Given the relatively small number of patients (but high cost of the procedure), you should allocate the actual cost of each implant to each patient, as it is material to the patient cost. The procurement team should be able to give you the information necessary to do this.
23. When this is not possible, apply an appropriate relative weight value (see paragraphs 47 to 55 in Integrated standard CP3: Appropriate cost allocation methods). It is critical that the relative weight value reflects the difference in cost between unilateral and bilateral.

### **Medical staff**

24. Patients are not routinely seen by their consultant on the ward following the procedure; therefore, no costs need to be allocated for this. But as care pathways differ it is important to confirm this in discussions with the service.

### **Diagnostic imaging**

25. Patients are normally X-rayed at least once following the procedure. This is recorded on the diagnostic imaging patient-level feed.

## **Acute costing approaches**

### **Other healthcare professionals**

26. Depending on the care pathway, other healthcare professionals may contribute to care. These may include but are not limited to:
  - specialist nurses – use resource ID: SLR082; Specialist nurse
  - clinical scientists – use resource ID: CLR017; Clinical scientist
  - audiologists – use resource ID: MDR039; Audiologist
  - speech and language therapists – use resource ID: THR007; Speech and language therapist.
27. Their activity should be included in the supporting contacts feed and matched to the correct patient episode using the prescribed matching rules in columns H to O in Spreadsheet CP4.1.

### **Other considerations**

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28. Providers also receive a separate payment for the assessment and for aftercare and maintenance. Assessment and aftercare require considerable input from several staffing groups, making counting and costing complex.
29. Assessment may involve input from the cochlear implant team, ENT surgeon, clinical scientists, audiologists, medical physicists (for electrophysiological assessment), speech and language therapists, clinical psychologists, radiologists (CT/MRI) and other specialists such as paediatricians, geneticists and neurologists.
30. A similar range of professionals may contribute to a patient's aftercare. There will be considerable review during year 1 (and to a degree in years 2 and 3 for children), and the patient will be offered regular reviews thereafter (at least annually). This includes ongoing support and maintenance (eg repairs/spares).
31. Every five years (on average) the external device will be upgraded.

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Table CA2.1 Example of cochlear implant surgery inpatient stay costs in the resource and activity matrix

Resource	Activity								
	Insertion of a prosthesis, implant or device	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Dispense non patient-identifiable drugs	X-ray	Supporting contact
Medical and surgical consumables		XX		XX		XX		XX	
Medical and surgical equipment and maintenance		XX		XX				XX	
Operating department practitioner		XX			XX				
Operating department assistant		XX			XX				
Nurse		XX				XX			
Healthcare assistant		XX				XX			
Specialist nurse		XX							XX

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<b>Consultant</b>			XX					XX	
<b>Non-consultant medical staff</b>			XX					XX	
<b>Consultant – anaesthetist</b>				XX	XX				
<b>Non-consultant medical staff – anaesthetist</b>				XX	XX				
<b>Drugs</b>							XX		
<b>Pharmacy technician</b>							XX		
<b>Radiographer</b>								XX	
<b>Radiography assistant</b>								XX	
<b>Medical physicist</b>								XX	
<b>Prostheses, implants and devices</b>	XX								
<b>Audiologist</b>									XX
<b>Speech and language therapist</b>									XX

# CA3: Renal dialysis

Purpose: To ensure renal dialysis is costed in a consistent way.

## Objective

1. To improve the quality of cost data for renal dialysis.

## Scope

2. This standard should be applied to all renal dialysis activity performed by your organisation.
3. You should apply Integrated standards CP1 to CP6 to costing renal dialysis.

## Overview

4. Chronic kidney disease is a long-term condition in which the kidneys do not work effectively, notably in filtering waste products from the blood. It is usually caused by damage to the kidneys from other conditions, most commonly diabetes and high blood pressure.
5. The kidneys also:
  - help to maintain blood pressure
  - maintain the correct levels of chemicals in the body, which help the heart and muscles to function properly
  - produce the active form of vitamin D that keeps bones healthy
  - produce a substance called erythropoietin, which stimulates red blood cell production.
6. No cure exists for chronic kidney disease, although treatment can slow or halt its progression and prevent other serious conditions. Many patients can be

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managed in primary care but if the disease progresses to kidney failure or end-stage kidney disease, patients may need artificial kidney treatment (dialysis) or a kidney transplant. This guidance focuses on costing dialysis treatment.

7. Patients with acute kidney injury (AKI) may also receive dialysis. Their kidney function deteriorates very quickly, often due to a complication from another serious illness.
8. The care pathway varies according to type of treatment and organisation. At a basic level:
9. **Haemodialysis** (diverting blood into an external machine, where it is filtered before being returned to the body) can be given in an acute hospital, a satellite unit (a community hospital, GP surgery or completely separate building) or at home. Most patients have three sessions per week with each treatment lasting about four hours. Patients at home may have more than three sessions.
10. **Peritoneal dialysis** (pumping dialysis fluid into the space inside the abdomen to draw out waste products from the blood passing through vessels lining the abdomen, and then draining this dialysis fluid from the abdomen) is given at home. There are two types:
  - continuous ambulatory peritoneal dialysis (CAPD): blood is filtered several times during the day; it is usual to have four bag exchanges a day, seven days a week
  - automated peritoneal dialysis (APD): a machine helps to filter the blood during the night as patients sleep; a variation is assisted automated peritoneal dialysis, where a healthcare professional goes into the patient's home to help them set this up (often due to the size of the bags).
11. Some patients (eg those with AKI) may be admitted to hospital (eg to an intensive care unit or renal ward) for treatment.
12. HRGs are produced from the national renal dataset (NRD)<sup>7</sup> so this data source may be helpful in improving the costing. There is no requirement to

<sup>7</sup> <http://content.digital.nhs.uk/article/2117/National-Renal-Data-Set> This dataset is not part of the minimum patient-level feeds described in Acute standard IR1: Collecting information for costing.

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reconcile the NRD to the admitted patient care (APC) or non-admitted patient care (NAPC) feeds for costing.

13. However, please be aware that activity may or may not be recorded in the patient administration system (PAS) or in the APC Commissioning Data Set (APC CDS) or Outpatient CDS.

## **Approach**

14. Discuss with clinical and service leads whether the care pathway for children and young people differs from that for adults, to inform the costing process.

## **Identifying the activity**

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15. Different types of renal dialysis have different currencies and methods of counting:
  - haemodialysis is counted per session (HRGs LD01\* to LD10\*):
    - home haemodialysis is counted by week
    - providers must identify patients seen away from their normal base (holiday haemodialysis)
  - peritoneal dialysis is counted per day (HRGs LD11\* to LD13\*)
  - acute kidney disease haemodialysis is counted per session (HRGs LE\*).
16. Renal dialysis is an unbundled HRG. If the patient attends solely for renal dialysis, a core HRG of LA97A or LA97B is created.
17. Some organisations may not record haemodialysis-at-home activity. You need to find out from the renal department the average number of sessions per patient of home haemodialysis, for those aged 19 and over as well as the total number of patients receiving this treatment. This could be difficult for activity in satellite settings, particularly if contracted to an independent sector provider.
18. For dialysis that uses a hub-and-spoke configuration, the activity and costs should be recorded in the submission from the NHS provider contractually responsible for delivering the care.

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19. Table CA3.1 is an excerpt<sup>8</sup> from Spreadsheet CP3.3 showing which resources are linked to the renal dialysis activity.
20. For each of the resource and activity combinations below there is a two-step prescribed allocation method in columns F and G.

**Table CA3.1: Excerpt from Spreadsheet CP3.3 showing the resource and activity links for renal dialysis**

Resource and activity link ID	Resource	Activity
SLR083 – SLA138	Advanced nurse practitioner	Renal dialysis
SGR062 – SLA138	Consultant	Renal dialysis
SGR064 – SLA138	Consultant – anaesthetist	Renal dialysis
CLR016 – SLA138	External contracts – clinical	Renal dialysis
SLR084 – SLA138	Healthcare assistant	Renal dialysis
MDR046 – SLA138	Medical and surgical consumables	Renal dialysis
MDR047 – SLA138	Medical and surgical equipment and maintenance	Renal dialysis
SGR063 – SLA138	Non-consultant medical staff	Renal dialysis
SGR065 – SLA138	Non-consultant medical staff – anaesthetist	Renal dialysis
SLR081 – SLA138	Nurse	Renal dialysis
MDR052 – SLA138	Patient-specific consumables	Renal dialysis
SLR082 – SLA138	Specialist nurse	Renal dialysis

## Identifying the costs

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21. You need to identify with finance colleagues all costs directly associated with the procedure. These costs fall into the following main areas:

<sup>8</sup> Please note all excerpts in this standard are for illustrative purposes only. Use Spreadsheet CP3.3 to ensure you use all the correct resource and activity links.

## **Acute costing approaches**

### **Medical staff**

22. Follow Acute standard CM1: Consultant medical staffing to allocate medical staff costs – based on job plans, rotas or through discussion with clinicians and managers – to the patient level, after checking what the medical input is during dialysis.
23. If medical input directly relates to the dialysis delivery or there is a zero-cost core HRG, flag these costs in your costing system. Otherwise, leave the medical costs with the core HRG.
24. Medical staff may undertake sessions at satellite sites. For example, they may undertake two programmed activities per week, one for patient clinics and one for clinical multidisciplinary team (MDT) meetings to discuss patient progress with nurses and other healthcare professionals. You need to allocate these to the correct satellite unit in your cost ledger.
25. In some organisations medical staff input during the actual dialysis will be minimal. Others carry out ward rounds. Discuss the level of input with clinical and service leads and apportion accordingly.
26. Anaesthetic medical staff care may be required at times for the insertion of lines. Work with the renal dialysis department and anaesthetic medical staff to identify this care and develop an appropriate relative weight value for each procedure.

### **Specialist nurses**

27. Work with the management accountant and service manager responsible for specialist nurses to identify nurses involved in administering dialysis. Use timetables to allocate costs between outpatients, inpatients and the administration of dialysis itself, including by treatment type. You may need to ask for the average nursing input for each type of dialysis to determine this allocation by treatment type.
28. Most organisations have nurses who visit patients on home dialysis. Establish the frequency of these visits and allocate the costs accordingly.
29. Use resource ID: SLR082; Specialist nurse.

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### **Other healthcare professionals**

30. The dialysis patient requires a wide clinical MDT. This may include but is not limited to:
- dieticians – use the ‘supporting contact’ activity and the supporting contacts feed as the information source
  - specialist pharmacists – use the ‘pharmacy work’ activity and the relative weight value developed in line with Acute standard CM10: Pharmacy and medicines, paragraphs 27 to 35
  - social workers– use the ‘supporting contact’ activity and the supporting contacts feed as the information source
  - psychologists – use the ‘supporting contact’ activity and the supporting contacts feed as the information source.

### **Dialysis centre/ward for chronic kidney disease**

31. Meet the service/clinical lead for renal dialysis to get a clear understanding of the machinery and ward space (if the patient is not home) used for the different types of treatment.
32. Check if machines are dedicated to particular patients or to a restricted group of patients with blood-borne viruses, and which patients they are dedicated to. Then allocate each machine’s capital charges from the asset register to the dialysis treatment and obtain information from engineering and technical staff to allocate their and other maintenance costs across all equipment in the hospital.
33. Ward costs such as nursing and non-pay costs should be allocated according to Integrated standards CP1 to CP6.
34. Be aware that a hospital dialysis unit may treat different groups of patients:
- patients with defined end-stage kidney disease, whether as outpatients or inpatients – both pay and non-pay costs fall within the chronic dialysis HRGs
  - patients with AKI – often sicker patients needing more staffing; associated staffing costs should be allocated to an AKI HRG (when available) and not included in costing for chronic dialysis

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- patients undergoing non-dialysis treatments, eg plasma exchange, antibody removal therapy for transplantation – although pay and non-pay costs for these procedures may be included in the dialysis unit ledgers, they should not be included in chronic dialysis HRG costing.

35. Some organisations plumb their water treatment plant directly into the ward. Others use a mobile unit taken to the patient, or patients may be taken to the ward or renal unit for dialysis. Allocate the costs of these mobile water treatment units as suggested for machines.

### **Dialysis facilities in critical care or on wards**

36. You can use the NRD to identify patients who received dialysis outside the dedicated setting, either directly or by cross-matching with ward data. Then allocate the costs of machinery to those patients on the same basis as above (dialysis ward/satellite units). These costs need to be for either acute or chronic kidney disease, depending on patient status.

### **Satellite sites**

37. Repeat the process above for any satellite sites.

38. The cost ledger is set up to identify the relevant costs easily, particularly if you have multiple satellite units. For example:

- cost centre XXX073 – haemodialysis home
- cost centre XXX086 – main hospital
- cost centre XXX087 – satellite
- cost centre XXX088 – peritoneal.

39. Individual satellites may be set up in different ways (even in the same organisation). For example:

- Satellite 1 is provided and run by your organisation; the costs and activity should be reported according to the main site.
- Satellite 2 is provided by an independent sector provider – the level of information provided will vary (a cost per treatment may be given with no breakdown of costs or any activity information); you may provide different

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levels of input, eg just medical staffing or medical staffing and the machines.

- Satellite 3 is provided by your organisation, but the activity is for another organisation; the activity and costs should not form part of your organisation's return (see Integrated standard CM8: Other activities).

40. You may need to create proxy patients in the costing system to allocate the income and costs where activity information is unavailable. This should be done with care.

### **Medicines<sup>9</sup>**

41. Drugs are matched to the correct patients using the medicines dispensed feed. Any non patient-identifiable drug costs used on the dialysis unit are allocated using the allocation methods in columns F and G in Spreadsheet CP3.3.
42. Some drugs used for dialysis are high-cost drugs, eg erythropoiesis stimulating agents. You can use the mandated monthly dataset for NHS England's specialised commissioning on high-cost drugs to help you allocate these costs to the correct patients; this covers about 70% of high-cost drugs.

### **Medical and surgical consumables and equipment**

43. Consumables and equipment are major cost drivers for renal dialysis, so need to be carefully allocated. The renal department will probably keep track of the supplies ordered for each patient at home, so with its help these consumables and fluids for peritoneal dialysis should be easily divided between treatment types. The department will probably also keep track of the equipment and maintenance for the dialysis machines, so you can use this information to inform the development of relative weight values by procedure type.
44. Be aware that the consumables delivered to the satellite units may have been ordered by a central unit (eg main hospital). These costs are not always allocated to the correct satellite unit but remain in the main hospital's costs, overstating the main site's costs and understating the satellite units' costs.

<sup>9</sup> For further guidance on costing methods for pharmacy and medicines, please see Acute standard CM10: Pharmacy and medicines.

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45. Where the independent sector is used, these costs may be covered by the charge to the NHS provider (cost per treatment) and the consumables are not purchased by the NHS provider. This should be established with the service.
46. The size of the bags varies (standard is two litres, but it may be up to five litres). Different types of fluid are also available (with very different costs).

### *Costing medical and surgical consumables and equipment for renal dialysis*

47. Medical and surgical consumables and equipment are divided into the following categories for costing:
  - consumables and equipment on hand in all dialysis areas for simple procedures
  - consumables and equipment on hand in specific dialysis suites
  - expensive consumables and equipment required for specific procedures.
48. For consumables and equipment on hand in the dialysis area for simple procedures, allocate costs to all patients in the session based on duration of attendance in minutes.
49. For consumables and equipment on hand in specific dialysis suites, allocate costs to the patients in those suites based on duration of attendance in minutes.
50. Use resource ID: MDR046; Medical and surgical consumables, and resource ID: MDR047; Medical and surgical equipment and maintenance.
51. For expensive consumables and equipment required for specific procedures, identify which patients use expensive consumables.<sup>10</sup> Then set up a statistic allocation table so that the expected costs can be used as a relative weight value to allocate the consumables costs to patients undergoing specific procedures.
52. Use resource ID MDR052; Patient-specific consumables.

<sup>10</sup> We do not define what an 'expensive consumable' is, and instead leave it to be defined locally.

## **Acute costing approaches**

### **Patient travel**

53. Include patient transport costs in renal dialysis costing.
54. Use the resource and activity in Table CA3.2 for patient travel.

**Table CA3.2: Resource and activity for patient travel**

<b>Resource and activity link ID</b>	<b>Support resource</b>	<b>Support activity</b>
SPR117 – SPA157	Patient transport	Patient journeys

### **Home delivery**

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55. Work with the management accountant and service lead for renal medicine to identify costs of home delivery. These are usually in a separate cost centre and should include the costs of machine maintenance and delivery of consumables and drugs to the patient's home.
56. The cost ledger should contain sufficient information to split the costs between dialysis treatments. If not, invoices received directly may have to be analysed with the help of the accountant and directorate.
57. Use the resource and activity in Table CA3.3 for home delivery renal medicine.

**Table CA3.3: Resource and activity for home delivery renal medicine**

<b>Resource and activity link ID</b>	<b>Resource</b>	<b>Activity</b>
MDR044 – SLA126	Drugs	Homecare medicines

### **Patients seen away from their normal base**

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58. Providers must identify patients dialysed away from their normal base (holiday haemodialysis). Patients must apply to the specialist commissioning group in the part of the country they wish to visit, and this then funds the treatment.

## Acute costing approaches

59. Different places have different requirements about what they want the organisation that the patient usually visits to send with the patient. This should be established in discussions with the service.
60. Your organisation may also care for patients who are staying in the local area. Service-level agreements are usually in place for this and the provider generally invoices the relevant commissioner at standard tariff.

## Information technology

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61. Bespoke renal IT systems are often needed to collect data from dialysis sessions for internal electronic patient record use and mandatory returns to the UK Renal Registry. These systems' pay and non-pay costs should be included in dialysis costing.
62. A mandatory capitation fee for all dialysis patients is payable to the UK Renal Registry. This cost needs to be allocated to dialysis. This cost should be allocated to cost ledger costing account code: XXX0867112. This is a type 1 support cost. Allocate it using the two-step prescribed allocation method in Spreadsheet CP2.2.

## Other considerations

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63. Much activity happens before treatment – for example:
  - patients undergoing haemodialysis have an arteriovenous fistula (a special blood vessel) made by connecting an artery to a vein; alternatively, patients have an arteriovenous graft (synthetic tubing) or a neck line inserted
  - patients undergoing peritoneal dialysis have a catheter inserted into an incision in the abdomen; this allows dialysate (dialysis fluid) to be pumped into the peritoneal cavity (the space inside the abdomen).

These procedures and the clinic review associated with them should **not** be included in the dialysis cost.

64. People may switch between treatment types (more likely to be from peritoneal to haemodialysis). Some transplant patients may also move to dialysis.
65. Some organisations find it hard to identify the proportion of medical staffing costs that should be allocated to dialysis and non-dialysis activity when

## Acute costing approaches

recorded under TFC 361 (nephrology). This causes variability in national unit costs.

66. Some organisations also report issues coding these patients. Discuss overall activity figures for each of the treatment types with the service lead to identify the overall activity count expected for the year. This can then be used to verify the activity information provided by the informatics department.
67. Many organisations have contracts with the independent sector to provide dialysis (particularly at satellite units). Depending on the model, the independent sector provides the accommodation, nursing, consumables and equipment, and your organisation provides the medical staffing input. Your organisation is then invoiced with a 'cost per treatment' (excluding the costs it covers).
68. Considerable costs of capital are involved: for example, the cost of a water treatment plant at the main hospital site. This includes maintenance costs, some of which may be paid for under a contract, and some internal maintenance staff costs.
69. Organisations procure dialysis machines in different ways. Some have a rolling capital programme where machines are replaced about every seven to 12 years (or by number of hours used), while others lease machines on a cost per treatment (or per year) basis. The average cost of a machine is about £13,000. This machine cost must be included in the cost of treatments. At home a patient uses their own machine, whereas in a centre a machine is usually shared, and cost should be apportioned appropriately. Some in-centre patients also require single-use machines for infection control reasons.
70. For patients receiving dialysis at home, conversion costs are involved, including nursing assessment costs, electricity and water supply, and drainage facilities. These costs should be included in the cost of home haemodialysis. The machines provided for home use may be purchased new, may be ex-hospital machines or may be leased on a cost per treatment basis (which may include machine and consumables).
71. Patients dialysed at home may be reimbursed for their raised utility bills. This is particularly relevant for haemodialysis if the patient has a water meter and for some dialysis machines that use a lot of electricity.

## Acute costing approaches

### PLICS collection requirements

72. While we require you to cost this, the costs and activity should not be included in the patient-level extracts but should be reported in the reference costs workbook. See Section 21 of the *National cost collection guidance 2019*.<sup>11</sup>

**Table CA3.4: Example of renal dialysis session costs in the resource and activity matrix**

Resource	Activity				
	Renal dialysis	Supporting contact	Dispensing high cost drugs	Dispense all other med scripts	Patient journeys
Patient-specific consumables	XX				
Medical and surgical consumables	XX				
Medical and surgical equipment and maintenance	XX				
Consultant	XX				
Non-consultant medical staff	XX				
Nurse	XX				
Specialist nurse	XX				
Healthcare assistant	XX				
Dietician		XX			
Psychologist		XX			
Drugs			XX	XX	
Pharmacy technician			XX	XX	
Patient transport					XX

<sup>11</sup> <https://improvement.nhs.uk/resources/approved-costing-guidance-2019>

# CA4: Renal transplant

Purpose: To ensure adult renal transplants are costed in a consistent way.

## Objective

1. To ensure all costs incurred in delivering adult renal transplant activity are identified and allocated to the correct patient episode, contact or attendance.

## Scope

2. This standard should be applied to all parts of the adult renal transplant and live donor patient pathway performed by your organisation.

## Overview

3. Kidney transplantation is the ideal form of renal replacement therapy for patients with end-stage kidney disease.
4. Transplantation can be performed with a kidney from a living or deceased organ donor and has been successfully done in the UK since the 1960s. In 2016/17 31% of kidney transplants in adults were from live donors.
5. Outcomes have substantially improved: five-year graft and patient survival rates following a first deceased donation transplant are now 87% and 88% respectively, and 93% and 94% following first living donor transplant.
6. The outpatient assessment to determine suitability for transplant listing takes place in transplant or specialist renal centres.
7. The inpatient transplant episode takes place in the kidney transplant centre.
8. The follow-up of transplant patients takes place in transplant or specialist renal centres and continues for as long as the transplant is functioning.

## **Acute costing approaches**

9. The pathway for living kidney donors mirrors the above pathway for transplant recipients, with the assessment and follow-up taking place in the transplant or specialist renal centre, and the live donor nephrectomy in the transplant centre.

## **Approach**

### **Identifying the activity**

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10. This standard focuses on the four elements of the renal transplant recipient care pathway, and the three elements of the live donor nephrectomy pathway.
11. The elements of the recipient pathway are:
  - assessment to determine suitability for the procedure
  - maintenance while waiting for the procedure
  - transplant procedure
  - post-transplant care.
12. The elements of the live donor pathway are:
  - screening and assessment to determine suitability for the procedure
  - live donor nephrectomy procedure
  - post donor nephrectomy care.
13. You need to understand the care pathway for a renal transplant and live donor nephrectomy, so you can identify the activity and all the associated costs. Paragraphs 6 to 9 above indicate which parts of the pathway are delivered in a transplant centre and which in a specialist renal centre.
14. You need to talk to the following colleagues:
  - renal service manager
  - renal transplant clinical lead (transplant surgeon and nephrologist) in a transplant centre; or renal transplant clinical lead (nephrologist) in a specialist renal centre
  - renal specialist lead nurse.

## **Acute costing approaches**

15. An important point to remember about renal transplants and live donors is that there is clinical input from nephrologists – physicians involved in the pre-transplant assessment and post-transplant care, and surgeons who perform the transplant as well as being involved in the pre-transplant assessment and post-transplant care. You need to ensure you understand the care pathway in your organisation to ensure you identify all the activity performed by clinicians and their associated costs.<sup>12</sup>
16. The activity is recorded on the APC and NAPC patient-level feeds.

## **Renal transplant recipient pathway**

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### **Assessment**

17. When a patient's kidney function declines to such a level that dialysis or transplantation is being considered, the patient initially attends a nephrology clinic under a consultant nephrologist to determine their suitability for kidney transplantation.
18. This activity is recorded in the NAPC patient-level master feed.
19. Patients potentially suitable for kidney transplantation have their initial work-up in a nephrology low clearance clinic.
20. Patients deemed suitable for a kidney transplant are then usually referred to a transplant assessment clinic under a consultant transplant surgeon. If suitable, they are put on the national transplant list.
21. M172 is the procedure/activity code for the nephrology and transplant surgery pre-transplant assessment for a kidney transplant; this maps to HRG code LA12A\*.
22. Ordered diagnostics may include diagnostic imaging, cardiology tests, and histocompatibility and immunogenetics (H&I) assessment.
23. The diagnostics activity should be reported on the appropriate diagnostics patient-level feed.

<sup>12</sup> Please follow Acute standard CM1: Consultant medical staffing.

## **Acute costing approaches**

### **Maintenance**

24. Maintenance on the list requires one annual transplant-focused clinic appointment and three-monthly H&I antibody measurements. List maintenance is captured by procedure code M172 which maps to HRG code LA12A. This activity is usually done in a clinic under the consultant transplant surgeon, but it may be done under a nephrologist.
25. This activity is reported in the NAPC patient-level master feed and appropriate diagnostics patient-level feed.
26. Please follow paragraphs 20 to 30 in Acute standard CM3: Outpatients when costing the renal maintenance outpatient clinic activity.

### **Transplant procedure**

27. This is an inpatient episode and is reported on the APC patient-level master feed.
28. Renal transplants are recorded against one of three HRG codes:
  - LA01A
  - LA02A
  - LA03A.
29. This depends on whether the donor is a non-heart beating (DCD), heart-beating (DBD) or live donor (LD).
30. LA01A and LA02A are non-elective inpatient activity; and LA03A is elective inpatient activity.
31. Theatre activity should be reported on the theatres patient-level feed.
32. Medicines should be reported on the medicines dispensed patient-level feed.
33. Diagnostics should be reported on the appropriate diagnostics patient-level feed.
34. Physiotherapy, dietician and pharmacy activity for these patients should be reported on the supporting contacts patient-level feed.

## **Acute costing approaches**

### **Post-transplant care**

35. This can take place in the transplant centre or the specialist renal centre. Follow-up attendances (assume around 36 visits in year one, and two to four per year in subsequent years for non-complex patients) are usually with a transplant surgeon, nephrologist or transplant nurse specialist, and involve some routine blood and urine tests. Most patients referred from their renal unit for transplant are repatriated with this unit at any point from when they are discharged from the inpatient transplant episode to 12 months later, although for most this occurs at discharge, three months or six months.
36. This activity is reported in the non-admitted patient care (NAPC) patient-level master feed.
37. Post-transplant follow-up activity codes to M174 which maps to HRG code LA13A.
38. Medicines should be reported on the medicines dispensed patient-level feed.
39. Diagnostics should be reported on the appropriate diagnostics patient-level feed.

### **Live donor nephrectomy pathway**

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#### **Screening and assessment**

40. This activity includes assessment of live donor suitability, multidisciplinary review, work-up of the potential living donor and independent assessment. This can take place in the transplant centre or the specialist renal centre.
41. For live donor screening, assume one 60-minute new appointment with the living donor co-ordinator and H&I assessment. For live donor assessment, assume one 45-minute new appointment with a nephrologist; one 45-minute new appointment with a transplant surgeon; one 30-minute follow-up appointment with the living donor co-ordinator; and one two-hour new appointment with the independent assessor.
42. This activity is reported in the NAPC patient-level master feed.

## **Acute costing approaches**

43. Outpatient activity is captured by clinic codes M171 and M173 which map to HRG codes LA10Z and LA11Z, respectively.
44. Ordered diagnostics may include blood and urine tests, diagnostic imaging, nuclear medicine, cardiology and H&I assessment.
45. Diagnostics activity should be reported on the appropriate diagnostics patient-level feed.

### **Live donor nephrectomy episode**

46. This is an elective inpatient episode and is reported on the APC patient-level master feed.
47. The live donor nephrectomy is recorded against the HRG code LB46Z.
48. Theatre activity should be reported on the theatres patient-level feed.
49. Medicines should be reported on the medicines dispensed patient-level feed.
50. Diagnostics should be reported on the appropriate diagnostics patient-level feed.
51. Physiotherapy activity for these patients should be reported on the supporting contacts patient-level feed.

### **Post donor nephrectomy care**

52. This can take place in the transplant centre, the specialist renal centre or, long term, in the general practice. Follow-up attendances (assume four in year 1 and one each year thereafter) are with a transplant surgeon, nephrologist or live donor co-ordinator, and involve some routine blood and urine tests.
53. This activity is reported in the NAPC patient-level master feed.
54. Outpatient activity is captured by outpatient code M175 which maps to HRG code LA14Z.
55. Medicines should be reported on the medicines dispensed patient-level feed.

## Acute costing approaches

56. Diagnostics should be reported on the appropriate diagnostics patient-level feed.
57. Patients are discussed at clinical MDT meetings. Please follow Acute standard CM9: Clinical MDT meetings when costing this activity.

## Identifying the costs

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58. You need to work with finance colleagues to identify all the associated costs for renal transplants (or that part of the pathway undertaken in your provider if it is not a transplant centre) and to ensure these costs are allocated to your organisation's renal transplant activity.
59. There are expected costs in renal transplant activity. Many of these costs can be allocated using information on the patient-level feeds in Acute standard IR1: Collecting information for costing. Relative weight values/other information sources are needed to allocate any costs not collected in these feeds.
60. The activities with expected costs may include but are not limited to those listed in Table CA4.1.

## Costing the acuity of the care pathway

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61. You need to understand where acuity fluctuates and the impact of this on how you allocate the costs. Talk to your renal colleagues to learn about how acuity fluctuates for the care pathways followed by your organisation.
62. You then need to build these rules into your costing, using relative weight values/other information sources if the information is not collected in the patient-level feeds in Acute standard IR1: Collecting information for costing.
63. Example CA4.1 shows what information you could collect to refine your renal transplant costing further.
64. **Please note this is an example for costing purposes of how to collect information on those who care for the patient and which may not be collected by patient-level feeds. It does not indicate the care that should be delivered.**

## Acute costing approaches

Table CA4.1: Renal transplant activities with expected costs

	Assessment	Maintenance care	Procedure (including initial inpatient stay)	Post-procedure care
<b>Recipient</b>	<ul style="list-style-type: none"> <li>• Consultant nephrologist</li> <li>• Consultant surgeon</li> <li>• Specialist nurse</li> <li>• MDT meetings</li> <li>• Cardiology tests</li> <li>• Vascular lab tests</li> <li>• Nuclear medicine tests</li> <li>• Diagnostic imaging</li> <li>• Pathology – microbiology tests</li> <li>• H&amp;I assessment</li> <li>• Outpatient care</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant nephrologist</li> <li>• Consultant surgeon</li> <li>• Specialist nurse</li> <li>• Cardiology tests</li> <li>• Vascular lab tests</li> <li>• Nuclear medicine tests</li> <li>• Diagnostic imaging</li> <li>• H&amp;I antibody measurement</li> <li>• Outpatient care</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant nephrologist and non-consultant medical staff</li> <li>• Consultant surgeon and non-consultant medical staff</li> <li>• Recipient transplant co-ordinator</li> <li>• Haemodialysis</li> <li>• Pathology including microbiology</li> <li>• H&amp;I crossmatch</li> <li>• Diagnostic imaging</li> <li>• Cardiology tests</li> <li>• Theatres including consumables</li> <li>• Anaesthetists</li> <li>• Ward care</li> <li>• Specialist nurse</li> <li>• Physiotherapist</li> <li>• Renal pharmacist</li> <li>• Renal dietician</li> <li>• Pain team</li> <li>• Drugs – routine therapy</li> <li>• Drugs – prevention of rejection</li> <li>• Drugs – CMV prophylaxis</li> <li>• Drugs – CMV treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant nephrologist</li> <li>• Consultant surgeon</li> <li>• Specialist nurse</li> <li>• Pathology</li> <li>• Medicines</li> <li>• H&amp;I antibody monitoring</li> <li>• Outpatient care</li> </ul>

## Acute costing approaches

	Assessment	Maintenance care	Procedure (including initial inpatient stay)	Post-procedure care
			<ul style="list-style-type: none"> <li>• Drugs – treatment of infection</li> <li>• Drugs – treatment of rejection</li> </ul>	
<b>Live donor</b>	<ul style="list-style-type: none"> <li>• Consultant nephrologist</li> <li>• Consultant surgeon</li> <li>• Live donor co-ordinator</li> <li>• Independent assessor for live donor assessment</li> <li>• MDT meetings</li> <li>• Cardiology tests</li> <li>• Nuclear medicine tests</li> <li>• Pathology – microbiology tests</li> <li>• H&amp;I assessment</li> <li>• Outpatient care</li> </ul>		<ul style="list-style-type: none"> <li>• Consultant surgeon and non-consultant medical staff</li> <li>• Consultant nephrologist and non-consultant medical staff</li> <li>• Live donor co-ordinator</li> <li>• Pathology including microbiology</li> <li>• Diagnostic imaging</li> <li>• Theatres including consumables</li> <li>• Anaesthetists</li> <li>• Ward care</li> <li>• Physiotherapist</li> <li>• Pain team</li> <li>• Drugs – routine therapy</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant surgeon</li> <li>• Consultant nephrologist</li> <li>• Live donor co-ordinator</li> <li>• Pathology</li> <li>• Outpatient care</li> </ul>

## **Acute costing approaches**

### **Example CA4.1: Collecting additional information to refine the costing**

**The level of input each patient requires of course varies. The typical input is:**

#### **Day of admission:**

- consultant surgeon and consultant nephrologist – assessment and consent 30 minutes each – relative weight values/other information source
- non-consultant medical staffing – initial assessment 30 minutes – relative weight values/other information source
- consultant or non-consultant anaesthetist assessment – 30 minutes – relative weight values/other information source
- recipient co-ordinator – six hours – relative weight values/other information source
- H&I crossmatch test – pathology feed.

#### **Transplant procedure – post surgery acuity:**

- ward care – length of stay in hours on ward stay feed.

#### **Day 1 after surgery:**

- consultant surgeon and consultant nephrologist – ward round 10 minutes – relative weight values/other information source
- non-consultant medical staff – ward work 1.5 hours per day – relative weight values/other information source
- specialist renal nurse – 10 minutes – relative weight values/other information source
- pain team – supporting contacts feed
- ultrasound – diagnostic imaging feed
- additional Band 5 one-to-one care for 24 hours on ward establishment – relative weight values/other information source.

#### **Days 2 to 4 after surgery:**

- consultant surgeon and consultant nephrologist – ward round 10 minutes – relative weight values/other information source

## **Acute costing approaches**

- non-consultant medical staff – ward work 45 minutes per day – relative weight values/other information source
- renal nurse – supporting contacts feed
- pain team – supporting contacts feed
- dietician – supporting contacts feed
- additional Band 5 one-to-one care for 24 hours on ward establishment for days 2 and 3 – relative weight values/other information source.

### **Days 5 + after surgery:**

- consultant surgeon and consultant nephrologist – ward round 10 minutes – relative weight values/other information source
- non-consultant medical staffing – ward work 30 minutes per day – relative weight values/other information source
- specialist renal nurse – 10 minutes per day – relative weight values/other information source
- pain team – supporting contacts feed
- dietician – supporting contacts feed.

### **Discharge day:**

- non-consultant medical staff – 40 minutes to take out (TTO) medication and discharge summary preparation – relative weight values/other information source
- specialist renal nurse – 40 minutes TTO medication and discharge summary preparation – relative weight values/other information source.

## **Other considerations**

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65. Subsequent non-elective and elective readmissions are excluded from this costing guidance and should be costed following Integrated standards CP1 to CP6.

## Acute costing approaches

Table CA4.2: Example of recipient renal transplant episode costs in the resource and activity matrix

Resource	Activity										
	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Dispense all other medicine scripts	Dispense non patient-identifiable drugs	X-ray	Support-ing contact	Pain manage-ment care	Transplant co-ordination
Medical and surgical consumables	XX		XX		XX			XX			
Medical and surgical equipment and maintenance	XX		XX					XX			
Operating department practitioner	XX			XX							
Operating department assistant	XX			XX							
Nurse	XX				XX						
Healthcare assistant					XX						

## Acute costing approaches

Resource	Activity										
	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Dispense all other medicine scripts	Dispense non patient-identifiable drugs	X-ray	Support-ing contact	Pain manage-ment care	Transplant co-ordination
Specialist nurse	XX								XX	XX	
Consultant		XX						XX			
Non-consultant medical staff		XX						XX			
Consultant – anaesthetist			XX	XX							
Non-consultant medical staff – anaesthetist			XX	XX							
Drugs						XX	XX				
Pharmacy technician						XX	XX				
Radiographer								XX			

## Acute costing approaches

Resource	Activity										
	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Dispense all other medicine scripts	Dispense non patient-identifiable drugs	X-ray	Support-ing contact	Pain manage-ment care	Transplant co-ordination
Radiography assistant								XX			
Medical physicist								XX			
Transplant co-ordinator											XX
Dietician									XX		

# CA5: Chemotherapy

Purpose: To ensure chemotherapy is costed in a consistent way.

## Objective

1. To improve the quality of cost data for chemotherapy activity.

## Scope

2. This standard should be applied to all chemotherapy provided by your organisation.
3. You should apply Integrated standards CP1 to CP6 to costing chemotherapy.
4. You should cost chemotherapy at episode and attendance level.
5. There is no requirement to cost at regimen or cycle level although supplementary information on regimens and cycles is referenced below to increase your understanding of the chemotherapy service.

## Overview

6. Chemotherapy is a type of cancer treatment that uses therapeutic agents to kill cancer cells.
7. The main aim of treatment may be to:
  - cure cancer – this is known as curative chemotherapy
  - make other treatments more effective – for example, it can be combined with radiotherapy (where radiation is used to kill cancer cells) or it can be given before surgery
  - reduce the risk of the cancer returning after radiotherapy or surgery

## Acute costing approaches

- relieve symptoms – a cure may not be possible for advanced cancer, but chemotherapy may relieve a patient's symptoms; this is known as palliative chemotherapy.
8. Chemotherapy was selected for guidance because nationally costs vary.
  9. Most cancer patients are on a treatment plan designed to cure them. This typically consists of:
    - initial outpatient attendance
    - MDT meeting to agree the most appropriate plan of treatment (see Acute standard CM9: Clinical MDT meetings)
    - surgery (for solid tumours) followed by
    - chemotherapy or radiotherapy or a combination of these.
  10. A regimen describes a course of chemotherapy treatment.
  11. Each regimen consists of several 'cycles' of treatment (usually four to eight cycles per regimen). A cycle involves one or more attendances for administration of chemotherapy drugs and is followed by a rest period before the next cycle begins.
  12. An example regimen is:
    - eight cycles, each lasting four weeks
    - within each of the eight cycles, chemotherapy is given on days 1, 8 and 16.
  13. Patients on a curative pathway are usually given one regimen with a prescribed number of cycles.
  14. The regimen for patients with advanced cancer (non-curable or metastatic) can be changed almost every cycle until the most effective drug is found to alleviate the patient's symptoms.
  15. Chemotherapy can be delivered orally, intravenously, subcutaneously or using a bolus method.
  16. Most chemotherapy drugs are administered via a disposable cannula inserted and removed at each attendance, a central line, a peripherally inserted central

## Acute costing approaches

catheter (PICC) or an implantable port that remains in situ for the course of treatment.

17. A central line, PICC or implantable port is normally inserted under local anaesthetic at a separate day case or outpatient attendance before treatment begins.
18. You need to understand the different currencies used to summarise chemotherapy activity on various systems.
19. The nationally mandated Systemic Anti-Cancer Therapy (SACT) dataset<sup>13</sup> can be used to improve the costing of chemotherapy as it includes the following information:
  - consultant code
  - specialty code
  - clinical trial indicator
  - primary procedure code
  - drug name, dose and route of administration.
20. The National Tariff Chemotherapy Regimen List<sup>14</sup> maps each regimen to an OPCS code; this in turn is mapped to a banded procurement or delivery healthcare resource group (HRG). Therefore, the number of reported cycles and deliveries could differ if these are counted based on regimen.
21. If a patient attends for a blood test before the delivery attendance, count this as a standard attendance, not a delivery attendance.
22. If a patient attends for delivery of chemotherapy but a blood test determines it cannot proceed, count this as a standard attendance, not a delivery attendance.
23. If a patient is on a combined chemotherapy and radiotherapy pathway, a further unbundled HRG for the radiotherapy session may be generated if this is delivered at the same time as the chemotherapy.

<sup>13</sup> This dataset is not part of the minimum required patient-level feeds described in Acute standard IR1: Collecting information for costing.

<sup>14</sup> <https://isd.hscic.gov.uk/trud3/user/guest/group/61/pack/10/subpack/27/releases>

## **Acute costing approaches**

24. Some organisations have substantial clinical trials activity. As clinical trials funding usually covers only the costs of the drugs being tested and treatment costs over and above normal NHS treatment, this activity should be costed in the same way as standard NHS activity, excluding any costs covered by the trial.
25. Chemotherapy is unusual in the way it is reported and costed. For each attendance, at least two and sometimes three HRGs are reported: a core HRG, an unbundled chemotherapy delivery HRG and possibly a chemotherapy procurement HRG. The core HRG may be the zero cost SB97Z HRG if no other procedure has taken place or another HRG entirely.

### **Procurement**

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26. The procurement cost is the total costs incurred in a cycle, not the cost per attendance within the cycle. It includes any pharmacy on-costs and any other costs associated with procuring each cycle.
27. A procurement HRG should be generated on the first attendance for each cycle. For the example regimen above, eight procurement HRGs and 24 delivery HRGs would be recorded.

### **Delivery**

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28. Delivery costs are those associated with the patient's attendance as an outpatient for administration of chemotherapy.
29. If the patient attends to receive chemotherapy only, all costs excluding procurement form part of the delivery HRG.

## **Approach**

### **Identifying the activity**

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30. The information sources for costing chemotherapy as described in Acute standard IR1: Collecting information for costing are:
  - admitted patient care (APC) feed
  - ward stay (WS) feed
  - non-admitted patient care (NAPC) feed

## Acute costing approaches

- supporting contacts feed
  - medicines dispensed feed
  - pathology feed.
31. These information sources tell you which healthcare providers delivered the chemotherapy, where it was delivered and what drugs were used.
32. The other information sources mentioned above can supplement these information sources and improve the costing of chemotherapy. There is no requirement to reconcile the SACT dataset with the APC patient-level feed.
33. Table CA5.1 is an excerpt<sup>15</sup> from Spreadsheet CP3.3 showing which resources are linked to the chemotherapy delivery activity.
34. For each resource and activity combination below there is a two-step prescribed allocation method in columns F and G.

**Table CA5.1: Excerpt from Spreadsheet CP3.3 showing the resource and activity links for chemotherapy**

Resource and activity link ID	Resource	Activity
SLR083 – SLA142	Advanced nurse practitioner	Chemotherapy delivery
SLR081 – SLA142	Nurse	Chemotherapy delivery
SLR082 – SLA142	Specialist nurse	Chemotherapy delivery
SLR084 – SLA142	Healthcare assistant	Chemotherapy delivery
MDR046 – SLA142	Medical and surgical consumables	Chemotherapy delivery
MDR047 – SLA142	Medical and surgical equipment and maintenance	Chemotherapy delivery
MDR044 – MDA067	Drugs	Dispense chemotherapy drug scripts
MDR054 – MDA067	Pharmacy technician	Dispense chemotherapy drug scripts

<sup>15</sup> Please note all excerpts in this standard are for illustrative purposes only. Use Spreadsheet CP3.3 to ensure you are using all the correct resource and activity links.

## **Acute costing approaches**

35. There is no activity for chemotherapy procurement as this should be reported using the activities linked to the resources delivering that service.

### **Identifying the costs**

---

#### **Pharmacy and medicines**

36. Although all patients on a particular regimen are given the same 'cocktail' of drugs, costs still vary as the patient's age and weight determine dosage.
37. The costs of the medicines for patients receiving chemotherapy are recorded in the medicines dispensed feed as prescribed in paragraphs 72 to 77 in Acute standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2.
38. You need to work with finance colleagues to identify where chemotherapy drugs are reported in the general ledger and ensure they are clearly identified in the cost ledger, so that they are classified as the correct resource and allocated to the correct activity.
39. Your organisation may have dedicated chemotherapy pharmacists. You need to ensure the costs of these pharmacists are allocated only to patients receiving chemotherapy. Work with your pharmacy department to identify pharmacists involved in chemotherapy; see paragraphs 25 to 39 in Acute standard CM10: Pharmacy and medicines.
40. Certain chemotherapy drugs can be used for non-malignant conditions like rheumatoid arthritis. To ensure the drugs are matched to the correct episode or outpatient attendance, use the prescribed matching rules in Spreadsheet CP4.1.

#### *Aseptic unit*

41. An aseptic unit is a production unit for the aseptic preparation of injectables, such as chemotherapy.
42. The aseptic unit is staffed mainly by specially trained pharmacy technicians.
43. This is a separate pharmacy activity and as such should be costed separately. Use activity ID: MDA074; Aseptic unit work.

## **Acute costing approaches**

44. Costs in an aseptic unit include:

- staffing (pharmacists, pharmacy technicians and assistants)
- hire/depreciation of the unit
- registration and inspection to ensure the unit is fit for purpose
- quality assurance
- consumables and cleaning of the unit.

### **Ward or day unit**

45. Work with finance colleagues to identify the costs in the general ledger relating to wards, units and other locations where chemotherapy is delivered.
46. Some specialties may have additional staff (eg paediatrics) or oncology specialist nurses may be in different cost centres such as specialist nursing. You need to identify these costs in the cost ledger and ensure they are allocated to the correct activity.

### **Medical staff**

47. In general, delivery of chemotherapy is a nurse-led service.

### **Diagnostics**

48. Diagnostic activity is on the appropriate diagnostic feed and costed using the process described in columns F and G in Spreadsheet CP3.3.

### **Other considerations**

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49. If you have patients on telemedicine consultations for their chemotherapy, refer to paragraphs 38 to 46 in Acute standard CM3: Outpatients for how to cost these.

## Acute costing approaches

Table CA5.2: Example of chemotherapy day-case costs in a resource and activity matrix

Resource	Activity	
	Dispense chemotherapy drug scripts	Chemotherapy delivery
Drugs	XX	
Pharmacy technician	XX	
Healthcare assistant		XX
Nurse		XX
Specialist nurse		XX
Medical and surgical consumables		XX
Medical and surgical equipment and maintenance		XX

## PLICS collection requirements

50. While we require you to cost chemotherapy, the costs and activity should **not** be included in the patient-level extracts for chemotherapy outpatients, day-case and regular day or night admissions; instead they should be reported in the reference costs workbook. See Section 13 of the *National cost collection guidance 2019* for more information.<sup>16</sup>
51. Patients admitted for another purpose but who have been given chemotherapy should be included in the APC patient-level extract feed for the core HRG. Chemotherapy procurement costs should not be included in the patient-level extracts and should be reported in the reference costs workbook only.

<sup>16</sup> <https://improvement.nhs.uk/resources/approved-costing-guidance-2019>

# CA6: Cataract procedures

Purpose: To ensure cataract procedures are costed consistently.

## Objective

1. To ensure all the costs associated with delivering cataract procedures are correctly identified and allocated appropriately.

## Scope

2. This standard should be applied to all cataract procedures performed by your organisation.

## Overview

3. The only effective treatment for cataracts is replacement of the lens with an artificial one. The replacement may be a long distance or a bifocal lens.
4. Lens replacement is one of the most common operations performed in the UK (over 300,000 procedures each year).
5. Although cataracts are often associated with ageing, in rare cases babies are born with cataracts or young children can develop them.
6. Cataract patients are referred to the eye clinic where their eyes are examined and their cataract surgery options discussed with them.
7. Patients attend an appointment for surgical pre-assessment, where eye measurements are taken to select the correct lens. This appointment may be on the same day as the clinical assessment or booked as a separate visit.

## **Acute costing approaches**

8. Most patients have this procedure done as day cases under a local anaesthetic. A small number, including children, have a general anaesthetic and stay overnight.
9. A membrane sometimes grows back over the lens after surgery, impairing vision. This is rectified with laser treatment, which is usually done as an outpatient procedure.
10. Patients undergoing cataract surgery need to follow postoperative care instructions such as administering eye drops.

## **Approach**

11. You need to talk to the theatre service manager, the ophthalmology lead nurse, administrative lead and one of the cataract surgeons to understand how cataract surgery is delivered in your organisation.

## **Identifying the activity**

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12. The treatment function code (TFC) for this activity is 130 (ophthalmology).
13. The outpatient attendances and preoperative assessments will be reported on the non-admitted patient care (NAPC) patient-level feed. There are no procedure codes for preoperative assessments for cataract procedures.
14. The procedure codes for cataract surgery include:
  - C712 Phacoemulsification of lens
  - C751 Insertion of prosthetic replacement for lens NEC
  - C752 Revision of prosthetic replacement for lens
  - C753 Removal of prosthetic replacement for lens
  - C754 Insertion of prosthetic replacement for lens using suture fixation
  - C758 Other specified prosthesis of lens
  - C759 Unspecified prosthesis of lens
  - C772 Couching of lens.
15. You need to identify all the staff involved in the whole pathway, including the pre-assessment visit and the clinic assessment. For example, the

## **Acute costing approaches**

preoperative assessment clinic is usually led by either nursing staff or allied health professionals, including optometrists and ophthalmic technicians.

16. The inpatient and day-case elective surgery activity is reported on the admitted patient care (APC) patient-level feed, the ward stay (feed) and the theatres patient-level feed.
17. You need to identify all the staff involved in theatres for ophthalmic surgery, including all anaesthesia (medical and allied health professional), ophthalmic (medical) and theatre nursing staff.
18. As not all patients will require a general anaesthetic, you need to be able to identify those who did to allocate anaesthetist costs appropriately. In many units, anaesthesia staff deliver the local anaesthetic for cataract surgery and this cost should be included.

### **Identifying the costs**

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19. Talk to your finance colleagues to identify all costs directly associated with the procedure. These costs fall into the following main areas:

#### **Medical staffing**

20. Use Acute standard CM1: Consultant medical staffing to allocate medical staffing costs to cataract procedures.
21. The surgical team is likely to perform a preoperative clinical assessment for day cases, which includes checking notes, marking and examination of the eye before surgery. You should set up a statistic allocation table with relative weight values, so the cost of this time can be allocated to the patient using the ward round prescribed activity.
22. At discharge the consultant is likely to do a final check of the patient. The time this takes needs to be included in the ward round relative weight values for this procedure.

#### **Theatres**

23. Use Integrated standard CM5: Theatres to allocate theatre costs.

## **Acute costing approaches**

24. You need to identify the costs of the medical equipment used during surgery, including any lease, maintenance and depreciation costs, and allocate these only to those patients on whom this equipment has been used. Also, you need to identify and include the costs of sterile services.
25. The cost of the lens inserted during cataract surgery should be included on the prostheses and high-cost devices feed. If it is not, you need to set up relative weight values/other information sources to assign a lens cost to the cataract surgery.
26. For patients with cataracts in both eyes, surgery is likely to be performed on one eye at a time, with the first eye allowed to heal before the second eye is operated on.

### **Specialist nursing**

27. If your organisation has specialist nursing teams for ophthalmology, you need to identify their costs relating to cataract surgery and allocate these to cataract patients using the appropriate prescribed activity.

### **Diagnostics**

28. Diagnostics in relation to cataract surgery should be included in the diagnostics imaging feed.
29. Diagnostics may include refraction tests, 'A' scan biometry, corneal topography and optical coherence tomography (OCT) scan.
30. Use the following activities for these tests:
  - activity ID: MDA070; A scan biometry
  - activity ID: MDA071; Corneal topography
  - activity ID: MDA072; Optical coherence tomography (OCT) scan.
31. Occasionally other tests are requested, such as ultrasound scan of the eye, blood tests, neuroimaging such as CT/MRI, and electrodiagnostic tests.
32. Use the diagnostic imaging relative weight value development template in Spreadsheet CP3.7 to ensure diagnostic imaging is costed appropriately.

## **Acute costing approaches**

33. Use the pathology relative weight value development template in Spreadsheet CP3.6 to ensure pathology tests are costed appropriately.

### **Medicines**

34. The medicines dispensed feed should contain the information relating to the drugs used.
35. Eye drops are likely to be the medicine most commonly used by ophthalmology.

## Acute costing approaches

Table CA6.1: Example cataract procedure in the resource and activity matrix

Resource	Activity									
	Insertion of prosthesis, implant or device	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Ward round	Dispense all other medicine scripts	Supporting contact	CT
Medical and surgical consumables		XX		XX		XX				XX
Medical and surgical equipment and maintenance		XX		XX						XX
Prostheses, implants and devices	XX									
Operating department practitioner		XX			XX					
Operating department assistant		XX			XX					
Nurse		XX				XX				

## Acute costing approaches

	Insertion of prosthesis, implant or device	Theatre care	Theatre – Surgical care	Theatre – Anaesthetic care	Theatre – Recovery care	Ward care	Ward round	Dispense all other medicine scripts	Supporting contact	CT
Healthcare assistant						XX				
Specialist nurse		XX							XX	
Consultant			XX				XX			XX
Non-consultant medical staff			XX							XX
Consultant – anaesthetist				XX	XX					
Non-consultant medical staff – anaesthetist				XX	XX					
Drugs								XX		
Pharmacy technician								XX		
Radiographer										XX
Radiography assistant										XX
Medical physicist										XX

# CA7: Orthopaedics

Purpose: To ensure orthopaedic activity is costed in a consistent way.

## Objective

1. To ensure all costs incurred in delivering orthopaedic activity is identified and allocated to the correct patients.
2. To ensure all prostheses, implants and device costs associated with delivering orthopaedic activity is correctly identified and allocated to the correct procedures and to the correct patient episodes.

## Scope

3. This standard should be applied to all orthopaedic activity performed by your organisation covering treatment function codes (TFCs) 108 (spinal surgery service), 110 (trauma and orthopaedics) and 214 (paediatric trauma and orthopaedics).

## Overview

4. Orthopaedics is a branch of surgery concerned with conditions involving the musculoskeletal system.
5. Orthopaedic surgeons use both surgical and non-surgical means to treat musculoskeletal trauma, spine disease, sports injuries, degenerative diseases, infections, tumours and congenital disorders.
6. In HRG4+ the orthopaedics chapter consists of the following subchapters:
  - a. HC: spinal procedures and disorders with procedure and diagnosis-driven HRGs

## Acute costing approaches

- b. HD: musculoskeletal and rheumatological disorders with diagnosis-driven HRGs
- c. HE: orthopaedic disorders with diagnosis-driven HRGs
- d. HN: orthopaedic non-trauma procedures with procedure-driven HRGs
- e. HT: orthopaedic trauma procedures with procedure-driven HRGs.

## Approach

7. Paragraphs 95 to 101 in Acute standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2 provide guidance on the collection of the prostheses, implants and devices patient-level feed to be used in costing.
8. Use the prescribed matching rules in columns H to O in Spreadsheet CP4.1 to match costed prostheses, implants and devices from this patient-level feed to the correct patient episode.
9. While this standard focuses on four areas of orthopaedic activity, the same principles for identifying the activity and costs associated with delivering orthopaedic activity can be applied to other areas<sup>17</sup> in orthopaedics.
10. The four areas of orthopaedic activity are:
  - total hip replacement
  - total knee replacement
  - knee arthroscopy
  - spinal surgery.
11. To help you identify the activity, in each section we give examples of the clinical codes this activity can be coded to. Please note these are not the only codes you can use, and you should ask your clinical coders how your organisation codes this activity.

<sup>17</sup> Please note that the examples given below are orthopaedic procedures. Two chapter H subchapters – HD (musculoskeletal disorders) and HE (rheumatological disorders) – differ from the other subchapters because they are not procedure driven.

## **Acute costing approaches**

### **Total hip replacement**

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12. You need to understand the care pathway for a total hip replacement, so you can correctly identify the activity and all the associated costs. To do this you need to talk to the following colleagues:
  - the appropriate theatre manager
  - an orthopaedic consultant surgeon
  - the procurement lead for prostheses or another appropriate colleague who can provide information on the prostheses, implants and devices used
  - the appropriate therapies manager.
13. Check if your organisation has joined the National Joint Registry (NJR). This collects details of hip and knee replacements. If your organisation is a member, the information it submits to this registry may help you to identify the activity and allocate costs correctly for elective patients.

### **Identifying the activity**

14. Patients are listed for a total hip replacement at a consultant-led outpatient attendance.
15. The procedure codes for a total hip replacement can include:
  - W371 Primary total prosthetic replacement of hip joint using cement
  - W381 Primary total prosthetic replacement of hip joint not using cement
  - W391 Primary total prosthetic replacement of hip joint not elsewhere classified (NEC).
16. You need to identify patient-level activity data for:
  - prostheses – should be recorded on the prosthesis, implants and devices feed
  - theatres – should be recorded on the theatres feed
  - blood products – should be recorded on the blood products feed
  - therapies – should be recorded on the supporting contacts feed
  - radiography equipment – you need to collect this information locally

## Acute costing approaches

- radiographers in theatre – should be recorded on the theatres feed and/or diagnostic imaging feed.

### Identifying the costs

17. You need to work with finance colleagues to identify all the associated costs for a total hip replacement and you need to ensure these costs are allocated to your organisation's total hip replacement activity.
18. There are expected costs in total hip replacement surgery. Many of these costs can be allocated using information on the patient-level feeds described in Acute standard IR1: Collecting information for costing. Relative weight values/other information sources are needed to allocate any costs not collected in these feeds.
19. The expected costs may include but are not limited to:
  - theatre staff
  - theatre consumables and equipment
  - pathology
  - diagnostics
  - therapies
  - surgical medical staffing
  - anaesthesia medical staff
  - operating department practitioners (supporting the anaesthetists)
  - ward care
  - blood products
  - critical care
  - implants such as femoral stem, femoral head and acetabular cup
  - cement.
20. For costing purposes, a consumable is defined as something that is not permanently left in the patient after surgery.<sup>18</sup>

<sup>18</sup> Definition provided by NHS England's orthopaedic expert working group as part of the work undertaken by NHS Improvement's Group Advising on Pricing Improvement (GAPI).

## **Acute costing approaches**

21. For costing purposes, a prosthesis, implant or device is defined as something that is permanently left in the patient after surgery.<sup>20</sup>
22. Of greatest importance is identifying and allocating the correct prostheses costs to this activity. You need to ensure that all the prostheses, implants and devices used in this activity are included in the prostheses, implants and devices feed. If for any reason certain items are not included, you need to set up a relative weight values/other information source to assign the prostheses costs to the correct procedure.
23. You should use the matching rules in columns H to O in Spreadsheet CP4.1 to ensure that the prostheses costs are allocated to the correct patient in the correct episode of care.
24. For any unmatched prostheses costs, follow the guidance in paragraphs 43 to 47 in Integrated standard CP4: Matching costed activities to patients.
25. You should have a rolling programme of reviewing your total hip replacement patient-level costs to ensure that all prostheses costs are being assigned correctly.

## **Total knee replacement**

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26. Follow the approach for total hip replacement described above.
27. The procedure codes for a total knee replacement can include:
  - W401 Primary total prosthetic replacement of knee joint using cement
  - W411 Primary total prosthetic replacement of knee joint not using cement.
28. The implants likely to be used are:
  - femoral component
  - tibial component
  - tibial bearing
  - patella.

## Acute costing approaches

### Knee arthroscopy

29. Follow the approach for total hip replacement described above.

30. The procedure codes for a knee arthroscopy can include:

OPCS code	Description*	OPCS-4 version introduced
<b>W82* – W85*</b>		
W821	Endoscopic total excision of semilunar cartilage	4.2
W822	Endoscopic resection of semilunar cartilage NEC	4.2
W823	Endoscopic repair of semilunar cartilage	4.2
W828	Other specified therapeutic endoscopic operations on semilunar cartilage	4.2
W829	Unspecified therapeutic endoscopic operations on semilunar cartilage	4.2
W831	Endoscopic drilling of lesion of articular cartilage	4.2
W832	Endoscopic fixation of lesion of articular cartilage	4.2
W833	Endoscopic shaving of articular cartilage	4.2
W834	Endoscopic articular abrasion chondroplasty	4.4
W835	Endoscopic articular thermal chondroplasty	4.4
W836	Endoscopic excision of articular cartilage NEC	4.4
W837	Endoscopic osteochondral autograft	4.4
W838	Other specified therapeutic endoscopic operations on other articular cartilage	4.2
W839	Unspecified therapeutic endoscopic operations on other articular cartilage	4.2
W841	Endoscopic repair of intra-articular ligament	4.2
W842	Endoscopic reattachment of intra-articular ligament	4.2
W843	Endoscopic division of synovial plica	4.2
W844	Endoscopic decompression of joint	4.4

## Acute costing approaches

OPCS code	Description*	OPCS-4 version introduced
W845	Endoscopic drilling of epiphysis for repair of articular cartilage	4.4
W846	Endoscopic excision of synovial plica	4.4
W847	Endoscopic repair of superior labrum anterior to posterior tear	4.5
W848	Other specified therapeutic endoscopic operations on other joint structure	4.2
W849	Unspecified therapeutic endoscopic operations on other joint structure	4.2
W851	Endoscopic removal of loose body from knee joint	4.2
W852	Endoscopic irrigation of knee joint	4.2
W853	Endoscopic autologous chondrocyte implantation of knee joint	4.3
W858	Other specified therapeutic endoscopic operations on cavity of knee joint	4.2
W859	Unspecified therapeutic endoscopic operations on cavity of knee joint	4.2
<b>W87*</b>		
W871	Diagnostic endoscopic examination of knee joint and biopsy of lesion of knee joint	4.2
W878	Other specified diagnostic endoscopic examination of knee joint	4.2
W879	Unspecified diagnostic endoscopic examination of knee joint	4.2
<b>W89*</b>		
W891	Endoscopic chondroplasty NEC	4.4
W892	Endoscopic harvest of autologous chondrocytes	4.5
W898	Other specified other therapeutic endoscopic operations on other articular cartilage	4.4
W899	Unspecified other therapeutic endoscopic operations on other articular cartilage	4.4
<b>W019</b>	Unspecified complex reconstruction of thumb	4.2
<b>Y767</b>	Arthroscopic approach to joint – secondary procedure	

## Acute costing approaches

OPCS code	Description*	OPCS-4 version introduced
Z844 to Z846	Knee location codes	

\* For more information please visit [National Clinical Coding Standards OPCS-4 \(2017\) - NHS Digital](#)

31. Additional expected costs for a knee arthroscopy may include:

- use of endoscopic camera
- power shaver blade – single use.

32. There are no implant costs associated with a knee arthroscopy.

### **Spinal surgery**

---

33. Follow the approach for total hip replacement described above.

34. The implants likely to be used for spinal surgery are:

- orthotics
- rods
- screws
- plates.

35. Other costs are likely to be those for:

- cages
- hire or loan kit charges
- anti-adhesion barrier gel
- neurophysiologist for spinal monitoring
- plaster teams being available throughout surgery to place a cast on the patient once this is complete and while the patient is still in theatre
- orthotics as part of outpatient attendances after surgery.

## **Acute costing approaches**

### **Other considerations**

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36. There may be variations in clinical practice, so you should not expect, for example, two screws to have been used in every procedure as standard.
37. Wasted implants – if a surgeon orders a 32mm hip joint but realises during the procedure that a 34mm hip joint is needed, the 32mm one will be wasted. You should allocate the cost of wasted implants to the patient they were intended for, flagging which implant was used and which wasted using the prostheses, implants and devices feed in Spreadsheet IR1.2.

## Acute costing approaches

Table CA7.1: Example of knee replacement procedure costs in the resource and activity matrix

Resource	Activity													
	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Ward round	Dispense all other medicine scripts	Supporting contact	CT	Blood transfusion	Adult critical care – ward care	Adult critical care – medical care	Insertion of a prosthesis, implant or device	Pain management care
Medical and surgical consumables	XX		XX		XX				XX		xx			
Medical and surgical equipment and maintenance	XX		XX						XX		xx			
Prostheses, implants and devices													XX	
Operating department practitioner	XX			XX										
Operating department assistant	XX			XX										
Nurse	XX				XX									
Healthcare assistant					XX									
Specialist nurse	XX							XX						XX

## Acute costing approaches

Resource	Activity													
	Theatre care	Theatre – surgical care	Theatre – anaesthetic care	Theatre – recovery care	Ward care	Ward round	Dispense all other medicine scripts	Supporting contact	CT	Blood transfusion	Adult critical care – ward care	Adult critical care – medical care	Insertion of a prosthesis, implant or device	Pain management care
Consultant		XX			XX				XX			XX		
Non-consultant medical staff		XX							XX			XX		
Consultant – anaesthetist			XX	XX										XX
Non-consultant medical staff – anaesthetist			XX	XX										XX
Drugs							XX							
Pharmacy technician							XX							
Radiographer									XX					
Radiography assistant									XX					
Medical physicist									XX					
Blood and blood products										XX				
Physiotherapist								XX						

# CA8: Maternity

Purpose: To ensure maternity activity is costed in a consistent way.

## Objective

1. To ensure all costs incurred in delivering maternity activities are identified and allocated to the correct patients.

## Scope

2. This standard should be applied to all maternity activity provided by your organisation.

## Overview

3. The care delivered throughout the maternity pathway will depend on the individual woman's needs.
4. Based on information collected at the booking appointment, women are allocated to different pathway levels – standard, intermediate and intensive – for the antenatal phase. Low risk women on the standard pathway usually receive standard maternity care in line with the National Institute for Health and Care Excellence (NICE)<sup>19</sup> guidelines, while higher risk women (those on the intermediate and intensive pathways) tend to have more appointments, diagnostics and imaging scans over the course of their pregnancies.

<sup>19</sup> [www.nice.org.uk/guidance/service-delivery--organisation-and-staffing/maternity-services](http://www.nice.org.uk/guidance/service-delivery--organisation-and-staffing/maternity-services)

## **Acute costing approaches**

### **Antenatal phase**

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5. Standard/intermediate ante/postnatal care is usually midwifery led. This activity is delivered both in hospital and in a range of community non-acute settings (such as a general practice or children's centre).
6. Consultant-led care is provided at the intensive risk level as well as to some women judged to be at intermediate (clinical) risk.

### **Screening**

7. Screening currently comprises the combined test at 11 to 14 weeks for Down, Edwards and Patau syndromes using maternal hormone levels and nuchal fold size, and assessment for structural abnormalities such as anencephaly/neural tube defects (eg spina bifida) and for completion of the abdominal cavity.
8. The screening continues with the 18 to 20-week anomaly scan to assess the fetus's structural normality and determine if there are any indications that should be referred for a fetal medicine specialist's opinion.

### **Delivery phase**

---

9. Delivery falls into one of two categories:
  - delivery without complications and co-morbidities
  - delivery with complications<sup>20</sup> and co-morbidities.

### **Hospital birth versus birthing centre**

10. The levels of risk assessed during the antenatal phase can influence a woman's birth choices. Women whose pregnancies are of standard/intermediate risk can usually deliver at the location of their choice, including midwife-led birthing centres or home. Some intermediate and intense risk patients will be recommended delivery in an obstetric consultant-led unit.

<sup>20</sup> Lower caesarean section, whether elective or emergency, is now considered within the complications category.

## Acute costing approaches

11. The woman delivering at home or in a birthing centre, whether an obstetric or midwifery unit, may have further choices: eg water births, sensory stimuli and complementary therapies. The option to have a private birth with independent midwives may also be available.

## Postnatal phase

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12. Postnatal care for the purposes of calculating the tariff begins once a woman is discharged from a maternity unit or birthing centre. Most postnatal care is provided in community clinics (settings) with a smaller portion provided in the woman's home. All activities carried out while the woman and baby(ies) are in the acute setting – for example, enhanced infant feeding support – should be allocated to the birth episode.
13. Routine care of all well babies forms part of the maternity pathway payment. Well babies who require additional care or monitoring (eg observations for risk of sepsis, meconium aspiration, hypoglycaemia) should be costed separately as this type of care falls outside the maternity pathway payment.

## Approach

14. You need to understand the care pathways for the maternity activity delivered in your organisation to correctly identify the activity and all the associated costs. To do this you need to talk to clinical staff and service managers.
15. **You need to cost each element of the care pathway in line with Integrated standards CP1 to CP6, such as the episodes, contacts and attendances.**

## Identifying the activity

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16. Maternity activity is recorded on the admitted patient care (APC) and non-admitted patient care (NAPC) patient-level feeds.
17. Ward stay, diagnostics including ultrasound, pathology, theatres and medicines are recorded on the patient-level feeds.
18. For maternity activity use:
  - SLA146 Birthing suite care

## Acute costing approaches

- SLA147 Home birth.
19. In the patient-level feeds you need to identify whether a birth is: a home birth, or midwifery-led (specialty code 560 – midwife episode) or consultant-led (specialty code 501 – obstetrics) hospital birth, to be able to allocate the correct costs.
20. As these services are multidisciplinary, you need to identify the other healthcare providers involved.
21. Healthcare providers for women with standard/low risk pregnancies can include:
- midwife – use resource ID: SLR085; Midwife
  - maternity support worker – use resource ID: SLR084; Healthcare assistant
  - specialist midwives – antenatal/newborn screening and breastfeeding – use resource ID: SLR082; Specialist nurse
  - Sonographer – use resource ID: CLR022; Sonographer
  - anaesthesia team – use resource ID: SGR065; Non-consultant medical staff – anaesthetist
  - neonatologist – if the baby is unwell at delivery – use resource ID: SGR062; Consultant.
22. Healthcare providers in addition to those listed above for women with higher risk pregnancies can include
- obstetrician – use resource ID: SGR062; Consultant
  - cardiologist – use resource ID: SGR062; Consultant
  - psychologist – use resource ID: SLR090; Psychologist
  - dietician – resource ID: MDR033; Dietician.
23. Table CA8.1 below is an excerpt<sup>21</sup> from Spreadsheet CP3.3 showing the resource and activity links to use for maternity.

<sup>21</sup> Please note all excerpts in this standard are for illustrative purposes only. Use Spreadsheet CP3.3 to ensure you are using all the correct resource and activity links.

## Acute costing approaches

24. For each resource and activity combination below there is a two-step prescribed allocation method in columns D and E.

**Table CA8.1: Excerpt from Spreadsheet CP3.3 showing the resource and activity links for maternity activity**

Resource and activity Link ID	Resource	Activity
SPR105 – SPA149	CNST payment	CNST indemnity
SLR083 – SLA146	Advanced nurse practitioner	Birthing suite care
SGR062 – SLA146	Consultant	Birthing suite care
MDR047 – SLA146	Medical and surgical equipment and maintenance	Birthing suite care
MDR046 – SLA146	Medical and surgical consumables	Birthing suite care
SLR085 – SLA146	Midwife	Birthing suite care
SLR082 – SLA146	Specialist nurse	Birthing suite care
MDR046 – SLA147	Medical and surgical consumables	Home birth
SLR089 – SLA147	Delivery box	Home birth
SLR085 – SLA147	Midwife	Home birth
MDR045 – SLA147	Patient appliances	Home birth
MDR052 – SLA147	Patient-specific consumables	Home birth
MDR047 – CLA022	Medical and surgical equipment and maintenance	Obstetrics ultrasound
CLR022 – CLA022	Sonographer	Obstetrics ultrasound

### Identifying the costs

25. You need to work with finance colleagues to identify the costs associated with delivering maternity services.
26. Remember that the costs are associated with the acuity of the pregnancy, with those at higher risk attracting higher costs due to an increase in healthcare provider support, diagnostics and other care elements.
27. The Clinical Negligence Scheme for Trusts (CNST; overseen by NHS Resolution) is a considerable cost for maternity care. Follow the cost

## Acute costing approaches

allocation method for allocating CNST costs in columns D and E in Spreadsheet CP3.4.

28. The maternity CNST premium is based on live births. Live births are easily identified from the second investigation code (ICD10) Z37\* on the patient record, with appropriate relative weight values of 1, 2 or 3 for single, twin and multiple births.
29. As consultant staff duties are split between obstetrics and gynaecology, the obstetrics and gynaecology service rota must be used to correctly apportion consultant costs (programmed activities – PAs) to the activities they perform. Job plans often do not identify the two separate streams of consultant activity or the correct ‘on call’ duties for obstetrics and gynaecology, so you need to work with the service managers to ensure the costs are allocated to the correct activity in the correct proportion.

**Table CA8.2: A hospital birth in the resource and activity matrix**

Resource	Activity		
	CNST indemnity	Birthing suite care	Obstetrics ultrasound
CNST payment	XX		
Consultant		XX	
Non-consultant medical staff		XX	
Healthcare assistant		XX	
Medical and surgical equipment and maintenance		XX	XX
Medical and surgical consumables		XX	
Midwife		XX	
Specialist nurse		XX	
Medical and surgical consumables		XX	
Sonographer			XX

30. The expected costs of a home birth may include:

## **Acute costing approaches**

- midwife – responsible for the delivery – use resource ID: SLR085; Midwife
- midwife assisting – use resource ID: SLR084; Healthcare assistant
- CNST maternity premium weighted by number of ‘live births’ – use resource ID: SPR105; CNST payment
- delivery box use – resource ID: SLR089; Delivery box
- sterile equipment – use resource ID: MDR047: Medical and surgical equipment and maintenance
- gas and air cylinder – use resource ID: MDR046; Medical and surgical consumables
- oxygen – use resource ID: MDR046; Medical and surgical consumables.

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