

Pain in Children: Management

International Association for the Study of Pain



Given the dependency of children upon adults with regard to pain assessment, prevention, and treatment, children 0-17 years are a vulnerable population and in need of special attention with regard to pain management.

Pain experiences, including acute and chronic, are common in infants, children, and adolescents. Data from children's hospitals reveal that pain in pediatric patients is common, under-recognized and under-treated [3,15,35,38,47,50,54]. A recent systematic review showed that neonates admitted to intensive care units frequently suffer through an average of 7 to 17 painful procedures per day, with the most frequent procedures being venipuncture, heel lance, and insertion of a peripheral venous catheter [3]. In the vast majority of infants, no analgesic strategies are employed [33]. In addition, children with serious medical conditions are exposed to frequent painful diagnostic and painful procedures (e.g., bone marrow aspirations, lumbar punctures). Furthermore, even healthy children have to undergo significant amounts of painful medical procedures throughout childhood. Vaccinations are the most commonly performed needle procedure in childhood, and pain is a common reason for vaccine hesitancy [9,25,41].

Exposure to severe pain without adequate pain management has negative long-term consequences, including increased morbidity (e.g., intra-ventricular hemorrhage) and mortality [2,42]. Exposure to pain in premature infants is associated with higher pain self-ratings during venipuncture by school age [52], poorer cognition, and motor function [19]. Research has shown that exposure to pain early in life has long-lasting consequences in terms of increases in the risk for developing problems in adulthood (chronic pain, anxiety and depressive disorders). Adequate management of infant and child pain is imperative [5,21,53].

Management of needle pain in children

Untreated needle pain, caused by procedures such as vaccinations, blood draws, injections, venous cannulation etc., can have long-term consequences including needle phobia, pre-procedural anxiety, hyperalgesia, and avoidance of healthcare, resulting in increased morbidity and mortality [39,40]. Current evidence [39,44,46], supported by guidelines from the Canadian Pediatric Society [6,23], HELPinKids [1,29,30,43], and recently brought forward by science-to-social media campaigns ("Be Sweet to Baby" [8] and especially "It Doesn't Have to Hurt" by Chambers et.al [7]), strongly suggests that four bundled modalities should be offered for elective needle procedures in order to reduce or eliminate pain experienced by children [13].



© Copyright 2019 International Association for the Study of Pain. All rights reserved.

IASP brings together scientists, clinicians, health-care providers, and policymakers to stimulate and support the study of pain and translate that knowledge into improved pain relief worldwide.

In general, it is recommended that healthcare professionals and parents use neutral words and avoid language that can increase fear and may be falsely reassuring (e.g., “it will be over soon”; “you will be ok”). A recent Cochrane review identified sufficient evidence for the effectiveness of Cognitive-Behavioral Therapy, breathing interventions, distraction, and hypnosis for reducing children’s pain and/or fear due to needles [4]. Offering four simple steps (and not just some of them) for all needle procedures for all children has now been implemented system-wide in children’s hospitals and pediatricians’ offices on several continents [13,31].

Box 1: Prevention and treatment of needle pain

Offer a bundle of 4 evidence-based modalities to all children:

- (1) **Topical Anesthesia, “Numb the skin,”** (for children 36 weeks corrected gestational age and older). Topical anesthetics include 4% lidocaine cream [45], EMLA-cream or needle-less lidocaine application via a J-tip® (sterile, single-use, disposable injector that uses pressurized gas to propel medication through the skin) [27,28].
- (2) **Sucrose [16,37] or breastfeeding [34]** for infants 0-12 months [8].
- (3) **Comfort positioning, “Do not hold children down.”** Restraining children for procedures is never supportive, creates a negative experience, and increases anxiety and pain [24]. For infants, consider swaddling, warmth, skin-to-skin contact, or facilitated tucking. For children six months and older, offer sitting upright, with parents holding them on their laps or sitting nearby.
- (4) **Age-appropriate distraction, [51]** such as toys, books, blowing bubbles or pinwheels, stress balls, and using apps, videos, or games on electronic devices.

Management of acute pain in children

Nociceptive pain might be due to tissue injury caused by disease, trauma, surgery, interventions and/or disease directed therapy. Untreated acute pain may lead to fear and even avoidance of future medical procedures.

Multimodal analgesia (see Box 2) is the current approach to address complex acute pain. Pharmacology alone (including basic analgesia, opioids, adjuvant analgesia) might not be sufficient to treat children with acute pain. The addition and integration of modalities, such as regional anesthesia, rehabilitation, effective psychosocial interventions [43], psychology, spirituality, as well as integrative (“non-pharmacological”) modalities, acts synergistically for more effective (opioid-sparing) pediatric pain control with fewer side effects than single analgesic or modality [12,34].



© Copyright 2019 International Association for the Study of Pain. All rights reserved.

IASP brings together scientists, clinicians, health-care providers, and policymakers to stimulate and support the study of pain and translate that knowledge into improved pain relief worldwide.

Box 2: Prevention and treatment of acute pain: Multimodal analgesia

Multimodal analgesia acts synergistically for more effective pediatric pain control with fewer side effects than single analgesic or modality

(1) **Medications** (depending on clinical scenario) might include:

- Basic analgesia (e.g. paracetamol/acetaminophen, NSAIDs, COX-2 inhibitors)
- Opioids (e.g. tramadol, morphine, methadone)
- Adjuvant analgesics (e.g. gabapentin, clonidine, amitriptyline)

(2) **Regional anesthesia** (e.g. neuroaxial infusion [epidural], peripheral/plexus nerve block, neurolytic block, intrathecal port/pump)

(3) **Rehabilitation** (e.g. physical therapy, graded motor imagery [32], occupational therapy)

(4) **Psychology** (e.g. cognitive behavioral therapy)

(5) **Spirituality** (e.g. chaplain)

(6) **Integrative (“non-pharmacological”) modalities** (e.g. mind-body techniques such as diaphragmatic breathing, bubble blowing, self-hypnosis, progressive muscle relaxation, biofeedback plus massage, aromatherapy, acupressure, acupuncture)

Management of chronic pediatric pain

Pediatric chronic pain is a significant problem with conservative estimates that posit 20% to 35% of children and adolescents are affected by it worldwide [17,26,36]. Pain experienced in children's hospitals is known to be common, under-recognized, and under-treated, with more than 10% of hospitalized children showing features of chronic pain [15,38,47,55]. Although the majority of children reporting chronic pain are not greatly disabled by it [22], about 3% of pediatric chronic pain patients require intensive rehabilitation [20].

The 2012 American Pain Society Position Statement, “Assessment and Management of Children with Chronic Pain”, indicates that chronic pain in children is the result of a dynamic integration of biological processes, psychological factors, and sociocultural variables, considered within a developmental trajectory [11]. Unlike in adult medicine, chronic pain in children is not necessarily defined by using arbitrary temporal parameters (e.g. 3 months), but rather employ a more functional definition such as “pain that extends beyond the expected period of healing” and “hence lacks the acute warning function of physiological nociception” [48,49].



© Copyright 2019 International Association for the Study of Pain. All rights reserved.

IASP brings together scientists, clinicians, health-care providers, and policymakers to stimulate and support the study of pain and translate that knowledge into improved pain relief worldwide.

An interdisciplinary approach combining (1) rehabilitation; (2) integrative medicine/active mind-body techniques; (3) psychology; and (4) normalizing daily school attendance, sports, social life, and sleep appear to be effective. As a result of restored function, pain improves and commonly resolves. Opioids are not indicated for primary pain disorders (including centrally mediated abdominal pain syndrome, primary headaches [tension headaches/migraines], and widespread musculoskeletal pain) and other medications, with few exceptions, are usually not first-line therapy.

A recent Cochrane review concluded that face-to-face psychological treatments might be effective in reducing pain outcomes for children and adolescents with headache and other types of chronic pain [10]. Psychological treatments have also been found to be effective for reducing pain-related disability in children and adolescents with mixed chronic pain conditions at post-treatment and follow-up, and for children with headache at follow-up. Types of psychological treatments that received the most research attention are Cognitive-Behavioral Therapy and Acceptance and Commitment Therapy.

Increasing evidence suggests that it is important to target parental catastrophizing thoughts, parental distress, and parental behaviors with regard to child pain (e.g., protective behaviors), which has led to recommendations to incorporate parents within the multidisciplinary treatment [18].

Box 3: Treatment of chronic pain and primary pain disorders [14]

- (1) Rehabilitation** (e.g. physical therapy, graded motor imagery [32], Occupational therapy)
- (2) Integrative (“non-pharmacological”) modalities** (e.g. mind-body techniques such as diaphragmatic breathing, bubble blowing, self-hypnosis, progressive muscle relaxation, biofeedback plus modalities such as massage, aromatherapy, acupressure, acupuncture)
- (3) Psychology** (e.g. cognitive behavioral therapy, acceptance and commitment therapy)
- (4) Normalizing Life** (usually life gets back to normal first, then pain goes down – not the other way around)
 - Sports / exercise
 - Sleep-hygiene
 - Social life
 - School attendance
- (5) Medications** (may or may not be required)
 - Basic analgesia (e.g. paracetamol/acetaminophen, NSAIDs, COX-2 inhibitor)
 - Adjuvant analgesics (e.g. gabapentin, clonidine, amitriptyline)
 - Of note: Opioids in the absence of new tissue injury, e.g. epidermolysis bullosa, osteogenesis imperfecta, are usually NOT indicated

REFERENCES

- [1] Help ELiminate Pain in Kids & Adults <http://phm.utoronto.ca/helpinkids/index.html>, 2018.
- [2] Anand KJ, Barton BA, McIntosh N, Lagercrantz H, Pelausa E, Young TE, Vasa R. Analgesia and sedation in preterm neonates who require ventilatory support: results from the NOPAIN trial. Neonatal Outcome and Prolonged Analgesia in Neonates. Arch Pediatr Adolesc Med 1999;153(4):331-338.
- [3] Birnie KA, Chambers CT, Fernandez CV, Forgeron PA, Latimer MA, McGrath PJ, Cummings EA, Finley GA. Hospitalized children continue to report undertreated and preventable pain. Pain Res Manag 2014;19(4):198-204.
- [4] Birnie KA, Noel M, Chambers CT, Uman LS, Parker JA. Psychological interventions for needle-related procedural pain and distress in children and adolescents. Cochrane Database Syst Rev 2018;10:CD005179.
- [5] Brattberg G. Do pain problems in young school children persist into early adulthood? A 13-year follow-up. Eur J Pain 2004;8(3):187-199.
- [6] Canadian Paediatric Society. Reduce the Pain of Vaccination in Babies, 2014.
- [7] Centre for Pediatric Pain Research. It Doesn't Have to Hurt, 2016.
- [8] CHEO's Be Sweet to Babies research team and the University of Ottawa's School of Nursing. Be Sweet to Babies, 2014.
- [9] Edwards KM, Hackell JM, Committee On Infectious Diseases TCOP, Ambulatory M. Countering Vaccine Hesitancy. Pediatrics 2016;138(3).
- [10] Fisher E, Law E, Dudeney J, Palermo TM, Stewart G, Eccleston C. Psychological therapies for the management of chronic and recurrent pain in children and adolescents. Cochrane Database Syst Rev 2018;9:CD003968.
- [11] Force APSPCPT. Assessment and Management of Children with Chronic Pain. A Position Statement from the American Pain Society, 2012.
- [12] Friedrichsdorf SJ. Prevention and Treatment of Pain in Hospitalized Infants, Children, and Teenagers: From Myths and Morphine to Multimodal Analgesia. Pain 2016: Refresher Courses 16th World Congress on Pain. Washington, D.C: International Association for the Study of Pain, IASP Press, 2016. pp. 309-319.
- [13] Friedrichsdorf SJ, Eull D, Weidner C, Postier A. A hospital-wide initiative to eliminate or reduce needle pain in children using lean methodology. Pain Rep 2018;3(Suppl 1):e671.
- [14] Friedrichsdorf SJ, Giordano J, Desai Dakoji K, Warmuth A, Daughtry C, Schulz CA. Chronic Pain in Children and Adolescents: Diagnosis and Treatment of Primary Pain Disorders in Head, Abdomen, Muscles and Joints. Children (Basel) 2016;3(4).
- [15] Friedrichsdorf SJ, Postier A, Eull D, Weidner C, Foster L, Gilbert M, Campbell F. Pain Outcomes in a US Children's Hospital: A Prospective Cross-Sectional Survey. Hospital pediatrics 2015;5(1):18-26.
- [16] Gao H, Gao H, Xu G, Li M, Du S, Li F, Zhang H, Wang D. Efficacy and safety of repeated oral sucrose for repeated procedural pain in neonates: A systematic review. Int J Nurs Stud 2016;62:118-125.
- [17] Goodman JE, McGrath PJ. The epidemiology of pain in children and adolescents: a review. Pain 1991;46(3):247-264.
- [18] Goubert L, Simons LE. Cognitive styles and processes in paediatric pain. In: P McGrath, ., B Stevens, S Walker, W Zemsky, editors. Oxford textbook of paediatric pain Oxford University Press, 2013. pp. 95–101.
- [19] Grunau RE, Whitfield MF, Petrie-Thomas J, Synnes AR, Cepeda IL, Keidar A, Rogers M, Mackay M, Hubber-Richard P, Johannesen D. Neonatal pain, parenting stress and interaction, in relation to cognitive and motor development at 8 and 18 months in preterm infants. Pain 2009;143(1-2):138-146.
- [20] Hechler T, Dobe M, Zernikow B. Commentary: A worldwide call for multimodal inpatient treatment for children and adolescents suffering from chronic pain and pain-related disability. Journal of pediatric psychology 2010;35(2):138-140.
- [21] Hestbaek L, Leboeuf-Yde C, Kyvik KO, Manniche C. The course of low back pain from adolescence to adulthood: eight-year follow-up of 9600 twins. Spine (Phila Pa 1976) 2006;31(4):468-472.
- [22] Huguet A, Miro J. The severity of chronic pediatric pain: an epidemiological study. J Pain 2008;9(3):226-236.
- [23] Immunize Canada. Reduce the Pain of Vaccination in Kids and Teens, 2014.
- [24] Karlson K, ., Darcy L, Enskär K. The Use of Restraint is Never Supportive (Poster). Nordic Society of Pediatric Hematology/Oncology (NOPHO) 34th Annual meeting 2016 and 11th Biannual Meeting of Nordic Society of Pediatric Oncology Nurses (NOBOS). Reykjavik, Iceland, 2016.
- [25] Kennedy A, Basket M, Sheedy K. Vaccine attitudes, concerns, and information sources reported by parents of young children: results from the 2009 HealthStyles survey. Pediatrics 2011;127 Suppl 1:S92-99.
- [26] King S, Chambers CT, Huguet A, MacNevin RC, McGrath PJ, Parker L, MacDonald AJ. The epidemiology of chronic pain in

- children and adolescents revisited: a systematic review. *Pain* 2011;152(12):2729-2738.
- [27] Lunoe MM, Drendel AL, Brousseau DC. The use of the needle-free jet injection system with buffered lidocaine device does not change intravenous placement success in children in the emergency department. *Acad Emerg Med* 2015;22(4):447-451.
- [28] Lunoe MM, Drendel AL, Levas MN, Weisman SJ, Dasgupta M, Hoffmann RG, Brousseau DC. A Randomized Clinical Trial of Jet-Injected Lidocaine to Reduce Venipuncture Pain for Young Children. *Ann Emerg Med* 2015;66(5):466-474.
- [29] McMurtry CM, Pillai Riddell R, Taddio A, Racine N, Asmundson GJ, Noel M, Chambers CT, Shah V, HelpinKids, Adults T. Far From "Just a Poke": Common Painful Needle Procedures and the Development of Needle Fear. *Clin J Pain* 2015;31(10 Suppl):S3-11.
- [30] McMurtry CM, Taddio A, Noel M, Antony MM, Chambers CT, Asmundson GJ, Pillai Riddell R, Shah V, MacDonald NE, Rogers J, Bucci LM, Mousmanis P, Lang E, Halperin S, Bowles S, Halpert C, Ipp M, Rieder MJ, Robson K, Uleryk E, Votta Bleeker E, Dubey V, Hanrahan A, Lockett D, Scott J. Exposure-based Interventions for the management of individuals with high levels of needle fear across the lifespan: a clinical practice guideline and call for further research. *Cognitive behaviour therapy* 2016;45(3):217-235.
- [31] Postier AC, Eull D, Schulz C, Fitzgerald M, Symalla B, Watson D, Goertzen L, Friedrichsdorf SJ. Pain Experience in a US Children's Hospital: A Point Prevalence Survey Undertaken After the Implementation of a System-Wide Protocol to Eliminate or Decrease Pain Caused by Needles. *Hospital pediatrics* 2018;8(9):515-523.
- [32] Ramsey LH, Karlson CW, Collier AB. Mirror Therapy for Phantom Limb Pain in a 7-Year-Old Male with Osteosarcoma. *J Pain Symptom Manage* 2017;53(6):e5-e7.
- [33] Roofthoof DW, Simons SH, Anand KJ, Tibboel D, van Dijk M. Eight years later, are we still hurting newborn infants? *Neonatology* 2014;105(3):218-226.
- [34] Shah PS, Herbozo C, Aliwalas LL, Shah VS. Breastfeeding or breast milk for procedural pain in neonates. *Cochrane Database Syst Rev* 2012;12:CD004950.
- [35] Shomaker K, Dutton S, Mark M. Pain Prevalence and Treatment Patterns in a US Children's Hospital. *Hospital pediatrics* 2015;5(7):363-370.
- [36] Stanford EA, Chambers CT, Biesanz JC, Chen E. The frequency, trajectories and predictors of adolescent recurrent pain: a population-based approach. *Pain* 2008;138(1):11-21.
- [37] Stevens B, Yamada J, Ohlsson A, Haliburton S, A. S. Sucrose for analgesia in newborn infants undergoing painful procedures. *Cochrane Database Syst Rev* 2016;7:CD001069.
- [38] Stevens BJ, Harrison D, Rashotte J, Yamada J, Abbott LK, Coburn G, Stinson J, Le May S. Pain assessment and intensity in hospitalized children in Canada. *The journal of pain : official journal of the American Pain Society* 2012;13(9):857-865.
- [39] Taddio A, Appleton M, Bortolussi R, Chambers C, Dubey V, Halperin S, Hanrahan A, Ipp M, Lockett D, MacDonald N, Midmer D, Mousmanis P, Palda V, Pielak K, Riddell RP, Rieder M, Scott J, Shah V. Reducing the pain of childhood vaccination: an evidence-based clinical practice guideline. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 2010;182(18):E843-855.
- [40] Taddio A, Chambers CT, Halperin SA, Ipp M, Lockett D, Rieder MJ, Shah V. Inadequate pain management during routine childhood immunizations: the nerve of it. *Clin Ther* 2009;31 Suppl 2:S152-167.
- [41] Taddio A, Ipp M, Thivakaran S, Jamal A, Parikh C, Smart S, Sovran J, Stephens D, Katz J. Survey of the prevalence of immunization non-compliance due to needle fears in children and adults. *Vaccine* 2012;30(32):4807-4812.
- [42] Taddio A, Katz J, Ilersich AL, Koren G. Effect of neonatal circumcision on pain response during subsequent routine vaccination. *Lancet* 1997;349(9052):599-603.
- [43] Taddio A, McMurtry CM, Shah V, Riddell RP, Chambers CT, Noel M, MacDonald NE, Rogers J, Bucci LM, Mousmanis P, Lang E, Halperin SA, Bowles S, Halpert C, Ipp M, Asmundson GJ, Rieder MJ, Robson K, Uleryk E, Antony MM, Dubey V, Hanrahan A, Lockett D, Scott J, Votta Bleeker E, HelpinKids, Adults. Reducing pain during vaccine injections: clinical practice guideline. *CMAJ* 2015;187(13):975-982.
- [44] Taddio A, Parikh C, Yoon EW, Sgro M, Singh H, Habtom E, Ilersich AF, Pillai Riddell R, Shah V. Impact of parent-directed education on parental use of pain treatments during routine infant vaccinations: a cluster randomized trial. *Pain* 2015;156(1):185-191.
- [45] Taddio A, Pillai Riddell R, Ipp M, Moss S, Baker S, Tolkin J, Malini D, Feerasta S, Govan P, Fletcher E, Wong H, McNair C, Mithal P, Stephens D. Relative effectiveness of additive pain interventions during vaccination in infants. *CMAJ* 2016.
- [46] Taddio A, Shah V, McMurtry CM, MacDonald NE, Ipp M, Riddell RP, Noel M, Chambers CT, HelpinKids, Adults T. Procedural and Physical Interventions for Vaccine Injections: Systematic Review of Randomized Controlled Trials and Quasi-Randomized Controlled Trials. *Clin J Pain* 2015;31(10 Suppl):S20-37.

- [47] Taylor EM, Boyer K, Campbell FA. Pain in hospitalized children: a prospective cross-sectional survey of pain prevalence, intensity, assessment and management in a Canadian pediatric teaching hospital. *Pain Res Manag* 2008;13(1):25-32.
- [48] Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, Cohen M, Evers S, Finnerup NB, First MB, Giamberardino MA, Kaasa S, Kosek E, Lavand'homme P, Nicholas M, Perrot S, Scholz J, Schug S, Smith BH, Svensson P, Vlaeyen JW, Wang SJ. A classification of chronic pain for ICD-11. *Pain* 2015;156(6):1003-1007.
- [49] Turk D, Okifuji A. Pain terms and taxonomies of pain. In: J Bonica, J Loeser, C Chapman, D Turk, S Butler, editors. *Bonica's management of pain* Lippincott Williams & Wilkins, 2001.
- [50] Twycross A, Collis S. How well is acute pain in children managed? A snapshot in one English hospital. *Pain Manag Nurs* 2013;14(4):e204-215.
- [51] Uman LS, Birnie KA, Noel M, Parker JA, Chambers CT, McGrath PJ, Kisely SR. Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database Syst Rev* 2013(10):CD005179.
- [52] Valeri BO, Ranger M, Chau CM, Cepeda IL, Synnes A, Linhares MB, Grunau RE. Neonatal Invasive Procedures Predict Pain Intensity at School Age in Children Born Very Preterm. *Clin J Pain* 2015.
- [53] Victoria NC, Murphy AZ. Exposure to Early Life Pain: Long Term Consequences and Contributing Mechanisms. *Curr Opin Behav Sci* 2016;7:61-68.
- [54] Walther-Larsen S, Pedersen MT, Friis SM, Aagaard GB, Romsing J, Jeppesen EM, Friedrichsdorf SJ. Pain prevalence in hospitalized children: a prospective cross-sectional survey in four Danish university hospitals. *Acta Anaesthesiol Scand* 2016.
- [55] Zhu LM, Stinson J, Palozzi L, Weingarten K, Hogan ME, Duong S, Carbajal R, Campbell FA, Taddio A. Improvements in pain outcomes in a Canadian pediatric teaching hospital following implementation of a multifaceted knowledge translation initiative. *Pain research & management : the journal of the Canadian Pain Society = journal de la societe canadienne pour le traitement de la douleur* 2012;17(3):173-179.

AUTHORS

Liesbet Goubert, PhD
Professor of Clinical Health Psychology
Department of Experimental-Clinical and Health Psychology
Ghent University
Ghent, Belgium

Stefan J. Friedrichsdorf, MD, FAAP
Medical Director, Department of Pain Medicine, Palliative Care and Integrative Medicine, Children's Hospitals and Clinics of Minnesota
Associate Professor of Pediatrics, University of Minnesota
2525 Chicago Avenue South
Minneapolis, MN 55404, U.S.A.
phone +1-(612) 813-6405
Fax +1-(612) 813-7199
stefan.friedrichsdorf@childrensmn.org
<https://www.childrensmn.org/painpalliativeintegrativemed>



© Copyright 2019 International Association for the Study of Pain. All rights reserved.

IASP brings together scientists, clinicians, health-care providers, and policymakers to stimulate and support the study of pain and translate that knowledge into improved pain relief worldwide.

About the International Association for the Study of Pain®

IASP is the leading professional forum for science, practice, and education in the field of pain. [Membership is open to all professionals](#) involved in research, diagnosis, or treatment of pain. IASP has more than 7,000 members in 133 countries, 90 national chapters, and 20 Special Interest Groups.

As part of the Global Year Against Pain in the Most Vulnerable, IASP offers a series of Fact Sheets that cover specific topics related to pain in vulnerable populations. These documents have been translated into multiple languages and are available for free download. Visit www.iasp-pain.org/globalyear for more information.



© Copyright 2019 International Association for the Study of Pain. All rights reserved.

IASP brings together scientists, clinicians, health-care providers, and policymakers to stimulate and support the study of pain and translate that knowledge into improved pain relief worldwide.