

# Guidance on Competencies for Paediatric Pain Medicine



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### INTRODUCTION

The management of pain in childhood depends on a thorough understanding of the developmental and environmental factors that influence nociceptive processing, pain perception and the response to treatment during maturation from infancy to adolescence.

Nociceptive pathways are functional at birth. Painful stimuli trigger physiological and behavioural responses at all ages. However, developmental changes in the structure, function and modulation of pain pathways impact on the response to injury and analgesia. Repeated or severe painful experiences in early life may alter sensory processing and responses to pain in later life.

Pain assessment and measurement is essential to optimise pain management. Validated tools are available for different ages and clinical contexts. These range from composite measures that incorporate physiological and behavioural responses in neonates and infants through to self-report tools in older children.

Safe and effective pharmacological management of acute and procedural pain in neonates, infants and early childhood requires understanding of age-related changes in both the pharmacokinetic and pharmacodynamic profile of analgesics. Evidence based clinical practice guidelines incorporate both pharmacological and nonpharmacological techniques that can have complementary roles in acute pain management. The knowledge, skills, and attitudes of paediatric pain physicians must be appropriate to the developmental stage and clinical state of the patient, and also encompass the role of parents and/or carers.

Chronic pain is common in childhood and adolescence. Many of these individuals may be managed effectively in primary and secondary care by general practitioners and hospital specialists. However, some children and young people develop complex pain presentations which are challenging to manage effectively and require input from specialist multidisciplinary paediatric pain services with teams which include physicians with advanced pain training, paediatricians, psychologists, physiotherapists, occupational therapists and specialist nurses.

Pain physicians require the skills, knowledge, behaviour and attitudes to work within and lead multidisciplinary teams to enable effective management.

The Faculty of Pain Medicine of the Royal College of Anaesthetists is concerned with the professional standards of Pain Medicine specialists, so this document focuses on the Pain Medicine specialist's contribution to Paediatric Pain Medicine (PPM).

This document describes two levels of involvement in the practice of PPM:

- The first level outlines the core knowledge, skills and attitudes for all anaesthetists specialising in Pain Medicine who may need to be involved with this area e.g. making timely and appropriate referrals for paediatric pain management and emergency management of a child with pain. Whilst it is recognised that not all Pain Medicine specialists will be directly involved in providing a paediatric pain service, all need to have an understanding of this area (see section A and Appendix A, below).
- The second level outlines the advanced knowledge, skills and attitudes required of Pain Medicine specialists who work in teams providing a paediatric pain service. These competencies reflect those of the paediatric pain module which is an option at Advanced level of Pain Medicine training of the Royal College of Anaesthetists' CCT in Anaesthetics curriculum, which sets out competencies for trainees who elect to take a deeper interest in this area of Pain Medicine practice (see section B and Appendix B, below).

### GUIDELINES

#### A: CORE COMPETENCIES FOR PRACTITIONERS IN PAIN MEDICINE

##### Knowledge

- Knowledge of developmental neurobiology of pain: including mechanisms of nociception and hyperalgesia. Understand the long term neurophysiological consequences of pain in infancy and early childhood.
- Knowledge of developmental, contextual and practical considerations in acute, procedural and chronic pain assessment in infants, children and adolescents.
- Knowledge of ethical and legal aspects of prescribing for children including marketing authorisation and off-label prescribing.
- Understand the ethical and legal implications of the consent process in children and young people.
- Knowledge of the evidence-base for effective treatments for pain in children of different ages and in different contexts.
- Knowledge of principles of pain pharmacotherapy in infants, children and adolescents.
- Understand the principles of multidisciplinary management of pain in children and adolescents.
- Understand the biopsychosocial aspects of pain management in children, including the role of the family (or carer) and society.
- Understand the organisational aspects of children's pain services including acute (postoperative and procedural) pain, cancer pain and palliative care, and complex pain.
- Knowledge of safeguarding and child protection procedures evidenced by level 2 training
- Knowledge of relevant pathways for effective transition of young people from paediatric to adult services.

##### Attitudes and behaviours

- Effective communication with children and families/ carers.
- Effective communication with other healthcare professionals in primary and secondary care.
- Appreciation of appropriate skills mix for multidisciplinary pain management in children of different ages, abilities and social and educational needs.

##### Skills

- Accurate assessment of acute and chronic pain in infants, children and adolescents.
- Safe and effective pharmacological management of acute and procedural pain in children.
- Safe and effective prescription of pharmacotherapy for complex pain conditions in childhood.

## APPENDIX A: CURRICULUM

### 1. Basic sciences

- a. Development of nociception
- b. Mechanisms of hyperalgesia during development
- c. Age related changes in body composition, pharmacokinetics and pharmacodynamics

### 2. Pain assessment

- a. Acute pain measurement in infants, children and adolescents
- b. Observational and behavioural methods of pain assessment
- c. Pain assessment and outcome measures for complex pain

### 3. Prescribing and Pharmacology

- a. 'Off-label' drug use in children
- b. Effect of age on efficacy and safety. Appropriate use of analgesic drugs
- c. Developmental pharmacology of non-opioid analgesics
- d. Opioid pharmacology
- e. Methods of analgesic delivery

### 4. Evidence base for effective treatments

- a. Procedural pain
- b. Acute pain
- c. Complex pain management including neuropathic, visceral and musculoskeletal pain
- d. Cancer pain and palliative care
- e. Role of regional blocks and surgical interventions

### 5. Multidisciplinary management

- a. Role of non-pharmacological techniques in procedural and chronic pain
- b. Role of physical therapy, including pacing, in chronic pain
- c. Role of psychological therapies
- d. Role of complementary and alternative medicine

### 6. Biopsychosocial aspects

- a. Appreciation of the role of parents and carers in children's pain
- b. Level 2 training in safeguarding/child protection
- c. Transition of young people from paediatric to adult services

### GUIDELINES

#### **B: COMPETENCIES FOR PRACTITIONERS IN PAIN MEDICINE WHO ARE INVOLVED IN A PAEDIATRIC PAIN SERVICE OR ARE THE LEAD FOR TRANSITION OF ADOLESCENTS TO ADULT SERVICES**

More detailed knowledge, particularly concerning neonates and premature infants, is required for practitioners specialising in paediatric pain medicine. Knowledge, skills and behaviour are also needed with regard to organisational aspects, audit and research.

##### **Knowledge**

- Detailed knowledge of developmental neurobiology of pain: including mechanisms of nociception and hyperalgesia. The ontogeny of neuropathic and visceral pain. Knowledge of the mechanisms and significance of the long term neurophysiological consequences of pain in infancy and early childhood.
- Knowledge of developmental, contextual and practical considerations in acute, procedural and complex pain assessment in neonates, infants, children and adolescents.
- Knowledge of ethical and legal aspects of prescribing for children including marketing authorisation and off-label prescribing.
- Understand the ethical and legal implications of the consent process in children and young people.
- Detailed knowledge of evidence-base for effective treatments for pain in children of different ages and in different contexts.
- Detailed knowledge of pain pharmacotherapy in neonates, infants, children and adolescents.
- Understand the biopsychosocial aspects of pain management in children: e.g. the role of the family/ carers and society in children's pain.
- Understand the provision of health, educational and social services for children and an appreciation of effective multidisciplinary working.
- Understand the organisational aspects of children's pain services including acute (postoperative and procedural) pain, cancer pain, palliative care, and chronic pain.
- Understand the principles and practicalities of Pain Management Programmes for children and adolescents.
- A minimum of level 2 safeguarding/child protection training. Level 3 training is recommended for pain physicians working within a specialist paediatric pain service.
- Knowledge of relevant pathways for effective transition of young people from paediatric to adult services.

### Attitudes and behaviours

- Effective communication with children and their families / carers.
- Effective communication with other healthcare professionals in primary and secondary care.
- Effective communication and liaison with social, educational and community paediatric services.
- Appreciate the appropriate skill mix required for multidisciplinary pain management in children of different ages, abilities, social and educational needs.
- Ability to take an effective leadership role in children's pain management.

### Skills

- Accurate assessment of pain in neonates, infants, children and adolescents including the premature neonate and child with neurodevelopmental delay.
- Safe and effective pharmacological management of acute and procedural pain for all ages including the premature neonate.
- Safe and effective pharmacological management of complex pain conditions in childhood.
- Ability to participate in multidisciplinary management of complex and cancer pain in children.
- Ability to perform necessary practical procedures for safe, effective evidence-based practice.
- Ability to manage transition from paediatric to adult services where appropriate.
- Ability to recognise and make appropriate referral of children, adolescents and families with associated problems e.g. eating disorders, suicidal ideation, concerns of fabricated illness.
- Ability to recognise pain expression as a potential part of sensory processing disorders / autistic spectrum conditions and make appropriate referral.
- Ability to recognise pain expression as a potential sign of abuse or trauma and engage in appropriate safeguarding procedures.



## APPENDIX B: CURRICULUM

### 1. Basic sciences

- a. Development of nociception
- b. Mechanisms of hyperalgesia in development
- c. Age related changes in body composition, pharmacokinetics and pharmacodynamics
- d. Age related changes in response to injury and potential for long term changes
- e. Ontogeny of neuropathic and visceral pain

### 2. Pain assessment

- a. Acute pain measurement in neonates, infants, children and adolescents
- b. Observational and behavioural methods of pain assessment
- c. Validation of pain assessment tools and the influence of age and context
- d. Pain assessment in the premature neonate
- e. Pain assessment in children with neurodevelopmental delay
- f. Pain assessment and outcome measures for complex pain

### 3. Prescribing and Pharmacology

- a. 'Off-label' drug use in children
- b. The Paediatric Rule and PIP (Paediatric Investigation Plan)
- c. Effect of age on efficacy and safety. Appropriate use of analgesic drugs
- d. Developmental pharmacology of non-opioid analgesics and adjuvant drugs
- e. Opioid pharmacology
- f. Methods of analgesic delivery

### 4. Evidence base for effective treatments

- a. Procedural pain
- b. Acute pain
- c. Complex pain management including neuropathic, visceral and musculoskeletal pain
- d. Cancer pain and palliative care

### 5. Multidisciplinary management

- a. Role of regional blocks and surgical interventions
- b. Role of non-pharmacological techniques in the management of procedural and chronic pain
- c. Role of physical therapy, including pacing, desensitisation, TENS and acupuncture in chronic pain
- d. Role of psychological therapies
- e. Role of complementary and alternative medicine

**6. Biopsychosocial aspects**

- a. Appreciation of the role of parents and carers in children's pain
- b. The child in society
- c. Provision of health, education and social services
- d. Safeguarding and child protection procedures

**7. Organisational aspects: Provision of pain services for children**

- a. Acute, postoperative and procedural pain
- b. Cancer pain and palliative care
- c. Complex pain
- d. Pain Management Programmes for children and adolescents
- e. Requirements for transition of young people from paediatric to adult services

**8. Audit and research**

- a. The importance of clinical audit and governance, including data collection regarding indications for treatment, effectiveness of therapy and adverse events
- b. Understand developmental models in laboratory research
- c. Evaluate clinical research evidence.

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## GUIDELINE REVIEW

Please email [contact@fpm.ac.uk](mailto:contact@fpm.ac.uk) with any feedback regarding the content of this guidance.

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