



Orthopaedics

Costing approach learning extension (formally CA7)

Version 1, March 2022

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 are correctly identified and allocated to the correct patient events.

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), 111 (orthopaedic), 115 (trauma surgery) 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:
 - HC: spinal procedures and disorders with procedure and diagnosis-driven HRGs

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

Approach

7. Work with a clinical and/or service representative for each area. Use the standard costing processes to apply costs to resources and activities, and to the patients who received the care.
8. You can then agree with your costing steering group any orthopaedic areas for further 'deep dive' work. We recommend consideration of materiality in cost or activity, or where information is required for service reasons, before such work is undertaken, as this work is labour intensive.
9. Where an implant is used, their cost is material to the cost of the patient event, and, overall, prostheses are often material to the organisation; therefore, it is generally justified to perform some deep dive exercises to ensure accuracy and to support other uses of the cost data.¹ However, you should have a rolling programme to review deep dive costs so that information used by stakeholders remains current.

Costing for orthopaedics

10. To cost a specific service area, you need to identify where costs are in the general ledger. To do this, you will need to talk to the following colleagues:
 - the finance manager/management accountant for orthopaedics
 - the theatre manager for the relevant orthopaedic area
 - a consultant orthopaedic surgeon lead and a consultant for the specialist area
 - the procurement lead or manager of the inventory management system for prostheses, or another appropriate colleague who can provide information on the prostheses, implants and devices used
 - the appropriate therapies manager.

¹ For example, using the costing system to provide procedure-based costs for inclusion in local pricing discussions about private or overseas patient tariffs.

11. Create a list of contacts for the service area, to evidence where your information came from.
12. Note: Non-pay items including implants have specific terminology for orthopaedic costing purposes.² See also Standard CM21: Clinical non-pay items:
 - a consumable is defined as something that is not permanently left in the patient after surgery
 - a prosthesis, implant or device is defined as something that is permanently left in the patient after surgery
 - prosthetic limbs/appliances may be worn on the outside of the body to manage living with the musculoskeletal condition.
13. The expected costs for orthopaedic areas may include but are not limited to:
 - surgical medical staffing – for complex and/or long cases there will be multiple surgeons present
 - anaesthesia medical staff
 - operating department practitioners, theatre nurses and other theatre staff
 - sterile services
 - theatre consumables and equipment
 - pathology
 - diagnostics
 - therapies
 - ward care
 - blood products
 - implants and devices (these may be purchased as standard items, bespoke, or some implants and devices are created during surgery from many component parts to fit the patient)
 - cement and other procedure-specific supporting materials
 - critical care (costed separately but part of the pathway)
 - outpatient department costs (costed separately but part of the pathway).

² 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).

Information requirements

14. Use Standard IR1: Collecting information for costing and Spreadsheets IR1.1 and IR1.2 which provide guidance on the data required.
15. Review Feed 15: Prostheses and high-cost devices data. Ensure you have clear information in the feed, and if for any reason certain items are not included, set up a relative weight values/other information source to assign the prostheses costs to the correct procedure.
16. Some orthopaedic procedures have significant prostheses costs and others have no prosthesis, so matching the prosthesis to the correct patient is essential, to prevent overstating the cost of patients not having an implant and understating the cost of the patients receiving implants.
17. Use the prescribed matching rules in Spreadsheet CP4.1 to match costed prostheses, implants, and devices from the patient-level feed to the correct patient episode. As a superior method, other consumable items of significance may also be matched to the patient.
18. Other feeds should also be matched to the patient – for example Feed 8: Pathology, Feed 12a: Diagnostic imaging, and as a superior method, Feed 7: Supporting contacts, to include physiotherapy and other therapies.
19. For any unmatched prostheses costs, follow the guidance in Standard CP4: Matching costed activities to patients.
20. Consultant orthopaedic surgeons may cover all orthopaedic work but will usually have a specialist area – for example hips, knees, spines, trauma. Some surgeons will be on the rota for general trauma and non-elective operations outside their specialist area.
21. The variety and complexity of work done by an individual may depend on the size of the organisation and whether the trust is a specialist unit. For example, major trauma centres will have specialist trauma surgeons; specialist spinal units will have spinal surgeons. You should understand which type of orthopaedic service your organisation has, to understand the data and be able to allocate costs appropriately.

22. Junior medical staff in orthopaedics will often cover a wider area than consultants, specialising more as they rise up the levels of qualification.

Specialist cost centres and expense codes

23. The cost centres and expense codes for orthopaedics will include:
- XXX049: Medical staffing – by specialty. You should customise this for the different sub-specialties of orthopaedics
 - XXX050: Medical staffing - Anaesthetics
 - XXX051: Theatres/ SPS
 - XXX064: Ward A – Acute, elderly and general. You should customise this for wards specifically for orthopaedics – Feed 4: Ward stay, will identify the treatment function code of patients in the costing process.
24. There may also be cost centres for specialist nurses, designated outpatient areas and therapy cost centres for orthopaedics.
25. Implants may be within theatres or in a separate cost centre.
26. Expense codes will relate to the staff type or non-pay item as shown in Spreadsheet CP2.1.

Resources

27. The resources will flow from the cost centre and expense code combination shown in Spreadsheet CP2.1

Activities

28. Use the activities as shown in Spreadsheet CP3.2 according to the care given in each type of patient event. Typical activities will include:
- SLA135: Outpatient care or SLA136: Outpatient procedure and treatment room care
 - SLA097: Ward care
 - SGA082: Theatre care – general
 - SGA079: theatre care - anaesthetic
 - SGA081: Theatre care – surgical
 - SGA080: Theatre care – recovery

29. Table CA7.1 is an excerpt³ from Spreadsheet CP3.3 showing the resource and activity links to use for orthopaedics.
30. Four areas of orthopaedic activity used as examples here are:
- total hip replacement
 - total knee replacement
 - knee arthroscopy
 - spinal surgery.
31. The same principles for identifying the activity and costs associated with delivering orthopaedic activity can be applied to other areas⁴ in procedure-based orthopaedics. Non-procedure based musculoskeletal episodes will have the same non-theatre elements, plus other specialist resources.
32. To help you identify the activity, in each section we give examples (where possible) of the clinical codes the 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 the particular activity.
33. For hip and knee replacements, check if your organisation has joined the National Joint Registry (NJR). This collects details of the implants used. If your organisation is a member, the information it submits to this registry may help you identify the activity and allocate costs correctly for elective patients.
34. Some procedures will be performed on a joint on one side of the body (unilateral) but occasionally will be performed on both sides (bilateral) in the same patient event. Ensure that bilateral joint or skeletal replacements have received prosthesis costs for both sides. Trauma patients may have multiple prosthesis in many areas of the body.

Total hip replacement

35. Patients are listed for a total hip replacement at a consultant-led outpatient attendance.

³ 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.

⁴ 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.

36. 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 (NEC⁵).
37. As the procedure codes state, some will include the use of cement and others will not. Costs for cement is included in medical and surgical consumables in most trusts.
38. The implants likely to be used will include:
- femoral stem
 - femoral head
 - acetabular cup.

Total knee replacement

39. 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.
40. The implants likely to be used are:
- femoral component
 - tibial component
 - tibial bearing
 - patella.

Knee arthroscopy

41. You should discuss the procedure codes for a knee arthroscopy with your orthopaedic team.
42. Additional expected costs for a knee arthroscopy may include:
- use of endoscopic camera

⁵ For clinical coding 'NEC' is 'not elsewhere classified'.

- power shaver blade – single use.

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

Spinal surgery

44. You should discuss the procedure codes for spinal surgery with your specialist spinal team.

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

- orthotics
- rods
- screws
- plates.

46. Other costs are likely to be those for:

- cages
- kit hire or loan 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.

Other considerations

47. 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.

48. Wasted implants: if a surgeon orders two bespoke implants for a patient - a 32-mm and a 34-mm hip joint but realises during the procedure that a 34-mm hip joint is needed, the 32-mm one will be wasted. You should allocate the cost of both used and wasted implants to the patient they were intended for using Feed 15: Prostheses and high-cost devices, in Spreadsheet IR1.2. For reporting, flagging that two were included in the cost and one was wasted is useful for users of the data.

49. Wasted sterilised implants, equipment, and consumables: where an item or pack (set of items) is opened but not used, it is no longer sterile and cannot be used for other patients.
- If purchased as a single use item, this is a wasted item. If the item(s) are material in value and tracked on Feed 15: Prostheses and other high-cost items, you should still allocate them to the patient. This allows the wastage to be tracked.
 - If the item can be re-sterilised, there need be no extra cost for the specific patient (although the theatres management may need to track this wastage through other channels).
50. Wasted stock in the storeroom: If the general ledger (GL) holds material values for stock management updates, you should consider the treatment in the costing system. For example, stock going out of date, being opened accidentally, damaged, etc, will be charged to the GL periodically. This stock cannot be allocated to a specific patient but should be allocated across all patients that the storeroom covers. For example, if there is a spinal storeroom, across all patients having a spinal procedure.
51. Consignment stock: some implants are supplied to the trust on a 'sale or return' basis. The cost of these items should only be shown in the general ledger when the item has been used, and this information should be at patient level. Consignment stock reduces the risk of wastage as the trust is not responsible if an item goes 'out of date'.

Table CA7.1: Excerpt from Spreadsheet CP3.3 showing the resource and activity links for orthopaedic procedure costs

Resource	Activity											
	Theatre care - general	Theatre - surgical care	Theatre - anaesthetic care	Theatre - recovery care	Ward care	Dispense all other medicine scripts	Supporting contact 1:1 inpt unit	CT	Blood transfusion	Adult critical care - medical care	Insertion of prosthesis, implant or device	Pain management care
Prostheses, implants and devices											£X	
Operating department practitioner	£X			£X								
Consultant		£X			£X			£X		£X		
Medicines						£X						
Pharmacy technician						£X						
Radiographer								£X				
Radiography assistant								£X				
Blood and blood products									£X			
Physiotherapist							£X					

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