SUMMARY RECOMMENDATIONS

Notes on PROSPECT recommendations

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. Grades of recommendation (GoR) are assigned according to the overall level of evidence (LoE) on which the recommendations are based, which is determined by the quality and source of evidence.

Grades of recommendation (GoR) based on source and level of evidence (LoE): Summary table

An explanation of how study quality assessments are performed to determine the LoE and GoR can be found at the following link: C-Section: levels of evidence and grades of recommendation.

The AGREE II instrument (Brouwers 2010) is used internationally to assess the methodological rigour and transparency of practice guidelines. As far as possible, the methodology of the PROSPECT C-Section review meets the requirements of 'Domain 3: Rigour of development' of the AGREE II instrument:

- Systematic methods were used to search for evidence.
- The criteria for selecting the evidence are clearly described.
- The strengths and limitations of the body of evidence are clearly described.
- The methods for formulating the recommendations are clearly described.
- The health benefits, side effects, and risks have been considered in formulating the recommendations.
- There is an explicit link between the recommendations and the supporting evidence.
- The guideline has been externally reviewed by experts prior to its publication. [The evidence and recommendations will be submitted for peer-review after publication on the PROSPECT website]
- A procedure for updating the guideline is provided. [Methodology is provided so that the systematic review can be updated as required]

Summary recommendations

Pre-operative interventions that are recommended for C-Section Note: Unless otherwise stated, 'pre-operative' refers to interventions applied before surgical incision Note: Analgesics should be administered at the appropriate time (pre- or intra-operatively) to provide sufficient analgesia in the early recovery period	
Oral gabapentin	• A single dose of pre-operative oral gabapentin is recommended (GoR A) for improving postoperative pain relief (LoE 1)
Anaesthetic techniques and co-administered analgesics	
Anaesthetic techniques: Combined spinal-epidural anaesthesia or spinal anaesthesia	• Combined spinal-epidural anaesthesia or spinal anaesthesia are recommended (GoR A) based on procedure-specific evidence (LoE 1) • There is no evidence of analgesic benefit to recommend general anaesthesia over neuraxial anaesthesia (i.e., epidural anaesthesia, spinal anaesthesia, and combined spinal epidural anaesthesia), due to lack of direct comparative studies focusing on postoperative analgesia (GoR D). • However, neuraxial anaesthesia techniques are recommended for safety reasons (e.g., neuraxial anaesthesia obviates the need for airway manipulation and avoids the postoperative sedative effects of general anaesthetics) (GoR D)
Intrathecal opioid analgesia	• Intrathecal morphine below 200 µg is recommended if the patient has received spinal anaesthesia (GoR A) based on procedure-specific evidence for improved postoperative analgesia (LoE 1) • However, due to opioid-related side effects, including delayed respiratory depression, alternative analgesic techniques should be considered
Epidural opioid analgesia	• Epidural opioids are recommended if the patient has received epidural anaesthesia (GoR A) based on procedure-specific evidence for improved postoperative analgesia (LoE 1) • However, due to opioid related side effects, including delayed respiratory depression, alternative analgesic techniques should be considered
Surgical techniques that are recommended for C-Section	
Surgical techniques: Transverse abdominal incision and non-closure of the peritoneum	• Transverse abdominal incision is recommended over vertical incision (GoR A, LoE 1). Amongst transverse incisions the Joel-Cohen incision and similar modifications are superior to the Pfannenstiel incision for outcomes related to postoperative pain (GoR A, LoE 1) • Non-closure of the peritoneum is recommended (GoR A) based on procedure-specific evidence for postoperative analgesia (LoE 1)
Intraoperative interventions that are recommended for C-Section Note: Unless otherwise stated, 'intra-operative' refers to interventions applied after incision and before wound closure. In C-Section, 'post-delivery' refers to administration after the umbilical cord is clamped and the baby is delivered. Note: Analgesics should be administered at the appropriate time (pre- or intra-operatively) to provide sufficient analgesia in the early recovery period	
Post-delivery IV NSAIDs	• Post-delivery NSAIDs are recommended (GoR A) based on procedure-specific evidence (LoE 1), even in breastfeeding women (LoE 3)
Post-delivery IV paracetamol	• Post-delivery paracetamol is recommended (GoR A) based on procedure-specific evidence (LoE 1)

Post-delivery iliohypogastric and ilioinguinal blocks	• Bilateral iliohypogastric and ilioinguinal blocks are recommended (GoR A) based on procedure-specific evidence for postoperative analgesia (LoE 1)
Post-delivery bilateral TAP blocks	• Bilateral TAP blocks are recommended (GoR A) based on procedure-specific evidence for postoperative analgesia (LoE 1)
Post-delivery wound infiltration with local anaesthetics	• Wound infiltration with local anaesthetics is recommended (GoR A) based on procedure-specific evidence (LoE 1)
Postoperative interventions that are recommended for C-Section Note: 'Postoperative' refers to interventions applied at or after wound closure Note: Analgesics should be administered at the appropriate time (pre- or intra-operatively) to provide sufficient analgesia in the early recovery period	
Oral NSAIDs	• Postoperative NSAIDs are recommended (GoR A) based on procedure-specific evidence (LoE 1), even in breastfeeding women (LoE 3)
Oral paracetamol	• Postoperative paracetamol is recommended (GoR A) based on procedure-specific evidence (LoE 1)
Systemic opioids as rescue analgesia	• Systemic opioids provide effective analgesia (GoR A, LoE 1), but are only recommended as rescue analgesics due to side effects (GoR D)
Continuous wound infusion with local anaesthetics	• Continuous wound infusion with local anaesthetics is recommended (GoR A) based on procedure-specific evidence (LoE 1)

Overall Recommendations: Pain Management for Elective Caesarean Section Surgery

Pre-operative	Oral gabapentin
Pre-/intra-operative anaesthetic technique	CSEA or SpA*
Intra-operative, post-delivery	IV paracetamol + IV NSAID [#]
	Wound infiltration with LA **or** TAP blocks **or** iliohypogastric/ilioinguinal blocks
Surgical technique	Transverse incision†
	Non-closure of peritoneum
Postoperative	Oral paracetamol + oral NSAID + systemic opioid as rescue
	Continuous infusion with LA

* IT morphine/epidural opioids are recommended, but alternative analgesic techniques such as wound infiltration with LA, TAP block, iliohypogastric and ilioinguinal blocks should be considered to avoid the potential opioid-related side effects of neuraxial opioids
# IV paracetamol and IV NSAID may not be necessary if neuraxial opioids are used
† Amongst transverse incisions, the Joel-Cohen incision and similar modifications are superior to the Pfannenstiel incision for outcomes related to postoperative pain

Not recommended for C-Section

Dexamethasone	Pre-operative dexamethasone cannot be recommended at this time (GoR D) based on limited procedure-specific evidence
Neuraxial clonidine	Neuraxial clonidine is not recommended (GoR D), although procedure-specific evidence suggests it provides superior analgesia, because of side effects (e.g. hypotension)
Ketamine	Ketamine cannot be recommended at this time (GoR D) based on inconsistent procedure-specific evidence
TENS	TENS is not recommended (GoR D) based on limited procedure-specific evidence
Wound infiltration with NSAIDs	Wound infiltration with NSAIDs is not recommended at this time (GoR D) due to limited comparative data with systemic administration
Continuous wound infusion with NSAIDs	Continuous wound infusion with NSAIDs is not recommended (GoR D) based on limited procedure-specific evidence