

# Assessment and Management of Children with Chronic Pain

A Position Statement from the American Pain Society

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## Significance of the Problem

Chronic pain (defined as persistent and recurrent pain) is a significant problem in the pediatric population, conservatively estimated to affect 20% to 35% of children and adolescents around the world (King et al., 2011; Stanford, Chambers, Biesanz, & Chen, 2008). The most common chronic pain conditions are musculoskeletal pain, headaches, and abdominal pain.

Children\* may experience physical and psychological sequelae and their families may experience emotional and social consequences as a result of pain and associated disability. Childhood pain brings significant direct and indirect costs from healthcare utilization and lost wages due to taking time off work to care for the child (Ho et al., 2008; Sled, Eccleston, Beecham, Knapp, & Jordan, 2005). In addition, longitudinal studies provide convincing evidence to suggest that childhood chronic pain predisposes both for the continuation of pain and the development of new forms of chronic pain in adulthood (Walker, Dengler-Crish, Rippel, & Bruehl, 2010).

## Conceptualization of Pediatric Chronic Pain

While acute pain that follows bodily injury is generally self-limited, in some patients the pain persists beyond the expected healing time (arbitrarily defined as >3–6 months) and develops into a chronic persistent or recurrent pain syndrome. Chronic pain in children is the result of a dynamic integration of biological processes, psychological factors, and socio-cultural factors considered within a developmental

trajectory. This category of pain includes persistent (ongoing) and recurrent (episodic) pain in children with chronic health conditions (e.g., arthritis or sickle cell disease) and pain that is the disorder itself (e.g., migraines, functional abdominal pain, complex regional pain syndrome).

Chronic pain affects the entire nervous system. The term central sensitization, which is the increased central neuronal responsiveness to painful and non-painful stimuli, has been used to describe any central nervous system dysfunction or pathology that may be contributing to the development or maintenance of many types of chronic pain (Woolf, 2011). A complaint of pain often coaggregates with other bodily pains and with centrally mediated symptoms such as fatigue, sleep problems, and cognitive and mood disturbances. The interaction between pain and other symptoms can be considerable. The attempt to dichotomize the presentation and discuss the cause as either biological or psychological is an oversimplification and often detrimental to optimal assessment and management of chronic pain. Patients who present with various chronic pain experiences typically share common behavioral and clinical features. An overall understanding of the natural history of chronic pain and its pathophysiology is incomplete, and the medicalization of symptoms into distinct syndromes remains controversial. Therefore, both the assessment and management of chronic pain in children must be based on the multidimensional pain experience and take into account the contribution of psychological factors, social factors, and biological processes.

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\* This term refers to all individuals in the 0–18 year age range (i.e., infants, children, and adolescents).

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## **Assessment of Chronic Pain**

Comprehensive clinical assessment of a child with chronic pain and associated disability should ideally include consideration of the biological, biomechanical, psychological, and sociocultural factors within a developmental context. The initial evaluation should include a complete medical and pain history, including onset, intensity, quality, location, duration, variability, predictability, exacerbating, and alleviating factors. Ongoing management and reassessment, however, should avoid reinforcing a concern for pain intensity and rather focus on functional indicators of improvement. Psychosocial assessment of the child and family focuses on an assessment of the child's emotional functioning, coping skills, and impact of pain on daily life including sleeping, eating, school, social and physical activities, and family and peer interactions. A complete physical and neurological examination that includes observation of the child's general appearance, posture, and gait should be performed with the focus on but not limited to the affected area. Basic vital signs and growth parameters should be obtained during at least the first evaluation. Judicious laboratory and radiological studies are useful if a specific disease is suspected. A referral should be made to pediatric interdisciplinary pain management clinics affiliated with hospitals or community collaborative pain medicine specialist groups (pain medicine clinicians and physicians including mental health providers, physical therapists, occupational therapists, etc.) when the diagnosis is in question or subspecialty management is required. Younger children and those with spasticity or developmental disabilities may require serial examinations. One should invite greater participation of caretakers in the assessment of these patients to better understand behavioral responses to pain and response to treatment.

## **Treatment of Pediatric Chronic Pain**

Because of the multifaceted nature of chronic pain, early management of chronic pain and associated disability is crucial for achieving a treatment outcome. This is best achieved within the context of a biopsychosocial model (using an interdisciplinary team approach), which is more effective than

any single stand-alone therapy (Gatchel & Okifugi, 2006). Treatment strategies should be based on the findings of the assessment and should address the inciting and contributing factors. Referral to a pediatric pain program should be considered for children with complex or refractory problems.

The primary goal of chronic pain management is to improve all domains of functioning and quality of life. Children with chronic pain and disability benefit the most from interdisciplinary programs that incorporate cognitive behavioral therapy (identifying links between behavior, thoughts, and feelings) into rehabilitation programs of functional restoration through physical and occupational rehabilitation and standard medical care. School reintegration and addressing significant sleep disturbances are important treatment targets. Intensive pain rehabilitation programs (several hours per day of treatment) using interdisciplinary treatment approaches are an option for children who are unable to receive or benefit from outpatient management (Eccleston, Malleon, Clinch, Connell, & Sourbut, 2003; Hechler et al., 2009). Parents are an important part of treatment of children with chronic pain, and strategies to teach parents adaptive responses to their child's pain can bolster rehabilitation efforts.

Evidence-based treatments should be used in the care of children with chronic pain. Currently, the strongest evidence base exists for the efficacy of psychological interventions (e.g., relaxation strategies, parent interventions, cognitive strategies) for reducing pain in children, and this should be routinely recommended to children with chronic pain (Palermo, Eccleston, Lewandowski, Williams, & Morley, 2010). Pharmacologic interventions currently employed are primarily extrapolated from adult trials without evidence of efficacy in children. Pain is a complex phenomenon and the psychological dimensions of medical interventions complicate treatment responses. High-quality pediatric, randomized, double-blind, placebo-controlled trials are needed to demonstrate efficacy and safety of analgesics for various chronic pain conditions in children rather than continued use of analgesics empirically (Saps et al., 2009). Opioids are rarely indicated in the long-term treatment of chronic nonmalignant

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pain in children, although they may be beneficial in certain painful conditions with clearly defined etiologies (e.g., sickle cell disease, incurable degenerative joint and neurodegenerative diseases, etc.). Consultation or referral to a pediatric chronic pain specialist should be strongly considered in these cases. Data on use of analgesics, procedural interventions, and complementary treatments are based primarily on open-label studies. Each individual treatment offers transient and limited pain relief and may be useful in certain patients.

### **Professional Education**

Pain assessment and management should be part of the educational curriculum of all health professionals who care for children. Topics should include the complexity of chronic pain, pain management in the developmentally delayed, and pain care at the end of life. Interdisciplinary pediatric pain programs are a particularly valuable resource for this training. Many children feel misunderstood and disbelieved when seeking medical advice to identify and treat the cause of their pain. It is essential that healthcare professionals provide children with the opportunity to communicate their unique perspective and assist them to understand their pain experience (Dell'Api, Rennick, & Rosmus, 2007). Similarly, parents report feeling blamed and stigmatized for promoting their child's pain (Jordan, Eccleston, & Osborn, 2007). If left unaddressed, these perceptions can seriously interfere with assessment and treatment planning (Palermo, 2012).

### **Research Agenda**

More research is needed to provide evidence-based multidisciplinary treatments in chronic pediatric pain. In order to address this need, targeted government and private funding for research are necessary to better understand complex chronic pain conditions and development of cost-effective therapies in children. The treatment of chronic pediatric pain would benefit from the development and support of cooperative pediatric chronic pain research consortia.

Examples of key scientific areas that need to be developed include mechanisms of chronic pain, pain genetics, biomarkers of pain, studies of clinical

algorithms for pain treatment, epidemiology of chronic pain, comprehensive patient-oriented assessment tools, screening and prediction of chronic pain risk, and evaluations of novel treatment strategies and innovative treatment delivery methods (e.g., computerized delivery of treatment interventions). A key priority for future research is mechanism-based pharmacological interventions for chronic pain in children and direct comparison of pharmacological treatments to each other and to placebo. Clinical studies should focus on standard outcome domains (e.g., measures of physical and emotional functioning, economic costs) in order to bring greater uniformity to pain trials and to make comparisons among new data more meaningful (McGrath et al, 2008).

### **Policy**

The 1989 United Nations Convention on the Rights of the Child reinforces “the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health.” The provision of pain management needs to be supported by national policies and regulations. Although pain clinicians, patient families, advocacy groups, and organizations are playing an important role in engaging and supporting policy makers toward improving access to chronic pain management, children continue to struggle with accessing and receiving appropriate and specialized pain care. Advocacy efforts are needed to ensure that chronic pain is considered in healthcare initiatives for children. It is unacceptable for insurers to cover only a medical evaluation for a child with chronic pain. Children with chronic pain are best cared for with interdisciplinary assessment and management, which requires a combination of medicine, psychology, and rehabilitation services for all pediatric patients referred for assessment and management of chronic pain. Reimbursement policies should reflect the multidisciplinary complexity and efforts required to assess and treat children with chronic pain. The cost of such programs may be thought to be high, but the financial burden of pain on the individual, family, community, and society is often much greater and frequently hidden from view.

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