

Enhanced Recovery Programme for Hip and Knee Replacement Clinical Guideline

V1.1

October 2026

Summary

Hip + Knee Replacement Anaesthetic Protocol

Standard protocol for elective Hip and Knee Replacement (see UNI COMP KNEE)

Minimise Pre-Operative Fasting:

- Up to 6 hours: Food.
- Sip till Send - 150ml of water sipped over every hour, till patient comes to theatre.

Pre-Operative Oral Analgesia - EPMA bundle Protocol 'SMH' - see Hip and Knee - RMO will prescribe.

- 1 g Paracetamol.
- 1600 mg Ibuprofen MR.
- 15 mg Lansoprazole.
- 10 mg Dexamethasone.
- 8 mg Ondansetron.

Default Hip and Knee VTE prophylaxis.

Caution with NSAIDS if:

allergy, sensitive asthmatic, eGFR <30.
peptic ulcer disease.

Hip		Knee			
Analgesia	Surgical LIA of joint and wound: • Weight of Pt = ml 0.25% Bupi + Adren 1:200,000. • Mix to vol. required with N.Saline. <table border="1"><tr><td>>70 kg = 40 ml</td><td>70-50 kg = 30 ml</td><td>< 50 kg = calculate</td></tr></table> Avoid motor blocks, inform Physio if given: • PENG - Mobility priority. • SFCIB - Frail/Revision/Analgesia is a priority. • Motor quad dysfunction PENG 1/20 and SFICB 100%.	>70 kg = 40 ml	70-50 kg = 30 ml	< 50 kg = calculate	• Adductor Canal Block + Cutaneous N: ▪ 15-20 ml 0.25% L.Bup. • Ant distal thigh genicular block. ▪ 15-20 ml 0.25% L.Bup. • iPACK. ▪ 15-20 ml 0.25% L.Bup. See: RCHT Knee Analgesia Protocol. If RA used discuss with surgeon re: Surgical LIA. Surg. LIA dosage - See Hip Analgesia opposite.
	>70 kg = 40 ml	70-50 kg = 30 ml	< 50 kg = calculate		
Anaesthesia	Operative duration: < 90min 3.5 - 4ml 2% Prilocaine hyperbaric. 90-120 mins 4 ml 0.25 % Bupivacaine. > 2 hours 2.5-3.5 ml 0.5 % Bupivacaine plain. Avoid spinal additives for day case patients: • If LOS >24 hours consider Diamorph 200mcg (alterative- Morph 100 mcg). • RA not essential if Diamorph / Morph used.	Sedation TCI propofol: +/- small boluses of IV Alfentanil during skin closure - rarely required . Low threshold for urinary catheter if: • Opiate or Bupivacaine in spinal. • Female hips / incontinence issues. • Male prostate problems. • Patient request on explanation.			

- Aim for MAP within 20% normal.
- Warmed or Warm Fluids < 1000 ml intra-op, post-op fluids encourage oral over IV.
- TCI Propofol 0.5 - 2 µg/ml (Avoid Benzodiazepines, Ketamine and Clonidine).
- Aim for Spinal LA duration to be closely matched to surgical duration.
- Anaes. EPMA bundle - Analgesia and Anti-emetic - **Protocol 'SMH'** - see Hip and Knee.
- Antibiotics - **Protocol 'Ortho'** - see Ortho Prosthetic Joints - Teic. (weight) and Gent. (height).
- VTEp - see Theatre Info Sheet - RCHT Elective Hip and Knee Arthroplasty VTE Prevention Guideline.
- Blood conservation - Tranexamic Acid (TXA) 1 g IV at start of case + 1 g surgical topical prior to closure.

(NB: **If** eGFR 30-60 or weight < 50kg - Tranexamic 10 mg/kg - **If** eGFR <30 omit TXA).

- Hips - Cell Salvage to be discussed as standard.

POST-OP	Recovery and Ward: • Oral fluids to commence. • Recovery - Ensure EPMA post-op analgesia bundle completed. • Allocate patients with intrathecal opiate to increased or standard risk monitoring pathway. • If possible patients who have day case potential or surgery on a Friday - XR via recovery to the ward. • Ward - Ensure EPMA post-op VTE ratified with surgical op note - RMO / Surgical responsibility. • Day 0 mobilisation with Physio - spinal duration important - Tazrean et al 2022. • Day 1 Knee - Pain Score > 1 (of 3) or request - Adductor Canal Block - See Anaes EMPA bundle – DFA.
	TTAs in EMPA bundle: • Ensure that VTEp and previous anti-coagulation correctly prescribed prior to discharge. • See Surgical Op note and RCHT Elective Hip and Knee Arthroplasty VTE Prevention Guidelines. • See Anaesthetic chart for specific advice regarding analgesia TTO.

Summary Uni-Knee

Peri-Operative Guideline for Day Case Uni-Compartment Knee Replacement

Pre-selected patients listed first or second on operating list

Minimise Pre-Operative Fasting

- **Up to 2 Hours:** Tea/Coffee with up to 20% Milk.
- **Up to 1 Hours:** Clear Fluids.

Pre-Operative Oral Analgesia

- 1g Paracetamol.
 - 1600mg MR Ibuprofen.
 - 15mg Lansoprazole.
 - 10mg Dexamethasone.
- Avoid NSAIDS if:
Allergy, sensitive asthmatic,
eGFR <50, Peptic Ulcer Disease.

Anaesthetic technique and plan must cover possibility of conversion to TKR

Spinal Anaesthesia:

2.5 to 3mls Hyperbaric 2% Prilocaine
No Opiate

Adductor Canal Block:

20mls 0.375%
Levobupivacaine.

Sedation:

TCI Propofol 0.5-2mcg/ml.
For anxiolysis/light sedation.

Avoid: Benzodiazepines.

Low Conc,
High Volume peri-articular LA infiltration.

No Opiates required.

Antiemetics:

IV Ondansetron at skin closure.

Analgesic Adjuncts

Consider if chronic pain/opiates:

- Gabapentin Premed 300-600mg PO.
- Clonidine 1 to 2 mcg/Kg.
- Magnesium 3g.

0.5L to 1L IV Fluids [Unless hypovolaemic].
Manage hypotension with vasopressors.
No urinary catheter.

Post-Operative Analgesia:

- Rescue Fentanyl (6 x 25mcg).
- Oral Codeine or Tramadol.
- Oramorph.
- Paracetamol 4 hours post premed.

1. Aim/Purpose of this Guideline

- 1.1. To enhance the recovery of patients having primary hip and knee replacements through a multimodal programme. The aim of this programme is to optimise mobility and analgesia leading to an optimal length of stay for patients based on their clinical and social needs.
- 1.2. This version supersedes any previous versions of this document.

Data Protection Legislation

The Trust must comply with the UK GDPR, Data Protection Act 2018, and Data (Use and Access) Act 2025 by ensuring all personal data is processed lawfully, fairly, transparently, and for a defined purpose.

Before processing personal data, an appropriate Article 6 UK GDPR lawful basis must be identified and recorded. Where special category data is involved, a relevant Article 9 condition must also be documented.

All staff, contractors, students, volunteers, agency workers, and third parties working on behalf of the Trust are responsible for complying with data protection legislation.

Further guidance is available in the Trust's Information Use Framework and Information Governance policies. Advice can also be obtained from the Information Governance Team.

2. The Guidance

2.1. Introduction

- 2.1.1. The concept of multimodal, evidence-based interventions to improve post-operative outcome (enhanced recovery) was introduced more than a decade ago and is now well documented in several recent reviews to improve post-operative recovery, reduce associated morbidity and avoidable hospitalisation. Multimodal analgesia aims to improve patients' comfort whilst decreasing side effects of analgesia such as opioids. The goal is to target different mechanisms of pain pathways. This can be achieved through the use of regional analgesia and multiple drug classes and administration techniques.
- 2.1.2. Pain management starts pre-operatively, with active participation in the process. An informed patient has increased responsibility to become involved in their pain management. This involves an understanding of the procedure, rehabilitation and plans to optimise their pain control and medications to improve outcome. The patient will be given a generic patient guide to hip or knee surgery and wherever possible attend Joint School which will offer the chance for personalised education.

- 2.1.3. This guideline should be adjusted to the patient's individual needs. However, it is important to note that all anaesthetics for the enhanced recovery pathway should prioritise a local anaesthetic-based technique (spinal, regional and local anaesthetic infiltration). Standardisation is critical to moving our entire patient cohort to enhanced recovery, but variation should be applied for certain patient and surgical factors.
- 2.1.4. Some patients are reluctant to take analgesia if they are not in pain. It is important to educate patients regarding the use of regular analgesia. Therefore, patients should not refuse regular oral analgesia unless there is a good reason to, for instance documented sensitivity such as intolerable side effects. Patients use less analgesia when using it pre-emptively. Patients should be taught to pre-empt pain, an example is asking for as required oral morphine prior to mobilisation or physiotherapy, this will reduce opioid requirement and side effects. The start of this education is within the patient information booklet and forms part of the pre-operative education class. However, joint replacement can be an overwhelming time for patients, as such this information should be reinforced by all members of the multidisciplinary team.

2.2. Prescribing analgesia

- 2.2.1. Take note of allergies, regular medications and specific contraindications.
- 2.2.2. Avoid modified release morphine/oxycodone.
- 2.2.3. Consider factors such as renal function, obesity and OSA, gastric integrity and pulmonary NSAID reactivity.
- 2.2.4. Pre-med bundles for Hip and Knee are on our electronic prescribing within 'Protocol' under 'SMH'. The bundles are split into 4, they include the standard VTE Prophylaxis and have an option of with and without NSAID.
- 2.2.5. If medications such as gabapentin, pregabalin or nortriptyline are part of the patient's regular admission medications, these medications should be continued at the existing prescribed dose.
- 2.2.6. Patients on an established dose of tramadol should be managed individually and potentially have this continued alongside the bundle regime of morphine/oxycodone. This is to minimise the risk of serotonergic withdrawal.
- 2.2.7. **Patients with pain that is not controlled**

- 2.2.7.1. Repeat Day 1 regional analgesia is an option for both Hips and Knees. Hip patients in extremes of pain should be checked for dislocation of the prosthesis. Although mobilisation can be the most helpful action for a patient, those in extremes of pain do not mobilise. A 12 hour respite of pain offered by a supra-inguinal fascia iliaca block with unwanted associated motor block, may enable them to muster reserves to mobilise and progress. Knee patients with pain affecting their ability to progress should be offered a repeat adductor canal block. This adductor canal block is prescribed as part of their standard post-op care bundle.

- 2.2.7.2. Gabapentin can be used as additional pain relief if required. A titrating dose can be found on EPMA and should be prescribed with a review date of 1 to 2 weeks post op.
- 2.2.8. **Patients with chronic pain and or chronic opioid use** (i.e. patients who have been taking opioids for some time prior to the operation) should be identified pre-operatively and work towards titrating their use. An emphasis on regional analgesia should be sought with an initial priority of pain relief over motor function where necessary.
- 2.2.9. **Patient Controlled Analgesia (PCA) pump** are no longer an option within St Michael's Hospital, however oral analgesia is well tolerated in arthroplasty patients. Early identification of pain issues should be flagged to the Duty Floor Anaesthetist (DFA) and Higher Level Care (HLC) fellow on duty for review, a comprehensive plan should be in place, this should be understood by the patient. These patients should continue their pre-existing opioids into the post-operative period. It is important that analgesia patches stay in place and are re-applied as prescribed.

2.3. Prescribing Venous Thrombo-Embolism Prophylaxis (VTEp)

- 2.3.1. Prescribe in line with - RCHT Elective Hip and Knee Arthroplasty VTE Prevention Guidelines. The pre-med bundle for Hip and Knee arthroplasty prescribed by the Resident Medical Officer (RMO) or HLC fellow have standard VTE contained. This prescription may need to be modified when required according to the surgical operation note.
- 2.3.2. For the bundles see under VTEp – Protocol 'ORTHO'.
- 2.3.3. VTEp for hip and knee has been split into several bundles to standardise and simply the requirements of different patients. It is the responsibility of the surgeon to specify requirements on their operation note. It is the responsibility of the RMO and HLC fellow to check that these are prescribed.

2.4. Laxatives and constipation

Patients will have laxatives prescribed as standard within their care bundles both as an inpatient and on discharge. Constipation can be a primary complaint for an otherwise uneventful arthroplasty, all care should be taken to avoid.

2.5. Post-operative X-ray and Bloods

- 2.5.1. Those patients who may be heading for a Day 0 discharge or weekend discharge should have a post-operative XR on the way from recovery to the ward. Recovery should ring ahead of patient transfer to XR so that XR staff can account for how best to prioritise.
- 2.5.2. The review of bloods should not delay the discharge of a patient that for all other factors is ready for discharge. The results of these blood results should be reviewed and any issues dealt with as required.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Adherence to the guideline.
Lead	St Michal's Hospital (SMH). Dr David Burckett-St Laurent – SMH Joint Anaesthesia Lead. Dr Simon George – SMH Joint Anaesthesia Lead. Mr Rob Walker – SHM Orthopaedic Lead.
Tool	EMPA report to be run to follow up patients. Audit and review Tool using patient documentation.
Frequency	Reports on prescribing are to be run quarterly.
Reporting arrangements	Reporting will occur in the Trauma and Orthopaedic Governance meetings and added to the minutes.
Acting on recommendations and Lead(s)	Orthopaedic Consultants will undertake subsequent recommendations and action planning for any or all deficiencies and recommendations within reasonable timeframes for their areas.
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within two months. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the [Equality Diversity and Inclusion Policy](#) or the [Equality and Diversity website](#).

4.2. Quality and Equality Impact Assessment (QEIA)

The QEIA process allows RCHT to monitor the impact of changes to its policies and services, ensuring that nobody is unduly disadvantaged. The Quality and Equality Impact Assessment (QEIA) Form is available via the link in [Appendix 2](#).

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Enhanced Recovery Programme for Hip and Knee Replacement Clinical Guideline V1.1
This document replaces (exact title of previous version):	Enhanced Recovery Programme for Hip and Knee Replacement Clinical Guideline V1.0
Date Issued/Approved:	May 2026
Date Valid From:	October 2026
Date Valid To:	July 2029
Directorate/Department responsible (author/owner):	Dr David Burckett-St Laurent, Consultant Anaesthetist
Contact details:	01872 253531
Brief summary of contents:	A guideline for the enhanced recovery programme for total hip replacement including pain management, analgesia and VTE.
Suggested Keywords:	Total hip replacement, THR, hip surgery.
Target Audience:	RCHT: Yes CFT: No CIOB ICB: No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Trauma and Orthopaedics Governance. Anaesthetics Governance. Medicine Practice Committee.
Manager confirming approval processes:	Paul Sylvester
Name of Governance Lead confirming consultation and ratification:	Suzanne Atkinson, Governance Manager.
Links to key external standards:	None Required.
Related Documents:	None Required.
Training Need Identified?	No.

Information Category	Detailed Information
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Anaesthetics

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
April 2026	V1.0	Amalgamation of two archived guidelines: - Enhanced Recovery Programme for Total Hip Replacement Clinical Guideline V1.1. - Enhanced Recovery Programme for Total Knee Replacement Clinical Guideline V1.1. EMPA prescriptions changes: Antibiotic bundles added. VTE bundles added. Pre-op bundles updated. TTO bundles included. Anaesthetics prescribed bundles updated.	Dr David Burckett-St Laurent, Consultant. Elizabeth Manton. Vincent Tsoi, Lead Pharmacist for Trauma and Orthopaedics
October 2026	V1.1	Author amended.	Elizabeth Manton, Pharmacist

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust [The Policy on Policies \(Development and Management of Knowledge Procedural and Web Documents Policy\)](#). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Quality and Equality Impact Assessment (QEIA) Form

The QEIA process allows RCHT to monitor the impact of changes to its policies and services, ensuring that nobody is unduly disadvantaged.

Please ensure you have completed a Quality and Equality Impact Assessment (QEIA) using this link to complete the form:

[E11 QEIA Policy](#)

For guidance, please see the [QEIA Essentials – Quick Reference Guide](#) or contact as required below:

Equality, Diversity and Inclusion guidance, please contact: rcht.inclusion@nhs.net

Quality Governance guidance, please contact Jillian Tozer: jillian.tozer3@nhs.net