

## Supplementary materials

Algorithm for pain management during procedures (adaptation from<sup>1,2,3</sup>):

Firstly, an individualized preparation and parental presence is required in order to reduce pain intensity, anxiety and distress. It is useful to consider that any medical procedure essentially consists of three main phases: anticipatory/preparatory, procedural, recovery.

1. Prior to the procedure the information concerning parents/caregivers and children/teens to reduce anxiety and pain should be discussed. Allow parent to stay during the entire procedure.
2. During the procedure, we should manage pain and anxiety by the most effective combination of pharmacological and psychological techniques. Do not perform these tasks mechanically.
3. At the end of the procedure monitoring is crucial to encourage the child to use his/her own coping skills and to praise the child and the parents for their coping efforts and their contribution to a successful procedure.

Algorithm for children/adolescents with chronic pain (adaptation by<sup>4</sup>):

1. Evaluation of the child including comprehensive medical and pain history, prognostic factors, pain location, onset, duration, quality, variability, exacerbating and alleviating factors.  
The use of validated tests emotional functioning, coping strategies and specific pain behavior are recommended.
2. Treatment should also be focused on pain-related disability including impact of pain on daily life such as sleep, school, eating, social and physical activities, with the goal to increase child functioning and improve his/her quality of life).
3. Consider both primary and secondary causes (current nociceptive and neuropathic components, attenuating physical symptoms, contributing psychological factors, peer and social issues).
4. Select appropriate therapies to improve overall functioning and quality of life (pharmacological, physical, psychological).
5. Implement pain management plan, maintenance and relapse prevention (provide pain diagnosis, feedback on cause and contributing factors and also a rationale for integrated treatment program).

Transversely, to ensure most effective methods of treatment and interventions, parental involvement is an important aspect to be considered, through an assessment of both child and parent to decide whether it is appropriate to include the parent and his role.<sup>5</sup>

1. Young, K. Pediatric procedural pain. *Annals Of Em Med*, 2005; 45: 160-171.
2. Liossi C. *Procedure-Related Cancer Pain in Children*. Oxford: Radcliffe Medical Press, 2002.
3. Taddio A, McMurtry CM, Shah V, et al. Reducing pain during vaccine injections: clinical practice guideline. *CMAJ*. 2015; 187: 975-82.
4. Twycross A, Dowden S and Stinson J. *Managing pain in children: a clinical guide for nurses and healthcare professionals*. Chichester : Wiley-Blackwell, 2014, p.201.
5. Rook S and Gauntlett-Gilbert J. Parent involvement in pediatric pain interventions. *Pediatric Pain Letter* 2016; 18: 9-13.