# Summary of Recommendations

### PROSPECT Total Knee Arthroplasty Subgroup

For each review, a Subgroup of the **prospect** Working Group performs an initial evaluation of the evidence and also drafts clinical practice statements and recommendations, which are then discussed by the whole Working Group before a final consensus is reached. The Subgroup may sometimes include a non-Working Group member, to provide additional expertise in the procedure being reviewed.

For the total knee arthroplasty review, the Subgroup members were:

Dr Christian Simanski
Dr Barrie Fischer

### Grades of Recommendation

Recommendations are graded according to the overall level of evidence (LoE) on which the recommendations are based, which is determined by the quality and source of evidence: *(Levels of evidence and grades of recommendation in PROSPECT reviews (from 2006))*

PROSPECT provides clinicians with supporting arguments for and against the use of various interventions in postoperative pain based on published evidence and expert opinion. Clinicians must make judgements based upon the clinical circumstances and local regulations. At all times, local prescribing information for the drugs referred to must be consulted.

### Summary Recommendations

Pre-, intra- and postoperative interventions have been evaluated for the management of postoperative pain following total knee arthroplasty. Unless otherwise stated, ‘pre-operative’ refers to interventions applied before surgical incision, ‘intra-operative’ refers to interventions applied after incision and before wound closure, ‘postoperative’ refers to interventions applied at or after wound

closure. The following peri-operative interventions for total knee arthroplasty have been reviewed:

## Pre-operative Recommendations for total knee arthroplasty

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| **Pre-operative recommended** | • *Regional analgesia:*<br>– Femoral nerve block (Grade A)<br>– Spinal LA + opioid (but not as the first choice, Grade D). Morphine is recommended as the opioid (Grade A) |

## Intra-operative Recommendations for total knee arthroplasty

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| **Intra-operative recommended** | • *Regional analgesia/anaesthesia:*<br>– GA + femoral nerve block (Grade D) *or*<br>– Spinal LA + femoral nerve block (Grade D) *or*<br>– Spinal LA + morphine (but not as the first choice, Grade D) |

## Postoperative Recommendations for total knee arthroplasty

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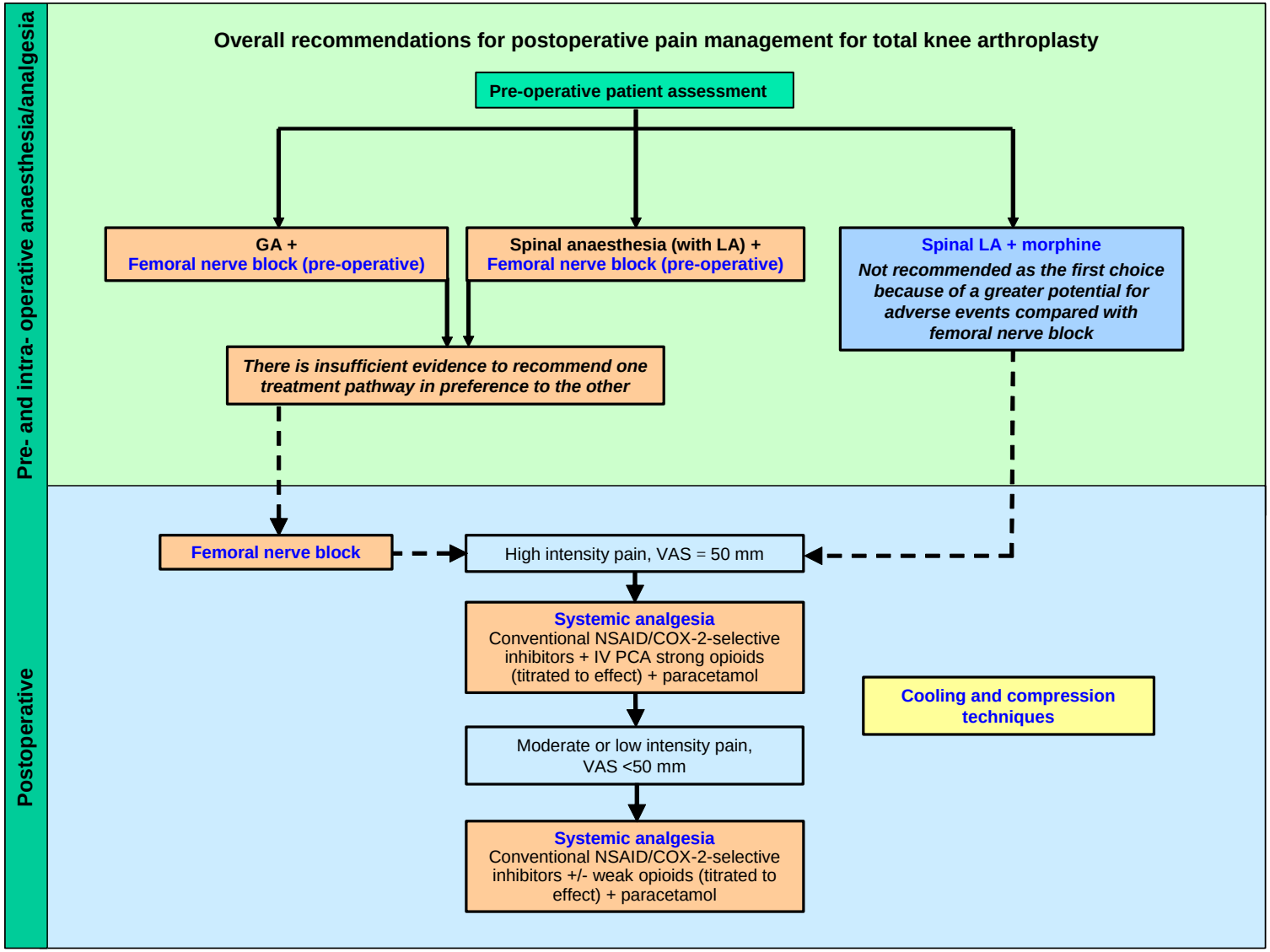
| **Post-operative recommended** | • *Systemic analgesia:*<br>– Conventional NSAID/COX-2-selective inhibitors (Grade A) + strong opioids (Grade A), titrated to effect (for high intensity pain) + paracetamol (Grade B)<br>– Conventional NSAID/COX-2-selective inhibitors (Grade A) +/- weak opioids (Grade B), titrated to effect (for moderate or low intensity pain) + paracetamol (Grade B)<br>• *Regional analgesia:*<br>– Femoral nerve block (Grade A)<br>• Continuous passive motion (for reasons other than analgesia) (Grade A)<br>• Intensive rehabilitation (for reasons other than analgesia) (Grade D) |

# Overall Recommendations



# Not recommended for TKA

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| **Pre-operative not recommended** | • *Systemic analgesia:*<br>– **Alpha-2-delta subunit ligands** (gabapentinoids) (Grade D), due to a lack of procedure-specific evidence<br>– **Conventional NSAIDs** (Grade B) because of limited procedure-specific evidence and increased risk of bleeding<br>– **Corticosteroids** (Grade D) due to a lack of procedure-specific evidence (may be used for reasons other than postoperative analgesia)<br>– **NMDA antagonists**<br>○ **Dextromethorphan** (Grade D) due to inconsistent evidence of analgesic effects<br>○ **Ketamine** (Grade D) because of limited procedure-specific evidence<br>– **Strong opioids** (Grade D) due to a lack of evidence for analgesic benefit over postoperative administration<br>• *Peripheral nerve blocks:*<br>– **Combination femoral and obturator block** (Grade D) because of limited procedure-specific evidence<br>– **Combination femoral and sciatic nerve block** (Grade D) because of limited and inconsistent procedure-specific evidence<br>– **Lumbar plexus block** (posterior approach) (Grade D), as femoral nerve block is equally effective and is associated with fewer complications<br>– **Alpha-2-adrenoceptor agonists** (clonidine, epinephrine), as part of the LA solution in peripheral nerve blocks (Grade A) due to a lack of efficacy in procedure-specific studies<br>• *Epidural:*<br>– **LA and/or opioid** (Grade B) due to an increased risk of adverse events and no improvement in analgesia compared with femoral nerve block<br>– **Ketamine** (as adjuvant to epidural) (Grade B) due to side-effects and inconclusive analgesic efficacy<br>– **Tramadol** (as adjuvant to epidural) (Grade B) because of insufficient analgesia<br>• *Spinal:*<br>– **Neostigmine** (Grade D) because of side-effects and limited procedure-specific evidence<br>– **Clonidine** (Grade D) because of limited and inconsistent procedure-specific evidence<br>• **Intra-articular techniques** (Grade D) because of inconsistent evidence<br>• **Physical therapy** (Grade D) based on postoperative analgesic effects alone |
| **Intra-operative not recommended** | • *Systemic analgesia:*<br>– **NMDA antagonists**<br>○ **Dextromethorphan** (Grade D) because of inconsistent analgesia<br>○ **Ketamine** (Grade D) due to limited procedure-specific evidence |

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| | – **Weak opioids** (Grade D) due to lack of evidence for analgesic benefit over postoperative administration<br>• **Peripheral nerve blocks administered intra-operatively** (Grade D)<br>• **GA or spinal anaesthesia without any local or regional analgesic technique** (Grade D)<br>• **Epidural anaesthesia** (Grade D) because postoperative epidural analgesia is not recommended<br>• **Intra-articular techniques** (Grade D) because of inconsistent analgesia<br>• **Drains** (Grade A) due to lack of analgesic and other recovery benefits |
| **Postoperative not recommended** | • *Systemic analgesia:*<br>– **Alpha-2-delta subunit ligands** (gabapentinoids) (Grade D) due to lack of procedure-specific evidence<br>– **Clonidine** (Grade D) because of limited procedure-specific evidence<br>– **IV ketamine infusion** (Grade D) because of limited procedure-specific evidence<br>– **IM administration of strong opioids** (Grade B) due to unfavourable pharmacokinetics, injection-associated pain and patient dissatisfaction<br>– **Weak opioids** for high intensity pain (Grade D) due to insufficient analgesic efficacy<br>– **Paracetamol alone** for high intensity pain (Grade D) due to insufficient analgesic efficacy<br>• *Peripheral nerve blocks:*<br>– **Combination femoral and obturator block** (Grade D) because of limited procedure-specific evidence<br>– **Combination femoral and sciatic nerve block** (Grade D) because of limited and inconsistent procedure-specific evidence<br>– **Lumbar plexus block** (posterior approach) (Grade D), as femoral nerve block is equally effective and is associated with fewer complications<br>– **Alpha-2-adrenoceptor agonists** (clonidine, epinephrine), as part of the LA solution in peripheral nerve blocks (Grade A) due to a lack of efficacy<br>• *Epidural:*<br>– **LA and/or opioid** (Grade B) due to an increased risk of adverse events and no improvement in analgesia compared with femoral nerve block<br>– **Ketamine** (as adjuvant to epidural) (Grade B) due to side-effects and inconsistent analgesic efficacy<br>– **Tramadol** (as adjuvant to epidural) (Grade B) because of insufficient analgesia<br>• **Intra-articular techniques** (Grade D) because of inconsistent analgesia<br>• **TENS** (Grade B) due to limited procedure-specific evidence suggesting a lack of benefit |